

# **Amended Environmental Assessment**

## **Public Hunting**

**On**

### **Petit Manan National Wildlife Refuge (Maine Coastal Islands National Wildlife Refuge)**

**Addison, Jonesport, Machiasport, Milbridge, Roque Bluffs, Steuben - Washington County;  
Bar Harbor, Gouldsboro, Swan's Island, Tremont, Winter Harbor - Hancock County;  
Criehaven Twp., Friendship, St. George - Knox County;  
Boothbay, South Bristol - Lincoln County;  
Phippsburg, Sagadahoc County;  
Harpwell - Cumberland County, Maine**

February 2007

U.S. Department of the Interior  
Fish and Wildlife Service  
Maine Coastal Islands National Wildlife Refuge  
P.O. Box 279  
Milbridge, ME 04658

UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

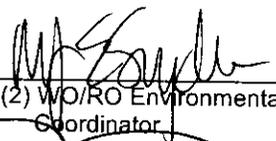
Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA), and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and determined that the action of (describe action):

Check One:

- is a categorical exclusion as provided by 51 6 DM 2, Appendix I and 516 DM 6, Appendix 1. No further NEPA documentation will therefore be made.
- is found not to have significant environmental effects as determined by the attached environmental assessment and finding of no significant impact.
- is found to have significant effects and, therefore, further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an EIS.
- is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.
- is an emergency action within the context of 40 CFR 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents (list):

Signature Approval:

 (1) Originator	<u>4-17-07</u> Date	 (2) WO/RO Environmental Coordinator	<u>4/25/07</u> Date
 Acting AD/ARD	<u>4-27-07</u> Date	 (4) Director/Regional Director	<u>4-27-07</u> Date Acting

**FINDING OF NO SIGNIFICANT IMPACT  
MAINE COASTAL ISLANDS NWR COMPLEX  
PUBLIC HUNTING**

**The U.S. Fish and Wildlife Service proposes to open** Petit Manan National Wildlife Refuge (Maine Coastal Islands NWR, see explanation of name change in EA page 5) to public hunting. The Draft Amended Environmental Assessment (EA) for public hunting was issued on March 15, 2007. The Hunt EA evaluated three hunt program alternatives, carefully considering their impacts on the environment, and their potential contribution to the mission of the National Wildlife Refuge System, and the refuge's purposes and goals. Hunting activities will be permitted, but administratively limited to those areas specified in the refuge-specific regulations. All or parts of the refuge may be closed to hunting at any time if necessary for public safety, to provide wildlife sanctuary, or for other reasons.

**The Service has analyzed the following alternatives to the proposal in an Environmental Assessment (copy attached):**

A. Alternative 1 - The Refuge would be closed to all hunting

B. Alternative 2 - This alternative was the Service's Proposed Action in the Draft EA. Under this alternative a portion of Petit Manan Point would remain open to a one week muzzleloader season for white-tailed deer. Bois Bubert Island would remain open to white-tailed deer hunting. Sawyer's Marsh division and Gouldsboro Bay Divisions would remain open to hunting of migratory game birds and waterfowl, small and big game. The 26 islands listed in table 1 would remain open to migratory waterfowl hunting. The hunt would be conducted in accordance with State and Federal regulations with the following exceptions:

- 1) "the unauthorized distribution of bait and the hunting over bait is prohibited on wildlife refuge areas" (50 CFR, 32.2(h)).
- 2) Only non-toxic shot may be used or in the possession of the hunter when hunting migratory game birds and when shotgun hunting upland species other than white-tailed deer. (50 CFR 32.2(k))
- 3) The use of pursuit or trailing dogs is prohibited on the Refuge. This determination was based on the small acreage which we propose to open to hunting, and the close proximity of Refuge lands to residential development. This position is also consistent with the Service's draft policy on hunting within the National Wildlife Refuge System.
- 4) The Refuge will be open to the hunting of coyotes no earlier than November 1<sup>st</sup>, and no later than March 31<sup>st</sup>. Although these dates limit the hunting season, it minimizes potential conflict with other Refuge visitors.
- 5) Black bear hunting will only be permissible during the firearm season for white-tailed deer.

- 6) The Refuge prohibits the use of any permanent tree stands, including the insertion of metallic or ceramic objects in a tree for the purpose of erecting a ladder or tree stand (50 CFR 32.2(i)). Temporary tree stands are allowed, but must be clearly labeled with the names and addresses of individuals using them. All stands must be removed by the last day of the white-tailed deer hunting season.
- 7) Permanent waterfowl blinds may not be erected on the Refuge. All temporary blinds, concealment materials, boats, and decoys must be removed at the end of each day.
- 8) Cutting or destruction of Refuge vegetation is prohibited (50 CFR 27.51).
- 9) Falconry is not permitted on the Refuge.
- 10) Due to potential conflicts with ongoing Refuge research on neotropical migrant species and potential conflicts with other Refuge visitors, the hunting of crows is prohibited on the Refuge.
- 11) The Refuge will be closed to all visitation from sunset to sunrise. However, during the hunting season, hunters will be allowed to enter the Refuge ½ hour prior to sunrise and remain ½ hour after sunset.

C. Alternative 3 - This alternative provides the similar hunting opportunities to alternative 2, however, the hunt would occur under controlled hunting conditions. A portion of Petit Manan Point would be open to a one week muzzleloader season for white-tailed deer. Bois Bubert Island would be open to white-tailed deer hunting. Sawyer's Marsh and Gouldsboro Bay Divisions would be open to the hunting of migratory game birds and waterfowl, small and big game. The 26 islands listed in Table 1 would be open to migratory waterfowl hunting. All hunts would be conducted under controlled hunting conditions (i.e. permit system). The hunt would be conducted in accordance with State and Federal regulations, with the exceptions listed under Alternative 2.

**The proposed action was selected over the other alternatives because:**

1. The preferred alternative would allow the refuge to manage wildlife populations, allow the public to harvest a renewable resource, promote a wildlife-oriented recreational opportunity, elevate awareness of Maine Coastal Islands NWR Complex and the National Wildlife Refuge System.
2. The proposed action is compatible with the purposes for which Maine Coastal Islands NWR was established and general Service policy regarding hunting on units of the National Wildlife Refuge System.

3. This proposal does not initiate widespread controversy.
4. There are no conflicts with local, state, regional, or federal plans or policies.

**Implementation of the agency's decision would be expected to result in the following environmental, social, and economic effects:**

1. The refuge could better manage wildlife populations.
2. This would allow the public to harvest a renewable resource.
3. The public would have increased opportunity for wildlife-oriented recreation.
4. Local businesses would benefit from hunters visiting from surrounding areas.
5. The Service will be perceived as a good steward of the land by continuing traditional uses of land in Maine.

**Copies of the Environmental Assessment are available by writing:**

Maine Coastal Islands NWR  
P.O. Box 279  
14 Water Street  
Milbridge, Maine 04658

**Therefore, it is my determination that the proposal does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102(2)(c) of the National Environment Policy Act of 1969 (as amended). As such, an environmental impact statement is not required. This determination is based on the following factors (40 CFR 1508.27):**

1. **Both beneficial and adverse effects have been considered and this action will not have a significant effect on the human environment.**
2. **The action will not significantly effect any unique characteristics of the geographic area such as proximity to historical or cultural resources, wild and scenic rivers, or ecologically critical areas.**
3. **There will be no cumulative significant impacts on the environment. Cumulative impacts have been analyzed with consideration of other similar activities on adjacent lands, in past action, and in foreseeable future actions.**
4. **The action will not significantly affect any site listed in, or eligible for listing in, the National Register of Historic Places, nor will they cause loss or destruction of significant scientific, cultural, or historic resources.**
5. **The action is not likely to adversely affect endangered or threatened species or their habitats (Intra-Service Section 7 Biological Evaluation Form attached to EA).**

**6. The actions will not lead to a violation of federal, state, or local laws imposed for the protection of the environment.**

**References:** Amended Environmental Assessment Public Hunting on Petit Manan NWR February 2007, Hunt Plan, Compatibility Determination, Refuge-specific Regulations, Intra-Service Section 7 Evaluation



Marvin Moriarty  
Regional Director  
U.S. Fish and Wildlife Service  
Hadley, Massachusetts

**Acting**

4-27-07

Date

## Table of Contents

<b>I.</b>	<b>Purpose and Need for Action.....</b>	<b>5</b>
<b>II</b>	<b>Proposal.....</b>	<b>6</b>
<b>III</b>	<b>Location.....</b>	<b>6</b>
<b>IV</b>	<b>Alternatives Including the Proposed Action.....</b>	<b>9</b>
	A. Alternative 1 - Refuge closed to all Hunting.....	9
	B. Alternative 2 - Proposed Action.....	9
	C. Alternative 3 – Hunt Conducted Under Permit System.....	10
<b>V</b>	<b>Affected Environment.....</b>	<b>10</b>
	A. Brief History, Purpose, and Objectives of the Refuge.....	10
	Physical Resources.....	11
	Geology.....	11
	Soils and Hydrology.....	12
	Air Quality.....	13
	B. Biological Resources.....	14
	Vegetation.....	14
	Wildlife.....	16
	Federal Endangered and Threatened Species.....	16
	Migratory Wildlife.....	17
	Resident Wildlife.....	18
	C. Socio-economic Issues.....	23
	D. Cultural and Historical Resources.....	24
<b>VI</b>	<b>Environmental Consequences and Cumulative Impacts Analysis.....</b>	<b>26</b>
	A. Alternative 1 - Refuge closed to all Hunting.....	26
	Endangered and Threatened Species.....	27
	Migratory Species.....	27
	Resident Species.....	29
	Socio-economic Impacts.....	33
	Cultural and Historical Resource Impacts.....	33
	B. Alternative 2 - Proposed Action.....	33
	Physical Impacts.....	34

Endangered and Threatened Species.....	34
Migratory Species.....	35
Resident Species.....	35
Socio-economic Impacts.....	36
Cultural and Historical Resource Impacts.....	37
C. Alternative 3 – Hunt Conducted Under Permit System.....	37
Physical Impacts.....	38
Biological Impacts.....	38
Socio-economic Impacts.....	38
Cultural and Historical Resource Impacts.....	38
D. Anticipated Direct and Indirect Impacts of Proposed Hunt on Wildlife	
Species.....	38
Endangered Species.....	38
Migratory Birds.....	39
Resident Species.....	41
Non-hunted Wildlife Species.....	43
E. Anticipated Direct and Indirect Impacts on Proposed Action on Refuge	
Programs, Facilities, and Cultural Resources.....	44
Other Refuge Wildlife-Dependent Recreation.....	44
Refuge Facilities.....	46
Cultural and Historical Resources.....	47
F. Anticipated Impacts of Proposed Hunt on Refuge Environment and	
Community.....	48
G. Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and	
Anticipated Impacts.....	49
H. Anticipated Impacts of Individual Hunts are Allowed to Accumulate.....	50
<b>VII. Consultation and Coordination with Others.....</b>	<b>50</b>
<b>VIII. Regulatory Compliance.....</b>	<b>51</b>
<b>IX. Appendices.....</b>	<b>51</b>
<b>X. Literature Cited.....</b>	<b>64</b>

## Tables and Figures

Table 1: List of 26 Islands in Maine Coastal Islands NWR Proposed for Migratory Waterfowl Hunting.....	8
Table 2: Habitats Found on Maine Coastal Islands NWR.....	15
Table 3: Mid-winter Waterfowl Survey Data for Maine, January 1997-2006.....	19
Table 4: Grouse harvests by moose hunters and others in their hunting party.....	20
Table 5: Coastal Maine Counties and Their Populations.....	23
Table 6: Preliminary Migratory Bird HIP estimates of snipe and woodcock harvest & hunter activity in Maine during the 2003-2004 hunting seasons.....	27
Table 7: Historic Maine dabbling and diving duck harvest statistics,1961-2001.....	28
Table 8: Sea duck harvest statistics, 1961-2001.....	28
Table 9: White-tailed Deer Harvest Summary for WMD 27 (MDIFW 2001 – 05).....	30
Table 10: Maine bear hunter participation and harvest levels.....	31
Table 11: Number of bears harvested in Maine in WMD 27 by year.....	31
Table 12: Harvest of furbearers from Maine’s pelt-tagging records.....	32
Table 13: 2006 Hunting Seasons for Maine.....	50
Figure 1: Petit Manan Point Division and Designated Hunt Zone.....	68
Figure 2: Sawyer’s Marsh Division.....	69
Figure 3: Gouldsboro Bay Division.....	70
Figure 4: Bois Bubert Island.....	71
Figure 5: Islands within Maine Coastal Islands NWR open to Waterfowl Hunting .....	72

## **I. Purpose and Need for Action**

The purpose of this assessment is to discuss the environmental effects of conducting an annual hunting program at Petit Manan National Wildlife Refuge (Refuge) in Addison, Jonesport, Machiasport, Milbridge, Roque Bluffs, and Steuben, Washington County; Bar Harbor, Gouldsboro, Swan's Island, Tremont, and Winter Harbor, Hancock County; Criehaven Township, Friendship, St. George, Knox County; Boothbay and South Bristol, Lincoln County; Phippsburg, Sagadahoc County, and Harpswell, Cumberland County, Maine.

Petit Manan was officially established as a national wildlife refuge on July 9, 1974. The Refuge has continued to acquire lands from willing sellers or through donation, and now includes four mainland units (4,261 acres) and 48 islands (3,862 acres). Public use on the land prior to acquisition by the Service has varied significantly among the parcels. Some offshore islands receive little if any public visitation, while two of the mainland units have a long tradition of public access, including hunting. Prior to acquisition by the Service, access to much of the mainland property was regulated by State wildlife laws and regulations, and the personal wishes of the private owners.

During our Comprehensive Conservation Planning process the Refuge evaluated changing the name of Petit Manan NWR Complex to something that better represented the geographic scope of the Refuge. The Complex consisted of five separate refuge units: Petit Manan, Cross Island, Seal Island, Franklin Island, and Pond Island national wildlife refuges, and spans 250 miles of the coast. The Service changed the name of the refuge complex to Maine Coastal Islands NWR in 2005.

In response to a 2003 lawsuit filed by the Fund for Animals, the U.S. Fish and Wildlife Service (Service) will amend or rewrite environmental assessments that describe hunting programs at eight national wildlife refuges located in the northeast Region. The new environmental assessments will address the cumulative impacts of hunting at all refuges which were named in or otherwise affected by the lawsuit. This document addresses the hunting programs at Maine Coastal Islands National Wildlife Refuge in Maine.

Continuation of traditional uses on lands incorporated into the Refuge is subject to a compatibility determination by the Refuge, to ensure that the use would not conflict with other Refuge objectives. This assurance adheres to the Service policy concerning hunting (Refuge Manual, Chapter 8, paragraph 5.3) which requires consideration of the following criteria and standards:

- (1) compatibility with the purposes for which the Refuge was established, the goals of the Refuge, and the overall objectives of the National Wildlife Refuge System,
- (2) biological soundness,
- (3) economic feasibility, and
- (4) recreational opportunities, including a consideration of the effects of excessive demand on the quality of the hunting experience and public safety.

In addition, the National Wildlife Refuge System Improvement Act of 1997 states that the National Wildlife Refuge System was created to conserve fish, wildlife, and plants and their habitats "...

providing Americans opportunities to participate in compatible wildlife-dependent recreation, including fishing and hunting, on Service lands and to better appreciate the value of, and need for, fish and wildlife conservation.” The Act defines compatible wildlife-dependent recreation as a “legitimate and appropriate general public use of the System.” It establishes hunting, fishing, wildlife observation and photography, and environmental education and interpretation as “priority public uses” where compatible with the mission and purpose of individual national wildlife refuges.

Through this environmental assessment, the Service intends to assess the environmental impact of continuing to allow hunting on the Refuge. The Refuge was originally opened to hunting based on a hunt plan and an environmental assessment completed in 2001.

## **II. Proposal**

The U.S. Fish and Wildlife Service (Service) proposes to continue a public hunting program at Maine Coastal Islands National Wildlife Refuge. The Service has opened portions of the Refuge to the hunting migratory game birds and waterfowl, small and big game. The state of Maine defines big game as: white-tailed deer, moose, black bear, bobcat, raccoon, and wild turkey. Small game is defined as: ruffed grouse, red squirrel, grey squirrel, coyote, opossum, porcupine, snowshoe hare, fox, skunk, and woodchuck. The hunting program is conducted in accordance with State and Federal regulations, National Wildlife System regulations contained in Title 50 of the Code of Federal Regulations (50 CFR), and refuge-specific hunting and public use regulations also contained in 50 CFR.

## **III. Location**

Maine Coastal Islands National Wildlife Refuge is an 8,123 acre complex, consisting of four mainland parcels and 48 islands stretching over 250 miles of the Maine coastline. Habitat throughout the Refuge varies considerably among the individual islands and mainland parcels. However, the entire Refuge is dominated by a marine influence that significantly affects climatic conditions and the species present on the Refuge.

Maine Coastal Islands NWR has opened several sections of the Refuge to hunting of migratory game birds and waterfowl, small and big game. Our primary objectives in establishing a hunt program were to 1) maintain a diversity of habitats within the Refuge that are capable of supporting a diversity and abundance of wildlife species, and 2) provide wildlife - dependent recreational opportunities. All other sections of the Refuge not specifically addressed in this document will remain closed to hunting. All-terrain vehicle (ATV) use is not permitted on any lands within Maine Coastal Islands NWR, and their use during the hunting season will not be allowed.

The Petit Manan Point Division consists of 2,195 acres in the town of Steuben, Washington County (Figure 1). The area has a diversity of habitats, including rocky ledges, sphagnum bogs, cedar swamp, jack pine stands, spruce-fir forests with some mixed hardwoods, coastal raised heath peatlands, fresh and saltwater marshes and old hayfields. The Point also includes over 10 miles of shoreline. The Refuge maintains three freshwater impoundments (112 acres) on the Division, which provide valuable foraging habitat for waterfowl during the fall migration period. A limited area of

Petit Manan Point (655 acres) is open to muzzleloader hunting of white-tailed deer, during one week in December. Areas outside of the designated "Hunt Zone" would remain closed to all hunting. With the exception of the one week deer hunt the entire Petit Manan Point Division would remain closed to all hunting.

The Sawyer's Marsh Division is located in the town of Milbridge, Washington County, (Figure 2) and consists of 1,028 acres acquired through fee title between 1998 and 2005. The Division lies to the northeast of Petit Manan Point, at the head of a broad 95 acre tidal marsh used extensively by migratory shorebirds and waterfowl. The upland habitat surrounding the marsh consists of several large stands of white birch, various other hardwood species, red spruce, and balsam fir. Forest stand age varies throughout the Division, as a portion of the area was burned approximately 50 years ago, and timber harvesting occurred on the property prior to acquisition by the Service. This area is open to the hunting of migratory game birds and waterfowl, small and big game.

The Gouldsboro Bay Division - Gouldsboro, Hancock County (Figure 3) consists of 607 acres along the upper portion of West Gouldsboro Bay. The Service acquired the land through private donation and sale in 1994, 1995, and most recently in 1998. This area is under consideration by Maine Department of Inland Fisheries and Wildlife (MDIFW) for designation as Significant Wildlife Habitat for moderate and high value waterfowl and wading bird habitat under the Natural Resource Protection Act (1988). The area consists of 381 acres of upland habitat (predominantly red spruce / balsam fir), 226 acres of salt marsh and inter-tidal habitat, and two wooded islands in the salt marsh (four acres). This area is open to the hunting of migratory game birds and waterfowl, small and big game.

The Corea Heath Division is an approximately 431 acre raised coastal peatland situated on the Schoodic peninsula in the Town of Gouldsboro, Washington County. The site had been occupied by the U.S. Navy since the 1950's, and was transferred to the Refuge in 2005. Ecological communities occurring on the Corea Heath include: open bog, forested bog, open fen, acidic ledges, coniferous and birch woodlands, and more than a mile of boulder and cobble shoreline. The Navy had designated a 240 acre portion of the heath as an Ecological Preserve Area. In an effort to protect the fragile plant communities in the heath, the Corea Heath Division will remain closed to all hunting.

Bois Bubert Island is located in the town of Milbridge - Washington County, approximately one mile east of Petit Manan Point (Figure 4). In 1980, the Nature Conservancy donated the majority of the 1,321 acre parcel to the Service. This represents approximately 90% of the island, with the remaining 10% privately owned. The island is predominantly forested with red spruce / balsam fir and some mixed hardwoods. Two freshwater wetlands and extensive inter-tidal habitat can be found on the island. This area is open to white-tailed deer hunting. The Service has concluded that Bois Bubert Island would provide little if any opportunity to hunt for upland game and ruffed grouse. Migratory waterfowl hunting is not permitted on Bois Bubert. The Refuge determined that the pond located on the southern portion of the island could provide valuable foraging and roosting habitat to a variety of waterfowl species, and therefore should not be subject to hunting activity.

In addition, we have opened the entire land area of 26 islands within Maine Coastal Islands NWR to public hunting of migratory waterfowl (Figure 5). Although the Refuge evaluated the option of opening all 48 Refuge islands to hunting, this was not considered a viable alternative. Reasons considered in keeping an island closed to hunting include: partial ownership of the island (without

land being posted) or easement, hazardous landing conditions outweighing potential opportunities for hunting, and opportunity for the area to serve as a waterfowl sanctuary. The 26 islands we propose to open to hunting include:

Table 1

<b>Island</b>	<b>Location</b>	<b>Island</b>	<b>Location</b>
Libby	Machiasport, Washington	Trumpet	Tremont, Hancock
Eastern Brothers	Jonesport, Washington	East	Tremont, Hancock
Halifax	Jonesport, Washington	West Barge	Tremont, Hancock
Schoppee	Roque Bluffs, Washington	Matinicus Rock	Criehaven Twp., Knox
Inner Sand	Addison, Washington	Two Bush	St. George, Knox
Petit Manan	Steuben, Washington	Hart	St. George, Knox
Sally	Steuben, Washington	Franklin	Friendship, Knox
Abbott	Steuben, Washington	Little Thrumcap	South Bristol, Lincoln
Egg Rock	Winter Harbor, Hancock	Outer White	Boothbay, Lincoln
South Twinnie	Bar Harbor, Hancock	Outer Heron	Boothbay, Lincoln
John's	Swan's Island, Hancock	Pond	Phippsburg, Sagadahoc
Little Marshall	Swan's Island, Hancock	Upper Flag	Harpwell, Cumberland
Ship	Tremont, Hancock	Ram	Harpwell, Cumberland

## IV. Alternatives Including Proposed Action

During the planning process, three alternatives, including the proposed action and the no action alternatives, were developed. The alternatives are:

**A. Alternative 1** - The Refuge would be closed to all hunting

**B. Alternative 2 - Proposed Action** – A portion of Petit Manan Point would remain open to a one week muzzleloader season for white-tailed deer. Bois Bubert Island would remain open to white-tailed deer hunting. Sawyer’s Marsh Division and Gouldsboro Bay Divisions would remain open to hunting of migratory game birds and waterfowl, small and big game. The 26 islands listed in Table 1 would remain open to migratory waterfowl hunting. The hunt would be conducted in accordance with State and Federal regulations, with the following exceptions.

- 1) “the unauthorized distribution of bait and the hunting over bait is prohibited on wildlife refuge areas” (50 CFR, 32.2(h)).
- 2) Only non-toxic shot may be used or in the possession of the hunter when hunting migratory game birds and when shotgun hunting upland species other than white-tailed deer. (50 CFR 32.2(k))
- 3) The use of pursuit or trailing dogs is prohibited on the Refuge. This determination was based on the small acreage which we propose to open to hunting, and the close proximity of Refuge lands to residential development. This position is also consistent with the Service’s draft policy on hunting within the National Wildlife Refuge System.
- 4) The Refuge will be open to the hunting of coyotes no earlier than November 1<sup>st</sup>, and no later than March 31<sup>st</sup>. Although these dates limit the hunting season, it minimizes potential conflict with other Refuge visitors.
- 5) Black bear hunting will only be permissible during the firearm season for white-tailed deer.
- 6) The Refuge prohibits the use of any permanent tree stands, including the insertion of metallic or ceramic objects in a tree for the purpose of erecting a ladder or tree stand (50 CFR 32.2(i)). Temporary tree stands are allowed, but must be clearly labeled with the names and addresses of individuals using them. All stands must be removed by the last day of the white-tailed deer hunting season.
- 7) Permanent waterfowl blinds may not be erected on the Refuge. All temporary blinds, concealment materials, boats, and decoys must be removed at the end of each day.
- 8) Cutting or destruction of Refuge vegetation is prohibited (50 CFR 27.51).
- 9) Falconry is not permitted on the Refuge.
- 10) Due to potential conflicts with ongoing Refuge research on neotropical migrant species and potential conflicts with other Refuge visitors, the hunting of crows is prohibited on the Refuge.

11) The Refuge will be closed to all visitation from sunset to sunrise. However, during the hunting season, hunters will be allowed to enter the Refuge ½ hour prior to sunrise and remain ½ hour after sunset.

**C. Alternative 3** - This alternative provides the similar hunting opportunities to alternative 2, however, the hunt would occur under controlled hunting conditions. A portion of Petit Manan Point would be open to a one week muzzleloader season for white-tailed deer. Bois Bubert Island would be open to white-tailed deer hunting. Sawyer's Marsh and Gouldsboro Bay Divisions would be open to the hunting of migratory game birds and waterfowl, small and big game. The 26 islands listed in Table 1 would be open to migratory waterfowl hunting. All hunts would be conducted under controlled hunting conditions (i.e. permit system). The hunt would be conducted in accordance with State and Federal regulations, with the exceptions listed under Alternative 2.

## **V. Affected Environment**

**A. Brief History, Purpose, and Objectives of the Refuge:** The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. In accordance with this mission, the Service has identified broad objectives of the National Wildlife Refuge System under which Maine Coastal Islands NWR operates. These are:

- 1) To preserve, restore, and enhance in their natural ecosystems all species of animals and plants that are endangered or threatened on lands of the National Wildlife Refuge System.
- 2) To perpetuate the migratory bird resource for the benefit of the people.
- 3) To preserve the natural diversity and abundance of mammals and non-migratory birds on refuge lands.
- 4) To provide understanding and appreciation of fish and wildlife ecology and our role in the environment, and provide refuge recreational experiences oriented toward wildlife to the extent these activities are compatible with the purpose for which the refuge was established.

The National Wildlife Refuge System Improvement Act of 1997 established six priority public uses, where compatible, of Refuges. These include: hunting, fishing, wildlife observation and photography, and environmental education and interpretation. The Service has gone on further to define specific goals for Maine Coastal Islands NWR.

**Goal 1:** Perpetuate the biological diversity and integrity of upland communities on the Refuge Complex's mainland properties to sustain high quality habitat for migratory birds.

**Goal 2:** Maintain high quality wetland communities on the Refuge Complex's mainland properties, primarily to benefit migratory birds of high conservation priority, while also supporting other native, wetland- dependent species of concern.

**Goal 3:** Perpetuate the biological diversity and integrity of upland communities on the Refuge Complex's islands to sustain high quality habitat for nesting bald eagles and migratory songbirds and raptors, and to protect rare plant sites.

**Goal 4:** Protect the high quality wetland communities on the Refuge Complex's islands to benefit nesting and migrating shorebirds and waterfowl.

**Goal 5:** Protect and restore nesting seabird populations on the Refuge Complex's islands to contribute to regional and international seabird conservation goals.

**Goal 6:** Promote enjoyment and stewardship of coastal Maine wildlife and their habitats by providing priority, wildlife-dependent recreational and educational opportunities.

**Goal 7:** Protect the integrity of coastal Maine wildlife and habitats through an active land acquisition and protection program.

## **Physical Resources**

Maine Coastal Islands National Wildlife Refuge is an 8,123 acre complex, consisting of four mainland parcels and 48 islands stretching over 250 miles of the Maine coastline. The four mainland divisions are: 1) Petit Manan Point, Steuben, Washington County, 2) Sawyer's Marsh Division, Milbridge, Washington County, 3) Gouldsboro Bay Division, Gouldsboro, Hancock County, and 4) Corea Heath, Gouldsboro, Hancock County. The Refuge protects over 75 miles of shoreline and 1,777 acres of inter-tidal habitat. Major objectives of the Refuge include protecting and restoring populations of colonial nesting seabirds and providing important migratory stopover points for waterfowl and shorebirds along the Maine coast.

## **Geology**

The Maine coast has a long and complicated geologic history. The bedrock of the region was formed largely through igneous, volcanic and metamorphic processes during Paleozoic times. It has been affected by a variety of geologic events, including mountain building, erosion, sedimentation and glaciation (Griffith 1976).

The indented character of the Maine coast is typical of shorelines of recent submergence. Before Pleistocene glaciation, the Maine shoreline was several hundred miles further south. The mile-high sheet of ice (7 million tons/acre) that subsequently formed across the state warped the crust downward along a tectonically weak zone running northeast-southwest that corresponds with the present configuration of the coastline. Later, enormous volumes of water released by glacial meltwaters contributed to a worldwide rise in sea level that inundated what had been coastal lowlands.

Geologically, the Maine coast can be divided into five distinct sections (Conkling 1995). The section from Kittery to Cape Elizabeth represents the northern end of the crystalline rocks characteristic of the Atlantic coast north of Cape Cod. Topographic relief is characteristically slight, and the shoreline straight. Maine's most famous beaches and thousands of acres of salt marsh are characteristic, but relatively few islands are located in this section of the coast.

The coast from Cape Elizabeth to the Penobscot River, including Casco, Sheepscoot, Boothbay, John's, Muscongus, and Western Penobscot bays, is characterized by long, narrow arms of the sea which extend far into the coastal lowlands. Islands in this section of the coast are also generally long and narrow, trending just east of north, corresponding to the general trend of the bedrock: quartzites, slates, schists, and granite. The deep, elongated bays in this section represent old stream and river drainage systems that were carved out in the folds of the strata, then scoured by glaciers and later filled by rising seas. The coast from Vinalhaven to Jonesport is primarily the realm of white and pink granites. This section includes the broad and wide East Penobscot, Jericho, Blue Hill, Frenchman's, Pleasant, and Eastern and Western Bays. There are more islands in this section than in any other; most are forested with spruce. In contrast to the long, narrow islands to the west, islands in this section, whether large or small, are mostly rounded and dome-like, owing to the manner in which the once liquid granite was emplaced and cooled amid overlying rocks. This section also includes the highest coastal mountains, and the only fjord-like feature (Somes Sound) on the U.S. Atlantic coast. To many, this section is the most spectacular scenic area on the coast. East of the Roque Island archipelago, the bays broaden and shorten as more ancient volcanic rocks and volcanic breccia (consolidated debris from volcanic eruptions) dominate the landscape. East of Cape Wash, bays and islands disappear altogether until Cobscook Bay. Huge tides (20 feet at West Quoddy Head), increased fog, and rugged gray and dark-green cliffs, sea stacks, fewer people, and rare seabirds at the southern end of their breeding range characterize this section "way Downeast."

### **Soils and Hydrology**

Soils were mainly deposited as the last glacier retreated some 13 to 15,000 years ago, leaving a soil cover mixture of sand, gravel, silt, and clay (Conkling 1995). Hydrology consists of bedrock aquifers underlying the mainland portion of the state. "Sole source aquifer" is a designation given for every island off the coast and both tidal and non-tidal surface waters (Conkling 1995). Tidal waters include ponds, salt marshes, creeks, coves, and mud flats. The mean tidal range within the region tends to increase as one moves northeast along the coast. It ranges from 8.8 feet in Muscongus Bay to 10.2 feet at Southwest Harbor on Mount Desert Island (TRIGOM - PARC, 1974). The non-tidal waters include marshes, bogs, ponds, creeks, artificial impoundments, and seasonally flooded forests. Non-tidal waters are mainly fed from annual precipitation or natural springs.

## **Air Quality**

Both State and Federal agencies monitor air quality in response to State and Federal requirements to determine whether the air we breathe is maintaining ambient air quality standards designed to protect the health and welfare of the public. In addition to human health, good air quality is essential to sustaining healthy ecosystems. Healthy and productive vegetation, wildlife, water, and soils, and the protection of visibility, and geological, archeological, historical, and cultural resources are all values associated with clean air.

According to the State of Maine DEP, the state exceeds acceptable levels for particulates, sulfur dioxide, and carbon monoxide (ME DEP; [www.state.me.us/DEP/pubs/environment](http://www.state.me.us/DEP/pubs/environment) 2002). The primary concern is ground ozone levels in southern counties. A particular health hazard with ozone is the fact it aggravates asthma and other chronic lung diseases. The precursors to ozone are emitted in automobile exhaust, gasoline, and oil storage and transfer, and from common use of paint solvents, degreasing agents, cleaning fluids and similar materials. Unfortunately, some of these compounds are generated in western regions of the country and are carried to Maine by prevailing wind patterns, so efforts to reduce levels are challenging.

Ozone formation is temperature dependent and is more likely to form in the warmer summer temperatures. In 1989, there were 12 days when Maine exceeded the Federal standards for acceptable 8-hour ozone level days. This has been declining, and in 2001, there were 7 days in which the 8-hour levels were exceeded.

Air toxics are another serious concern in Maine. Benzene concentrations are used as an indicator for other hazardous air pollutants. One of the primary sources for these chemicals is car exhaust and evaporation of gasoline during refueling. Over the past 8 years, benzene concentrations were highest in 1994 at 0.9 ppb, decreased to 0.4 ppb in 2000, but then increased to 0.7 in 2001 (ME DEP; [www.state.me.us/DEP/pubs/environment](http://www.state.me.us/DEP/pubs/environment) 2002).

We do not have air quality monitoring stations on the Refuge, so we have limited local information. Instead, we look to air quality monitoring conducted on Moosehorn Refuge, located in Baring Maine. In 1978, Congress designated the 7,000 acre Moosehorn Refuge Wilderness Area a Class 1 air quality area. Class 1 areas receive the highest levels of protection under the Clean Air Act. Our National Air Quality Program has an established air quality monitoring station to measure compliance with Federal standards.

Most of the air pollutants affecting Moosehorn Refuge would likely also occur at Maine Coastal Islands NWR (Porter, pers com, 2002). Pollution sources include power plants, industry (such as pulp mills), and automobiles. Pollutant haze often reduces visibility in the wilderness area. Occasionally, smoke plumes from nearby industry drift into the area. The area receives acid rain (and acid snow, fog, and dryfall), with a pH of about 4.6. Acid rain is the broad term used to describe several ways that a weak solution of inorganic acids, such as nitric and sulfuric acid falls out of the atmosphere as rain, snow, mist or fog. Sulfur dioxide and oxides of nitrogen are the primary causes of acid rain. Most of this comes from electric-power generation that relies on burning fossil fuels, such as coal. Acidification in surface water is an increasing concern.

In addition, it is likely that mercury deposition from the atmosphere and bioaccumulation is occurring in the area at a rate similar to that demonstrated in Acadia National Park and the

Penobscot River valley. Mercury becomes airborne through burning coal, oil, wood, or natural gas, incinerating mercury-containing garbage, and through industrial processes that use mercury. Contaminant research has documented increasing concentrations of mercury in various species of wildlife as you move eastward across the country, with highest documented levels recorded in Maine (Evers pers. comm.). Mercury bioaccumulation in fish has prompted the State of Maine to advise certain at-risk persons not to eat fish from lakes and ponds in the state.

The monitoring at Moosehorn Refuge include documenting the cumulative effects of these air pollutants and their injury to vegetation, wildlife, soils, water quality, visibility, odor, and cultural and archeological resources. Surveys in the wilderness area in 1998 to 2001 documented symptoms of ozone injury, such as stippling and chlorosis, on several plant species. Vegetation such as black cherry, milkweed, and wild grape are all readily subject to such injury.

Acadia National Park also has two air quality monitoring sites at McFarland Hill and Cadillac Mountain. Pollutants monitored include: ozone, nitrogen oxides, fine particulates, visibility, mercury, acid deposition, UV-b radiation, precipitation and other meteorological parameters. In 2001, the park recorded 10 days when the air was unhealthy to breathe due to ground-level ozone levels. Park studies have shown numerous plant species harmed by ozone exposure including black cherry, quaking aspen, and decreased growth rates in eastern white pine.

The estimated annual average visibility at the park is 110 miles. Air pollution reduces visibility during the summer months to approximately 33 miles, dropping to only a few miles on the haziest summer days. Sulfur dioxide and nitrogen oxide are affecting surface waters of the park. Its rocky soils give streams and lakes little protection from acid rain. The average pH of precipitation measured has ranged from 4.4 to 4.6. This value is ten times the acidity of natural rainfall. Park staff have measured acid fog with a pH of 3.0, comparable to grapefruit juice. Fish with high levels of mercury have been documented in its lakes since the early 1990's. Mercury concentrations in some species of warm water fish (such as bass, perch, and pickerel) are among the highest ever recorded in the U.S. ([www.npca.org](http://www.npca.org))

## **B. Biological Resources**

### **Vegetation**

The Refuge is an ecologically diverse complex, providing both food and shelter to a tremendous variety of resident and migratory species. Habitats found on the Refuge include: red and white spruce forests, balsam fir stands, mixed hardwoods, jack pine stands, blueberry barrens, old hayfields, cedar swamps, fresh and saltwater marshes, raspberry thickets, grass- and shrub-covered islands, granite-lined shores and cobble beaches (Table 2). The inter-tidal areas adjacent to the Refuge provide excellent foraging areas for both waterfowl and shorebirds.

Table 2: Habitats Found on Maine Coastal Islands NWR

Habitats	Petit Manan Point	Gouldsboro Bay	Sawyer's Marsh	Corea Heath	Mainland Total Acreage	Bois Bubert Island	Cross Island NWR	Other Islands*	Total Acreage
Open Field	70	0	0	0	70	0	0	442.5	512.5
Early Successional / Forested	226	5	4	26	261	164	29	105.5	559.5
Freshwater Wetland	219	0	69	210	498	28	99	49	674
Maritime Saltmarsh & Estuary	8	28	97	0	133	4	27	0	164
Mature Conifer Forest	905	237	403	129	1,690	734	1,248	165.5	3,837.5
Northern Hardwood-Mixed Forest	453	126	455	59	1,093	92	53	0	1,238
Jack Pine Woodland	11	0	0	1	12	28	0	0	40
Saltwater tidal / Aquatic bed	302	211	0	3	516	271	240	0	1,027
Camps / Buildings	1	0	0	3	4	0	0	0	4
Ledge	0	0	0	0	0	0	7	76	83
Shoreline Tidal (miles)	9.5	2.2	2.3	1.1	-	8.5	14.9	36.5	-
Shoreline Freshwater (miles)	9.3	0	5.2	5.9	-	1.0	1.5	0	-
Totals	2,195	607	1,028	431	4,277	1,321	1,703	838.5	8,123

### Mainland Divisions

The Petit Manan Point Division consists of 2,195 acres in the town of Steuben, Washington County (Figure 1). The area has an uncommon diversity of habitats, including rocky ledges, sphagnum bogs, cedar swamp, jack pine stands, red spruce forests with Spruce-fir forests with some mixed hardwoods, coastal raised heath peatlands, fresh and saltwater marshes and old hayfields. The Point also includes over 10 miles of shoreline. The Refuge maintains three freshwater impoundments (112 acres) on the Division, which provide valuable foraging habitat for waterfowl during the fall migration.

The Sawyer's Marsh Division - Milbridge, Washington County (Figure 2), consists of 1,028 acres acquired through fee title between 1998 and 2005. The area lies to the northeast of Petit Manan Point, at the head of a broad tidal marsh used extensively by migratory shorebirds and waterfowl. The upland habitat surrounding the marsh consists of several large stands of white birch, various other hardwood species, and red spruce / balsam fir. Forest stand age varies throughout the Division, as a portion of the area was burned and limited cutting occurred on the property prior to acquisition by the Service.

The Gouldsboro Bay Division - Gouldsboro, Hancock County (Figure 3), consists of 607 acres along the upper portion of West Gouldsboro Bay. The Service acquired the land through private donation and sale in 1994, 1995, and most recently in 1998. This area is under consideration by Maine Department of Inland Fisheries and Wildlife (MDIFW) for designation as Significant Wildlife Habitat for moderate and high value waterfowl and wading bird habitat under the Natural Resource Protection Act (1988). The area consists of 381 acres of upland habitat (predominantly

red spruce / balsam fir), 226 acres of salt marsh and inter-tidal habitat, and two wooded islands in the salt marsh (four acres).

The Corea Heath Division is an approximately 431 acre raised coastal peatland situated on the Schoodic peninsula in the Town of Gouldsboro, Washington County. The site had been occupied by the U.S. Navy since the 1950's, and was transferred to the Refuge in 2005. Ecological communities occurring on the Corea Heath include: open bog, forested bog, open fen, acidic ledges, coniferous and birch woodlands, and more than a mile of boulder and cobble shoreline. The Navy had designated a 240 acre portion of the heath as an Ecological Preserve Area.

### **Refuge Islands**

Maine Coastal Islands NWR currently protects 48 offshore islands, which span the entire 250 mile coastline of Maine. The islands range in size from 0.5 – 1,650 acres. Habitat conditions vary significantly among the islands, with several islands dominated with spruce-fir stands while others are dominated by mixed grasses and shrubs. The islands are surrounded by extensive intertidal habitat, providing foraging habitat for a variety of shorebirds and waterfowl species. Maine Coastal Islands NWR has opened the 26 islands listed in Table 1 to migratory waterfowl hunting (Figure 5). The size of the 26 islands varies considerably, with acreage ranging from 0.5 acre (Eastern Barge) to 75 acres (Halifax).

Bois Bubert Island is located in the town of Milbridge, Washington County, Maine, approximately one mile east of Petit Manan Point (Figure 4). In 1980, the Nature Conservancy donated the majority of the 1,321 acre parcel to the Service. This represents approximately 90% of the island, with the remaining 10% privately owned. The island is predominantly forested with red spruce / balsam fir and some mixed hardwoods. Two freshwater wetlands and extensive intertidal habitat can be found on the island.

### **Wildlife**

#### **Federal Endangered and Threatened Species:**

In 2005, MDIFW documented 285 pairs of federally threatened bald eagles nesting in Maine. The population has been increasing at a rate of 8% per year since 1990 (MDIFW 2006). Within the Refuge, eagle nest on two mainland divisions and have nested on 10 islands. Outside of the breeding season (March – August), eagles remain in the general vicinity of their nests and can be routinely observed foraging or roosting on the Refuge.

In 2005, Maine supported 195 pairs of the federally endangered roseate terns. Within the Refuge, roseates currently nest on Petit Manan, Metinic, Seal, and Pond Islands, and utilize numerous other Refuge islands as resting and feeding locations during their migrations.

Peregrine falcons, a species recently removed from the Endangered Species list by the Service, are frequent visitors to the Refuge during their migration. MDIFW has documented 17 pairs of peregrines in 2006, with four pairs nesting along the coast. Although no peregrines nest on the Refuge, they are frequently observed visiting seabird nesting islands throughout the breeding season.

#### **Migratory Wildlife:**

##### **American Woodcock**

Restrictive hunting regulations for the American woodcock (*Scolopax minor*) were implemented in the east in 1985, and again in 1997, when woodcock numbers declined drastically since the late 1960's. All eastern states were required to shorten their woodcock hunting seasons further (to 30 days) and select opening dates no earlier than 6 October in 1997. Hunting seasons in the Eastern Region were able to open on October 1 again in 2002. However, the range wide woodcock population is still at a relatively low level compared to populations in the 1960s despite the effort to increase hunting restrictions (MDIFW 2006).

Results from a four state (ME, VT, NH, and PA) study indicated that autumn (September-November) survival rates of woodcock on hunted sites averaged 71% in 1998 and 70% in 1999. Non-hunted sites had survival rates that were slightly lower; 69% in 1998 and 67% in 1999. Predation was the largest cause of mortality on non-hunted sites. Therefore this study shows that in the East where woodcock hunting seasons are conservative, woodcock populations are not limited by hunting (MDIFW 2006).

Although woodcock are showing declines in numbers on their breeding grounds, habitat loss is considered to be the culprit, not hunting. This assertion was tested in a study conducted by the U.S. Geological Society Patuxent Wildlife Research Center in 2005. Results showed no significant differences in woodcock survival between hunted and non-hunted areas. Furthermore, the authors concluded that hunting was not having a significant impact on woodcock numbers in the Northeast (McAuley *et al.* 2005).

### **Wilson's snipe**

The Wilson's snipe (*Gallinago delicata*) is found in every county in Maine with the highest numbers in Washington, Penobscot, Kennebec, and Aroostook Counties (Adamus 1985). However, in the late 1930's, drought during the breeding season and extended cold periods on the winter range severely reduced the continental population (Fogarty *et al.* 1977). Concerned about the snipe population, the USFWS closed the hunting season on snipe from 1941 to 1953. Hunting resumed in 1954 as the population recovered. Even so, snipe hunting has not become as popular as it once was (Tudor 2000). Maine's snipe population should remain stable in the near future unless there are droughts for several breeding seasons, or snipe hunting greatly increases (Tudor 2000).

### **Waterfowl – Ducks and Geese**

Maine Coastal Islands NWR and the waters lying adjacent to the Refuge provide nesting, feeding, migratory, and/or wintering habitat for a wide variety of waterfowl species. The abundance and diversity vary significantly with the tidal cycle and among the seasons. The species most frequently observed include:

American Black Duck	Canada Goose
Mallard	Bufflehead
Wood Duck	Blue-winged Teal
Green-winged Teal	White-winged Scoter
Surf Scoter	Black Scoter
Old Squaw	Harlequin Duck
Common Eider	Common Goldeneye

Pintail  
Red-breasted Merganser

Hooded Merganser

The Maine's annual Mid-winter Waterfowl Survey is conducted at the same time every year in each state in the Atlantic Flyway (from Maine to Georgia). In January of 2006, the coastal waters and estuaries from Kittery to Eastport were surveyed. During this survey a total of 82,365 birds were documented, which was a slight increase from last year's count of 73,503 (see Table 3). A record count of mallards (4,025) was the most notable survey information, up 1,827 from 2005 (2,198) and 801 greater than the last high count in 2002 (3,224). Black duck numbers remain below the 10-year average of 18,419, but were up (16,631) from the 2005 count (14,027). Only 73 scaup were observed this year, which is a continuous long-term decline. Common eider numbers (34,041) were similar to last year and scoters (4,480) were well above the 10-year average of 2,905. Flocks of long-tailed ducks (formerly called oldsquaw) were observed as larger than normal. Canada geese numbers (3,338) was nearly identical to 2005 (3,489) (MDIFW 2006).

### **Resident Wildlife:**

#### **Ruffed Grouse**

The ruffed grouse (*Bonasa umbellus*) is considered the premier upland game bird in Maine. Grouse and/or woodcock were hunted by over half of all Maine license holders in the 1980s and it is estimated that 100,000 hunters harvested over 500,000 grouse annually. However, no data has been collected in that last 15 years for annual harvest of ruffed grouse. Moose hunters have been reporting harvest numbers and bird hunters reported grouse in excellent (1995), fair (1996-97), and good (1998-2004) numbers in the recent past (MDIFW 2006).

In 2005, a low reproductive output and one of the poorest fall grouse hunting seasons was reported. This is likely due to record-breaking cold and wet weather in the spring of 2005. Even so, ruffed grouse numbers tend to fluctuate greatly often occurring on ten-year cycles. The state of Maine is optimistic that grouse numbers will increase in the next few years (MDIFW 2006).

Although ruffed grouse numbers can decline due to spring weather events, their biggest threat is loss of habitat. Maine's forest is constantly changing and with these changes brings potential impacts to statewide grouse numbers. However this impact is hard to predict. As in every forest setting, the maturation of some forest stands will cause a decline in the quality of grouse habitat. This habitat is constantly revitalized by timber harvesting especially clear cutting in small blocks and strips to create an uneven-aged forest composed of even-aged stands of aspen, birch, and mixed wood.

To help determine the statewide Maine ruffed grouse population, MDIFW began calculating the number of grouse seen per 100 hours of moose hunting effort (Table 4). The first year (1994), moose hunters saw an estimated 35 birds per 100 hours of moose hunting. In 1995, an

<b>Table 3. Mid-winter Waterfowl Survey Data for Maine, January 1997-2006 (MDIFW 2006).</b>										
<i>Species</i>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Mallard	556	995	1,849	892	1,162	3,224	2,857	2,055	2,198	4,025
Black Duck	14,597	24,027	32,600	20,666	12,971	21,368	17,283	10,799	14,027	16,631
Northern Pintail	0	0	0	0	0	0	0	10	0	0
<b>Total Dabblers</b>	<b>15,153</b>	<b>25,022</b>	<b>34,449</b>	<b>21,558</b>	<b>14,133</b>	<b>24,592</b>	<b>20,140</b>	<b>12,864</b>	<b>16,225</b>	<b>20,656</b>
Ruddy Ducks	0	0	0	0	0	508	60	0	0	0
Scaup	1,175	581	1,830	1,790	1,080	370	450	0	160	73
Common Goldeneye	5,429	4,543	7,416	3,392	2,510	5,577	3,912	6,783	7,374	5,982
Bufflehead	3,175	9,270	7,099	3,252	4,472	6,950	5,104	4,012	4,369	6,770
Common Merganser	1,662	4,028	5,451	4,948	5,550	7,802	3,600	1,944	2,298	4,114
<b>Total Divers</b>	<b>11,441</b>	<b>18,422</b>	<b>21,796</b>	<b>13,382</b>	<b>13,612</b>	<b>21,207</b>	<b>13,126</b>	<b>12,739</b>	<b>14,201</b>	<b>16,939</b>
Common Eider	39,001	31,809	38,735	38,351	28,664	46,036	26,347	17,240	34,794	34,041
Scoter	2,804	2,755	3,198	4,611	1,941	2,710	2,857	337	2,702	4,480
Long-tailed Duck	1,797	1,739	2,861	1,120	2,389	2,311	1,759	846	1,995	2,865
Harlequin	24	0	0	15	0	25	5	51	30	30
<b>Total Sea Ducks</b>	<b>43,626</b>	<b>36,303</b>	<b>44,794</b>	<b>44,097</b>	<b>32,994</b>	<b>51,082</b>	<b>30,968</b>	<b>18,474</b>	<b>39,521</b>	<b>41,416</b>
<b>Unidentified Ducks</b>	90	246	254	210	425	248	18	0	37	16
<b>TOTAL DUCKS</b>	<b>70,310</b>	<b>79,993</b>	<b>101,293</b>	<b>79,247</b>	<b>61,164</b>	<b>97,199</b>	<b>64,252</b>	<b>44,077</b>	<b>70,014</b>	<b>79,027</b>
Canada Goose	1,911	1,986	3,071	3,139	2,769	3,377	2,603	2,290	3,489	3,338
Brant	15	0	21	0	0	0	0	4	0	0
<b>Total Geese</b>	<b>1,926</b>	<b>1,986</b>	<b>3,092</b>	<b>3,139</b>	<b>2,769</b>	<b>3,377</b>	<b>2,603</b>	<b>2,294</b>	<b>3,489</b>	<b>3,338</b>
<b>GRAND TOTAL</b>	<b>72,236</b>	<b>81,979</b>	<b>104,385</b>	<b>82,386</b>	<b>63,933</b>	<b>100,506</b>	<b>66,855</b>	<b>46,371</b>	<b>73,503</b>	<b>82,365</b>

<b>Table 4. Grouse harvests by moose hunters and others in their hunting party (MDIFW 2006).</b>												
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Permit holders reporting	1,069	1,252	1,321	1,323	1,739	2,542	1,887	2,673	2,251	1,428	2,512	2,379
Number of grouse seen	5,804	18,069	4,880	6,868	11,604	17,754	11,731	28,723	16,636	11,802	18,489	7,914
Grouse seen/100 hrs hunting	35	107	20	25	43	37	33	48	31	34	33	13
Total grouse taken	2,578	7,939	1,707	2,292	4,606	6,258	3,930	5,144	—	—	—	—

exceptional grouse year, the average of 107 grouse seen per 100 hours of hunting was nearly three times that of the previous year. In 2005, moose hunters reported seeing only 13 grouse per 100 hours, which is substantially lower than the previous year of 33. These changes could be due to the

changes in the moose hunt area that occurred in 1997, 2001, and again in 2002. These newly added areas have lower grouse densities than northern Maine which likely contributed to the lower number of grouse seen per 100 hours throughout the total moose hunt area.

The number of ruffed grouse harvested in the state of Maine during the moose hunt is only a portion of the number harvested. It is hard to predict the number of grouse harvested without having yearly hunter harvest reports.

### **White-tailed Deer**

The white-tailed deer (*Odocoileus virginianus*) is also a premier game species in Maine whose population has increased significantly since colonial times. During these early times Maine's winters were severe, and deer faced predation from man, wolves, bobcats, black bears, and mountain lions (Stanton 1963, Banasiak 1964, Lavigne 1999). Logging and clearing, moderation of winters, and the extirpation of the wolf and eastern cougar are believed to have been responsible for the increase in Maine's deer population during the 1800s.

The current population is managed to meet goals and objectives by region. Some of these call for an increase in deer populations in some areas of the state, and a decrease or maintenance of current population levels in other areas (Lavigne 1999, Lavigne 2004). Many variables are taken into consideration including the effects severe winters and management goals when the current deer management system determines the number of any-deer permit system (Lavigne 2004). In 2003, the white-tailed deer population in the state was estimated to be 230,000 individual in the wintering herd. There are not current population estimates for deer on the Refuge, although the population appears to be stable.

### **Moose**

Moose (*Alces alces*) are one of the most sought after game species in Maine. At one time in the early 1900s their population dwindled to an estimated 2,000 animals which was attributed to clearing forests for farmland, brainworm, and unrestricted hunting (Morris and Elowe 1993 and Banasiak et al. 1980). The population increased as the state worked to protect the moose from excessive hunting and habitat loss. Moose populations are now managed by the state of Maine through a yearly permit process. An increase during the 1900s is attributed to protection from excessive hunting and improving habitat conditions, and by 1985 the population was estimated to be 21,150 (Morris 1999). The moose population on the refuge has not been surveyed at this time.

### **American Black Bear**

The American black bear (*Ursus americanus*) is Maine's only bear species, and it is abundant and distributed over most of the state (McLaughlin 1999). Black bears population has been carefully managed since 1981 by monitoring radio-tagged bears in three areas of the state as well as hunting and trapping (McLaughlin 1988, McLaughlin 1999, Jakubas and Vashon 2004). Management goals and objectives influenced by the public guide Maine's management activities (McLaughlin 1999). Estimated populations of bears in Maine are found to be 23,000 animals (Jakubas and Vashon 2004).

The state of Maine reported in their Research and Management Report that Maine's spring 2006 bear population estimate remains near 23,000 bears. The report states that the harvest levels experienced since 1999 have stabilized the bear population with regard to their management goal (MDIFW 2005). No population estimates for the Refuge are currently available.

### **Red and Gray Squirrels**

The Maine Comprehensive Wildlife Conservation Strategy reports that red squirrels (*Tamiasciurus hudsonicus*) are common throughout the state while gray squirrels (*Sciurus carolinensis*) are only common in southern Maine. More detailed population estimates are not available for either species in the state of Maine at this time. The gray squirrel population is highly variable and is considered common to uncommon. The population seems to fluctuate in relation to hard mast crops (Kemp and Keith 1970). Populations of red squirrels on the refuge have not been surveyed, but appear to be stable. Grey squirrels have not been observed on the Refuge.

### **Snowshoe Hare**

The snowshoe hare (*Lepus americanus*) is common throughout the state of Maine. While snowshoe hare populations are strongly cyclic in some areas of its range, this is not the case in the state of Maine. Phenomenal like die-offs and particularly high or low population levels have been observed in Maine, but a definite cycle has not been documented. However, regional differences in abundance have been documented within the State and so population fluctuations occur on a local not statewide level (Cross 1986).

### **Raccoons**

The raccoon (*Procyon lotor*) is common statewide, but population size and trend are unknown (Connolly 1986, Boone and Krohn 1998). They are hunted and trapped in Maine, but harvested animals are not tagged, so harvest trends are not available.

Raccoons are a very adaptable species despite the constant changes in their environment and habitat. The state of Maine doesn't have adequate measures of population densities, recruitment rates, mortality rates, or the sex and age composition of the raccoon population or harvest. Although there is a lack of knowledge within the state of Maine and the Refuge on the status of raccoons, they appear able to survive the changing conditions found in Maine today and the imminent future (Connolly 1985).

### **Skunks, Porcupines and Woodchucks**

Population trends for the striped skunks (*Mephitis mephitis*), porcupines (*Mephitis me*) and woodchucks (*Marmota monax*) are unknown according to the state of Maine. This is also true for Refuge populations. Skunks, porcupines and woodchuck harvests are not recorded by the state of Maine.

### **Eastern Coyote**

The Eastern coyote (*Canis latrans*) is distributed statewide and is considered abundant. However, this wasn't always the case. It is believed that coyotes came to Maine gradually from Minnesota over a number of years after the wolf was extirpated (Jakubas 1999). Even so, Maine's coyotes are not genetically similar to western coyotes. There is genetic evidence that there is overlap with eastern Canadian wolves (*Canis lycaon*) (Wilson et al. 2004).

Currently the state's coyote population is between 10,000 to 12,000 in the winter and increases to 19,000 in the spring. This number decreases due to the low number of pups that survive after birth. The coyote population will likely remain relatively constant unless wolves reestablish themselves in the state and then it is believed the coyote population will drastically decline (Jakubas 1999).

The coyote population in Maine has been the center of controversy in recent years because of its' potential role in affecting deer populations. There is a desire by some publics to control or eliminate coyote populations. However, hunting and trapping has little to no effect in determining statewide coyote population levels. There would need to be mortality rates greater than 70% for there to be a reduction in the population (Jakubas 1999). The Refuge has not conducted surveys of coyote using the Refuge, however populations appear to be stable.

**Red Fox**

The red fox (*Vulpes vulpes*) population is distributed statewide (Caron 1986) and currently considered to be abundant and stable (Jakubas 2004). Historical records indicate that their population has had continuous grown since the early 1800's as agriculture and logging began to create red fox habitat. The estimated red fox population in the state of Maine in 1985 was approximately 75,000 animals (Caron 1986). Population estimate for the refuge are not currently available.

**Bobcat**

The bobcat (*Lynx rufus*) is a trapped and hunted species that is distributed over most of the state (Morris 1986). The *Bobcat Management System* is used to manage the bobcat population in the state of Maine (McLaughlin 1995). Recently high snowshoe hare densities have lead to an increasing bobcat population (Jakubas 2004).

In Maine, the bobcat population is at the northern edge of their range, where they are subject to severe winters. This has lead to a highly variable abundance and distribution of bobcat in Maine over the past two centuries. Climatic and habitat changes have lead to this population variation (Morris 1986). The Refuge has not conducted surveys of bobcat using the Refuge, however populations appear to be stable.

**C. Socio-economic Issues**

The population of Maine is estimated at 1,274,923 with an average density of 41.3 persons/ square mile (U.S. Census, 2000; <http://quickfacts.census.gov/qfd/states/23000.html>). The top three counties with highest population densities are: Cumberland (318 persons/square mile), Androscoggin (221persons/square mile), and York (188 persons/square mile). All are located in southern and mid-coast Maine. The eight coastal Maine counties and their populations are depicted in Table 5.

Table 5: Coastal Maine Counties	Population
Cumberland County	265,612
Hancock County	51,791
Knox County	39,618
Lincoln County	33,616
Waldo County	36,280
Washington County	33,941
Sagadahoc County	35,214
York County	186,742

A Brookings Institution report in July 2001 listed Portland as the 9<sup>th</sup> fastest growing metropolitan area in the nation. Between 1982 and 1997, its population increased by 17%. Between 1990 and 2000 the state population increased by only 3.8%. Other populated cities and towns along the coast

are Kittery, York, Wells, Kennebunkport, Biddeford, Saco, Yarmouth, Freeport, Brunswick, Bath, Boothbay Harbor, Damariscotta, Rockland, Camden, Belfast, Bucksport, Ellsworth, Bar Harbor, Machias, and Calais.

The State Planning Office estimates that between 1970 and 1990, land development in Maine occurred at four times the rate that the population increased. People are moving away from villages and city centers into the countryside. This situation creates sprawl, which is characterized by low density development that is sporadic, contains strip malls, and creates traffic congestion. If unchecked and unplanned, sprawl impacts our health, our environment, our communities, and our productive agricultural and natural areas. The city of Portland serves as a prime example. During 1982 and 1997, when Portland's population increased by 17%, the amount of farmland and forestland converted to urban uses increased by 108%. According to the 2000 U.S. Census, the majority of people are employed in the fields of management/ professional/ and related occupations," followed by "sales and office occupations." The mean household income, including benefits, in the state is approximately \$47,000. Approximately 95% of the population is white and retirees are disproportionately concentrated in the southern coastal towns.

#### **D. Cultural and Historical Resources**

The body of federal historic preservation laws has grown dramatically since the enactment of the Antiquities Act of 1906. Several themes recur in these laws, their promulgating regulations, and more recent Executive Orders. They include: 1) each agency is to systematically inventory the "historic properties" on their holdings and to scientifically assess each property's eligibility for the National Register of Historic Places; 2) federal agencies are to consider the impacts to cultural resources during the agencies' management activities and seek to avoid or mitigate adverse impacts; 3) the protection of cultural resources from looting and vandalism are to be accomplished through a mix of informed management, law enforcement efforts, and public education; and 4) the increasing role of consultation with groups, such as Native American tribes, in addressing how a project or management activity may impact specific archaeological sites and landscapes deemed important to those groups. The U.S. Fish and Wildlife Service, like other federal agencies, are legally mandated to inventory, assess, and protect cultural resources located on those lands that the agency owns, manages, or controls. The Service's cultural resource policy is delineated in 614 FW 1-5 and 126 FW 1-3. In the Services Northeast Region, the cultural resource review and compliance process is initiated by contacting the Regional Historic Preservation Officer/Regional Archaeologist (RHPO/RA). The RHPO/RA will determine whether the proposed undertaking has the potential to impact cultural resources, identify the "area of potential effect," determine the appropriate level of scientific investigation necessary to ensure legal compliance, and initiates consultation with the pertinent State Historic Preservation Office (SHPO) and federally recognized Tribes.

The majority of prehistoric archaeological sites in the coastal region of Maine are from the Ceramic Period (ca. 1000 B.C. to A.D.1600). This probably reflects population density to some extent, but is also a reflection of the instability of coastal environments during preceding periods. Pottery (e.g. ceramic) appears in this period, and daily life appears to have consisted of a mix of hunting and gathering of upland, estuarine, and marine resources, especially soft shell clam (*Mya arenaria*).

Unlike most of the eastern U.S., prehistoric agriculture was only significant in southwestern Maine because of the short growing season. Sites on islands were generally seasonally occupied, presumably as bases to exploit marine resources. A similar pattern of occupation followed European contact, with the important addition of fur trapping for the European market. Some places may have become regular trading locations when European ships arrived in the summer. Summer use of some islands as European cod fishing stations also began in the 17th century. Today, coastal erosion is a severe threat to many prehistoric and 17th century archaeological sites in the study area, especially on the more exposed islands.

Only six prehistoric archaeological sites are recorded within current Refuge property, none of which has been thoroughly examined by Service archaeologists. All are in severely eroded shoreline locations on islands. Most appear to be shell middens dating from ca. 2000 years ago to shortly before European contact. A human burial was reported from one of these sites in the 1950s, and stone tools and pottery have been reported from others, indicating that these sites had considerable potential to add to our knowledge of regional prehistory prior to their damage by erosion. Some may still have research potential, while others may have been completely destroyed by erosion since their discovery.

Extensive permanent settlement of the area by Euro-Americans was hindered by repeated wars with the Native Americans and their French allies until the mid-18th century. Many towns were established in the latter part of the century, with population and economic activity generally concentrated around major estuaries. Some larger islands were settled as fishing and farming communities, although most were only used seasonally for livestock pasture or as seasonal fishing station sites. Lighthouses and lifesaving stations were built by the Federal Government on several islands in the project area during the 19th century. Recreational camps, ranging from single room shacks to elegant mansions, also began to be built on some islands in the latter part of the 19th century.

Recorded historic period archaeological sites on the Refuge are generally set back from the shoreline, with the majority being mainland farm sites. One eroding island historic site has been identified, which appears to have been the foundation of a building dating to circa 1800. Place names such as Stage Island (referring to fish drying racks, or “stages”) indicate that similar sites probably exist on other islands from periods spanning European contact to the present. Most island historic sites probably relate to 18th and 19th century maritime activities or livestock raising. In sheltered areas, these may include tidal zone features, such as remains of piers or vessels. Unrecorded historic sites within the Refuge Complex are likely to also include seasonal shore fishing stations and trading locations dating from the earliest periods of European contact and settlement. Few of these locations have been successfully located within New England, and even fewer studied through archaeological excavation. Such sites are likely to be among the most significant historic archaeological sites in the nation, and the threat of loss by erosion makes their discovery, study, and protection increasingly urgent.

On Petit Manan Island, Refuge structures currently listed on the National Register of Historic Places include a light keepers dwelling, lighthouse, and outbuildings built in the late 19th century for the Petit Manan Light Station. The dwelling and outbuildings are now used as a research base for the extensive seabird restoration project on the island. These buildings require regular maintenance and have received major repairs in recent years, but further repairs are still needed. Recent funding has addressed significant maintenance needs on the two story dwelling and rain

shed. The Service cooperates with the Coast Guard on all islands with functioning lighthouses to provide access for emergency and scheduled maintenance of structures and aids to navigation.

Three of the four lighthouses transferred to the Service under the Coast Guard Authorization Act of 1996 are listed on the National Register of Historic Places. It is the responsibility of the Service to maintain the structures on these islands to historic preservation standards: Libby Island, Matinicus Rock, and Egg Rock lighthouses. The oldest is Libby Island Light Station, with a granite tower built in 1822 and a brick fog signal building built in 1884. Both are in fairly good condition, but do need some repairs, and will require regular maintenance in the future.

Matinicus Rock Light Station, the most famous of the three, includes an 1848 granite dwelling, an 1890 boathouse, and twin granite towers built in 1858. This light station is strongly associated with Abbie Burgess, one of the most famous 19th century heroines of American lighthouse history, who lived in the lighthouse from 1853 to 1875. The north tower at Matinicus Rock is abandoned and in extremely poor condition. With its lantern removed and no door or window glazing, rain and snow infiltration has destroyed much of the mortar in this tower. Recent repairs on the dwelling, boardwalk, boat ramp and boathouse have been completed, however all structures here will need regular maintenance. The National Audubon Society currently uses the dwelling as a seasonal research station.

Egg Rock Light Station consists of a frame dwelling with a lantern on its roof, built in 1875, and a brick fog signal building, built in 1904. The dwelling has received significant repairs in recent years including replacing the roof and windows, and applying new storm shutters. The brick fog signal building is in good condition. Regular maintenance on both buildings will be required.

The fourth island, Two Bush Island, has a functioning light station. It now consists only of a brick tower built in 1897. It has been determined ineligible for the National Register of Historic Places, due to loss of the dwelling, boathouse, and oil house that were originally part of this station. Its maintenance is not required by the National Historic Preservation Act. A lesser level of maintenance to protect the light so that it can remain operational will be required under the Coast Guard Reauthorization Act of 1996.

Franklin Island, acquired by the Service in 1973 from a Coast Guard transfer, also has a functioning light station which is owned and maintained by the Coast Guard. The lighthouse is on the National Register of Historic Places.

Pond Island, acquired by the Service in 1973 from a Coast Guard transfer, also has a functioning lighthouse which is owned and maintained by the Coast Guard. This lighthouse is on the National Register of Historic Places.

Nash Island, half of which was acquired by the Service in 1981 from a Coast Guard transfer, has a non-functioning lighthouse located on the Service-owned half of the island. The light, however, was conveyed to a nonprofit corporation under the terms of the Coast Guard Authorization Act of 1996. The Coast Guard holds an access easement to this light. The lighthouse is on the National Register of Historic Places.

A fishing camp on Metinic Island, consisting of a wing of a 19th century house that was moved to its present location in the 1930's, has been determined ineligible for inclusion on the National Register of Historic Places. This building was renovated in 2002 and is currently used as a base camp for researchers.

## **VI Environmental Consequences and Cumulative Impacts Analysis**

### **A. Alternative 1 - Refuge Closed to all Hunting**

Under this alternative the Refuge would close to all hunting. Individual parcels of the Refuge have been administratively closed to hunting since title was acquired, pursuant to the National Wildlife Refuge System Administration Act.

#### **Physical Impacts**

The Refuge anticipates minimal, if any, physical impacts from closing the Refuge to hunting. The majority of the private land adjacent to the Refuge is open to hunting, therefore maintaining the Refuge as a "no hunting area" could potentially draw visitors to the Refuge during the traditional hunting seasons.

#### **Biological Impacts of MDIFW Existing Hunting Seasons**

**Endangered and Threatened Species:** We do not anticipate any adverse affects on endangered and threatened species that would result from closing the Refuge to hunting.

**Migratory Species:** The USFWS and state wildlife agencies established the Migratory Bird Harvest Information Program (HIP) to identify and survey the activities of hunters who pursue woodcock. The data collected during the 2005 hunting season revealed that approximately 5,800 woodcock hunters bagged 9,100 woodcock in Maine. The previous years estimated harvest level of 15,600 woodcock by 4,300 hunters was much higher. This decrease in the numbers of woodcock harvest is most likely due to poor weather conditions for hunting that persisted through much of October. Therefore the number of days that Maine hunters were in the field was 2,000 days less in 2005 than in 2004 (MDIFW 2006).

Number of woodcock harvested in 2005 was slightly higher at 2.2 birds than in 2004 (Table 6). Seasonally hunters harvested on average 11.0 woodcock in 2005, up slightly from 2004 which was 10.3 birds. The recruitment index (the ratio of immatures per adult female woodcock) has stayed constant at 1.7 (1963-05) which indicates normal production in 2005 for woodcock breeding in Maine and eastern Canada. The numbers of displaying male woodcock in the Eastern Region in 2006 were unchanged from 2005 based on male Singing Ground Surveys (MDIFW 2006).

**Table 6. Preliminary Migratory Bird HIP estimates of snipe and woodcock harvest & hunter activity in Maine during the 2003-2004 hunting seasons (Kelley and Rau 2006)**

Year	2003	2004	2005
Woodcock Harvest	31,000 (+81%)	15,600 (+58%)	9,100 (+29%)
Active Woodcock Hunters	6,600 (+47%)	4,300 (+39%)	5,800 (+34%)
Woodcock Hunter Days Afield	21,400 (+41%)	27,000 (+62%)	25,200 (+39%)
Seasonal Woodcock Harvest Per Hunter	4.7 (+93%)	3.6 (+70%)	1.6 (+45%)
Snipe Harvest	9,300 (+196%)	100 (+191%)	N/A
Active Snipe Hunters	900 (+196%)	<50 (+191%)	N/A
Snipe Hunter Days Afield	3,700 (+196%)	100 (+191%)	N/A
Seasonal Snipe Harvest Per Hunter	10.0 (+277%)	6.0 (+270%)	N/A

Harvest statistics from HIP for snipe hunting in Maine (Table 6) are imprecise due to small sample sizes of snipe hunters in the state; confidence intervals of the estimates of hunter numbers and harvests for the 2003 and 2004 hunting seasons include zero. The Wilson's snipe is hunted primarily in wetter habitats than that in which other upland game birds like ruffed grouse and American woodcock are found. For this reason, no measurable changes due to hunting are anticipated in the snipe population on the Refuge in the near future.

The most frequently harvested dabbling is the black duck (Table 7). Black duck harvests have ranged from 5,000 (mean for 1991-95) to 32,000 (mean for 1966-75). Of the seaducks harvested in the state of Maine, the common eider is the most frequently harvested species (Table 8). MDIFW estimates that during the past five years, an average of 18,500 eiders / year were harvested in Maine (B. Allen, MDIFW, pers. comm.)

**Table 7. Historic Maine dabbling and diving duck harvest statistics, 1961-2001 (MDIFW 2006)**

	Mallard	Black Duck	Green-winged Teal	Blue-winged Teal	Wood Duck	Greater Scaup	Lesser Scaup	Ring-necked Duck	Buffle-head	Common Goldeneye
1961-65 (mean)	960	21,080	5,960	840	4,500	125	50	950	1,780	2,240
1966-70 (mean)	2,360	32,060	12,000	4,460	5,500	220	100	1,100	1,980	2,380
1971-75 (mean)	4,600	32,680	13,340	4,640	7,660	200	160	1,550	3,340	2,040
1976-80 (mean)	5,040	23,580	9,620	2,740	9,880	260	360	2,620	6,240	3,040
1981-85 (mean)	4,660	12,740	8,700	1,380	11,240	220	300	2,620	4,340	4,040
1986-90 (mean)	4,700	8,280	7,100	640	6,840	100	180	2,750	2,240	2,940
1991-95 (mean)	7,960	11,040	5,080	400	8,000	60	120	1,680	3,100	1,720
1996	7,100	7,800	6,200	1,600	10,300	0	100	2,100	3,500	2,000
1997	9,360	9,380	11,720	600	6,220	90	0	1,540	2,180	830
1998	10,761	9,481	13,330	549	9,732	205	124	2,175	1,227	775
1999	11,974	10,393	11,576	857	7,290	123	245	1,050	2,441	889
2000	8,438	6,843	8,391	198	9,676	50	130	809	2,164	655
2001	14,972	11,903	5,222	843	15,074	---	---	1,140	4,075	1,803

	<b>Common Eider</b>	<b>Long-tailed Duck*</b>	<b>White-winged Scoter</b>	<b>Surf Scoter</b>	<b>Black Scoter</b>
1961-65 (mean)	1,360	280	1,660	1,060	560
1966-70 (mean)	2,800	1,520	3,120	4,000	1,580
1971-75 (mean)	8,820	1,080	4,160	4,440	1,460
1976-80 (mean)	7,580	1,300	2,020	2,980	1,680
1981-85 (mean)	11,980	1,520	2,340	1,880	740
1986-90 (mean)	13,680	2,360	1,500	1,980	400
1991-95 (mean)	14,840	2,420	1,460	1,412	372
1996	21,100	800	1,100	3,800	300
1997	19,340	530	1,450	3,040	520
1998	9,019	2,917	685	4,604	421
1999	16,007	1,094	741	2,938	1,331
2000	11,661	810	477	710	178
2001	14,117	1,691	1,880	1,891	1,905

\* Formerly know as Oldsquaw

## **Sora and Virginia Rail**

Sora and Virginia rails often coexist in marshes throughout their range. Because of their secretive behavior they are difficult to observe, study, and attract little interest from hunters. The Sora is considered the most abundant rail in North America (Melvin and Gibbs 1994). Breeding Bird Survey (BBS) estimates that the population declined 3.3% annually from 1966-1991 in North America (Conway et al. 1994). Declines during this period were attributed to wetland loss especially in central North America (Tiner 1984).

The Virginia rail is considered a game species throughout North America, however, hunters seldom take them. Based on BBS data, Virginia rail populations have declined 2.2% per year throughout North America from 1982 to 1991. Wetland loss was also tied to this populations decline, but the species is now considered stable (Conway et al. 1994).

There are no national surveys specifically designed to estimate the number of birds harvested or the numbers of rail hunters. Hunting pressure on both species has likely decreased since the early part of this century (Conway and Eddleman 1994). Annual rail harvest varied greatly during 1964-1986, averaging 13,374 hunters and 100,983 rails other than Soras taken annually (U.S. Fish and Wild. Serv. 1988). In most coastal states the majority of birds harvested were Clapper Rails. Sora and Clapper Rails are more popular with hunters than Virginia Rails. Of 1,688 Virginia Rails banded prior to 1950, none were reported harvested by hunters (U.S. Fish and Wild. Ser. 1988). Melvin and Gibbs (1994) estimated that 300-500 rails were harvested annually in Maine.

Between 1998 and 2003, MDIFW conducted a series of marshbird surveys as part of the Ecoregional Survey Project. Marshbirds were surveyed in 137 wetlands in the southern, central, eastern, and northwestern parts of the state. Based on these surveys, several marshbird species were identified to be uncommon, have limited distributions, or show evidence of population decline. Three marshbird species were found to be common and able to support hunting seasons (Virginia rail, sora, common snipe). (MDIFW 2006).

Since the opening of the refuge to hunting we have had no reports of hunting of rails. Although both species have been observed on the refuge, rails are considered a rare sighting. Most rail hunting in the state occurs within Merrymeeting Bay in southern Maine.

**Resident Species:** MDIFW does not record the number of grouse harvested each year in Maine. However, they have completed a species assessment for grouse, and have developed population objectives. The Department predicts that the population will increase due to the favorable weather conditions during May 2006. Current information indicates the population can support existing harvest levels.

In the last five years, hunters have harvested an average of 419 adult bucks and 45 adult does per year within WMD 27 (Table 9). The statewide average harvest for all WMDs is in 2005 was 509 bucks and 79 does.

Table 9: White-tailed Deer Harvest Summary for WMD 27 (MDIFW 2001 – 05)

<u>Year</u>	<u>Adult</u>		<u>Fawn</u>		<u>Total</u>		<u>Harvest Per 100 Adult Bucks</u>		<u>Harvest Per 100 Sq. Miles Habitat</u>	
	<u>Buck</u>	<u>Doe</u>	<u>Buck</u>	<u>Doe</u>	<u>Antlerles s Deer</u>	<u>All Deer</u>	<u>Adult Does</u>	<u>Antlerles s</u>	<u>Adult Bucks</u>	<u>All</u>
2001	410	30	11	5	46	456	7	11	50	56
2002	451	59	21	15	95	546	13	21	55	67
2003	336	31	9	6	46	382	9	14	41	47
2004	441	49	9	3	61	502	11	14	54	61
2005	457	58	7	5	70	527	13	15	56	65
<b>Average for WMD 27</b>	<b>419</b>	<b>45</b>	<b>11</b>	<b>7</b>	<b>64</b>	<b>483</b>	<b>11</b>	<b>15</b>	<b>51</b>	<b>59</b>
<b>Statewide harvest for 2005</b>	<b>15,261</b>	<b>8,409</b>	<b>2,367</b>	<b>2,111</b>	<b>12,887</b>	<b>28,148</b>	<b>56</b>	<b>84</b>	<b>52</b>	<b>96</b>

WMD 27 was opened to moose hunting for the first time in 2006, therefore no harvest data are available at this time. The hunt occurs for one week in the middle of October in WMD 27 and has only been open since 2001 (MDIFW 2002). The success rate for this region of the State has averaged 35% over the last five years with approximately 10 moose harvested each year in adjacent WMD 29.

The number of state issued bear permits have fluctuated over the last 15 years based on population estimates from the lowest at 9,991 permits to the highest 15,252 (Table 10). However, the number of bear harvested has increased yearly from 2,088 in 1990 to 3,921 in 2004 across the entire state of Maine. There was a decrease in the number of bears harvested in the state in 2005 with only 2,873 harvested (MDIFW 2006). Over the past six years, an average of 60 bears / year have been harvested from Wildlife Management District 27 (Table 11, MDIFW 2006).

<b>Table 10. Maine bear hunter participation and harvest levels (MDIFW, 2006).</b>		
<b>Year</b>	<b>Number of Permits</b>	<b>Harvest</b>
1990	11,803	2,088
1991	10,204	1,665
1992	10,133	2,042
1993	10,195	2,055
1994	9,991	2,243
1995	10,929	2,645
1996	10,928	2,246
1997	10,716	2,300
1998	10,871	2,618
1999	12,542	3,483
2000	12,811	3,951
2001	14,036	3,903
2002	15,252	3,512
2003	11,331	3,900
2004	11,740	3,921
2005	10,881*	2,873

- Preliminary estimate of permit sales

<b>Table 11. Number of bears harvested in Maine in WMD 27 by year (MDIFW, 2006).</b>					
<b>Year</b>	<b>Method of Take</b>				<b>Total Harvest in District</b>
	<b>Hunting with bait</b>	<b>Hunting with dogs</b>	<b>Trapping</b>	<b>While Deer Hunting</b>	
2000	28	1	3	17	49
2001	52	7	1	6	66
2002	28	6	1	7	43
2003	46	6	1	8	61
2004	57	3	4	4	72
2005	59	2	9	5	71
<b>Total</b>	<b>270</b>	<b>25</b>	<b>19</b>	<b>47</b>	<b>362</b>

For several of the resident species (i.e. red squirrel, snowshoe hare, porcupine, and woodchuck) MDIFW does not collect harvest information. However, harvest data for many of the other species is available through pelt-tagging records (Table 12). This data represents total harvest from both trapping and hunting.

Over 2,000 coyote are harvested in the state of Maine every year (Table 12). This number has been on a steady increase for that last decade (MDIFW 2006). Red fox are hunted, but most take of this species in Maine is from trapping. Harvests across the state of Maine have averaged around 1,500 each year for the last decade (Table 12). This is considerably lower than historical

<b>Species</b>	<b>1996-97</b>	<b>1997-98</b>	<b>1998-99</b>	<b>1999-00</b>	<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>
Beaver	16,640	10,547	10,482	9,850	9,803	11,757	7,709	8,222	10,436
Bobcat	128	205	150	194	308	269	331	273	376
Coyote	1,587	1,987	1,915	1,823	1,977	2,741	2,287	2,459	2,175
Fisher	1,886	2,827	1,807	2,578	2,028	3,117	2,630	2,526	2,174
Red Fox	1,599	1,894	1,539	1,248	1,272	2,056	1,469	1,535	1,413
Grey Fox	25	92	75	82	89	164	172	196	125
Marten	2,208	5,736	2,160	4,396	1,832	5,529	2,908	5,088	2,248
Mink	1,365	1,177	1,519	1,545	1,606	2,031	935	904	1,224
Otter	1,237	876	838	737	943	1,103	803	931	1,113

**Pelts may not be tagged when nuisance animals (e.g., coyote and beaver) are lethally removed, thus pelt-tagging records may under-represent the harvest of some species.**

reports that estimate greater than 4,000 red fox were harvested annually in Maine during the 1970's and 80's (Caron 1986). The number of bobcats harvested in Maine during the 2004-2005 trapping and hunting seasons was the second highest harvest ever and the highest harvest since the 1980-1981 season. In 2005, the state of Maine lengthened the hunting season by two weeks, which likely attributed to the high harvest rates. The bobcat population has done very well in response to increased snowshoe hares, but there are concerns about the high harvest. However, the state believes that this is not detrimental to the bobcat population (MDIFW 2006).

### **Biological Impacts on Maine Coastal Islands NWR**

We do not anticipate any significant impacts to the vegetation or wildlife populations due to closing the Refuge to hunting. Most of the resident wildlife species would be free to move on and off the Refuge, and they would be subject to hunting once they moved onto private land. The only two exceptions to this might be Petit Manan Point and Bois Bubert Island. At the closest point, Bois Bubert Island is approximately 0.5 miles offshore of Petit Manan Point. Although deer have been observed swimming between the mainland and the island, it is possible that in the absence of hunting, densities could exceed those on the mainland and subsequently suppress plant growth on the island. Petit Manan Point is a long narrow peninsula that at its narrowest section is less than 75m across. This region serves as a land bridge between the mainland and the peninsula. The Refuge property is south of the land bridge, and it is possible that wildlife movement on and off the Refuge is limited by this narrow corridor. Prior to 2000, the Refuge also determined that density of deer on the peninsula was maintained at an artificially high level due to a winter feeding program of a Refuge in-holder. This created significant year-round concentrations of deer in the vicinity of the feeding station and adversely affected growth of vegetation on adjacent portions of the Refuge. This effort has since been halted, and we believe that deer densities have declined in recent years. However, it is possible that geographic restrictions associated with this peninsula could permit deer densities to remain higher than those reported on other regions of the mainland. A significant increase in deer densities could adversely affect the abundance and distribution of preferred forage species. With the exception of these two locations, we would not expect any significant change in species abundance on the Refuge due to this alternative.

The Service believes that relatively few woodcock or snipe are being harvested; therefore no measurable direct impacts to the woodcock or snipe populations are anticipated from hunting these species. Hunting of migratory birds as stated in the proposed action should have no adverse cumulative effects on their local, regional or flyway populations. Waterfowl populations are highly

mobile during their fall migration; therefore we do not anticipate that restricting hunting on Refuge property would effect local or regional populations.

The Refuge does not anticipate any effects on local and regional populations of resident wildlife as a result of closing the Refuge to hunting.

### **Socioeconomic Impacts**

This alternative would displace a small number of individuals who have hunted on Refuge lands. However, we do not anticipate any socioeconomic impact from closing the Refuge to hunting as displaced hunters would likely continue to hunt in the general area surrounding the Refuge, and continue to use traditional services (i.e. fuel and supplies).

While closing the Refuge to hunting may not have a significant effect on an individual's ability to hunt in this region, it may have a significant effect on community relations with the Service. Hunting is a very strong tradition in this region of the State, and a limited number of local residents have questioned the Refuge about allowing hunting on Refuge lands. In addition, ongoing Endangered Species issues outside the Refuge have fueled the fear of many residents that any Federal presence in this county means an end to all traditional land uses.

### **Cultural and Historical Resource Impacts**

The majority of Refuge islands are open to day use, outside of the seabird nesting season. Under this alternative, Refuge islands supporting historical structures would remain closed to hunting, the islands would remain open to day use by other Refuge visitors. Therefore we do not anticipate that limiting hunter access to these islands will have any effect on cultural or historic resources.

**B. Alternative 2 - Proposed Action** – A portion of Petit Manan Point would remain open to a one week muzzleloader hunt for white-tailed deer. Bois Bubert Island would remain open to white-tailed deer hunting. Sawyer's Marsh and Gouldsboro Bay Divisions would remain open to migratory game bird and waterfowl, small and big game hunting. The 26 islands listed in Table 1 would remain open to migratory waterfowl hunting.

Under this alternative, specified areas of the Refuge would remain open to hunting of migratory game birds and waterfowl, small and big game in accordance with State and Federal regulations, with the exceptions listed on page 9 of this document. This is the Service's proposed alternative.

As previously noted, many portions of the Refuge were open to hunting prior to acquisition by the Service. Hunting is consistent with the purposes for which the Refuge was established; the Service policy on hunting; the National Wildlife Refuge System Improvement Act of 1997; and the broad management objectives of the National Wildlife Refuge System. Hunters would be directed to the Maine Coastal Islands NWR Hunt Brochure for additional information, maps, and Refuge-specific regulations. The Service would encourage the use of dogs to facilitate locating and retrieving game birds and waterfowl that might otherwise be lost in dense vegetation.

### **Physical Impacts**

Maine Coastal Islands NWR does not anticipate significant hunting pressure to occur on Refuge lands as a result of keeping these areas open to hunting. This is based on the availability of adjacent

private land open to hunting, limited acreage within the Refuge, and low density of target species (e.g. ruffed grouse and white-tailed deer) in this region of coastal Maine. For example, MDIFW has calculated that the towns of Milbridge and Gouldsboro support a mean number of 6-7 deer/mile<sup>2</sup> (G. Lavigne pers. comm., MDIFW). In contrast, central and southern Maine communities support 15-25 deer/mile<sup>2</sup>.

We anticipate that keeping the Refuge open to hunting would result in minimal, if any, impact to the physical resources protected by the Refuge. Since opening the Refuge to hunting in 2001, Refuge staff have generally observed only minor interest in hunting on the Refuge. Most hunting visits occur during the fall and winter months when much of the vegetation is dormant, and trail conditions are generally excellent. While the Petit Manan Point hunt established in 2006 did generate substantial interest in Refuge visitation for the month of December (i.e. 73 hunters over the six day season), this level of visitation falls below that typically experienced during the summer months. For example, we estimate that the Refuge supports approximately 17,000 visitors during the month of July, while less than 800 visitors utilize the Refuge during the month of November.

We believe that the greatest level of participation in the Maine Coastal Islands NWR hunt program is through waterfowl hunting. To hunt waterfowl along the coast of Maine, hunters typically use boats to access and hunt from inter-tidal ledges. Most hunters never access the upland portions of the islands that they visit; their efforts are generally limited to ledges below the high water mark. As a result, we do not anticipate any adverse impact to upland vegetation due to implementation of the waterfowl hunt.

### **Biological Impacts**

With the exception of migratory birds, MDIFW has the sole responsibility of establishing season length and harvest limits for the all the species we propose to open to hunting. They have evaluated population parameters and habitat conditions in making their determination regarding which species can be harvested and appropriate harvest limits. MDIFW routinely evaluates harvest levels and hunt effort, and a Refuge hunt conducted under state regulations should not create any unforeseen threats to these species.

**Endangered Species:** We do not anticipate that continuation of the hunt program would adversely affect any endangered or threatened species that utilizes the Refuge. Roseate terns are present on the Refuge between May and August, and seabird nesting islands are closed to all public use during the nesting season. Roseate terns are on their breeding grounds in South America when most hunting would occur on the Refuge. Bald eagles begin nesting in March, with eaglets fledgling in July or August. Although eagles nest on two mainland Divisions and several islands, they will not be adversely affected by this alternative as the majority of hunting pressure will occur in October and November. We do not anticipate that hunting will have any adverse effects on peregrines, as the majority of hunting will occur after the falcons have migrated through the area.

**Migratory Birds:** The overall biological effects of keeping Gouldsboro Bay and Sawyer's Marsh Divisions, and the 26 islands listed in Table 1 open to waterfowl hunting should be minimal. Twenty-two Refuge islands will remain closed to waterfowl hunting. Waterfowl species utilizing the Refuge spend significant time foraging on the extensive intertidal areas surrounding the Refuge. As a result, the vulnerability of birds to hunting on Refuge lands will be determined by the tidal cycle and weather conditions during the hunt. Hunting on the offshore islands is limited to hunters willing to hire a hunting guide or those utilizing a boat suitable for hunting in this region of the

coast. Any commercial hunting guide utilizing Refuge property would be required to obtain a special use permit from the Refuge. In addition, the coast of Maine has over 4,600 islands, many of which are already open to hunting. Less than 25% percent of Refuge lands would be open to the hunting of migratory birds.

Cranberry Flowage on Petit Manan Point supports over 5,000 ducks during their fall migration. The Refuge recognized the value of maintaining this important roosting and foraging area, and has determined this portion of the Refuge should remain closed to hunting. The freshwater wetlands on the south end of Bois Bubert Island also support significant use by waterfowl and will also remain closed to waterfowl hunting. In an effort to minimize any potential disturbance to the birds as they are utilizing these wetlands, the Refuge has restricted access to both areas during the fall migration period.

The Refuge estimates that 210 hunters participated in our waterfowl hunt in 2005. Refuge property open to waterfowl hunting includes two mainland divisions and islands that span 200 miles of the coast. We estimate that less than 150 ducks, of all species combined, are harvested from the Refuge each year. This level of harvest represents less than 0.001% of the estimated waterfowl population observed during the mid-winter inventory. This level of take would not result in any measurable change in waterfowl populations on or near the Refuge.

Refuge staff estimate that less than 10 woodcock are harvested each year on the Refuge. The majority of the upland habitat on both the Gouldsboro Bay and Sawyer's Marsh Divisions are not likely to support significant numbers of woodcock. This species prefers early successional habitat, while much of the Refuge habitat is mature conifer forest or mature northern hardwood forest. This level of take would have no adverse cumulative effects on local, regional or flyway populations of woodcock.

**Resident Wildlife:** The Refuge anticipates that this alternative will result in minimal harvest of resident wildlife species from Maine Coastal Islands NWR. White-tailed deer hunting is likely to generate the greatest level of hunter interest on the Refuge. Despite hunter interest we estimate that during the regular firearms season on Gouldsboro Bay and Sawyer's Marsh Divisions, and Bois Bubert Island that five deer would be harvested annually. Coastal Washington County is traditionally viewed as a region of low deer densities. For example, over the past five years the average harvest for WMD 27 was 59 deer / 100 mile<sup>2</sup>, this level of harvest is 40% lower than the statewide harvest level for deer.

In 2006, the Refuge implemented our first white-tailed deer hunt on Petit Manan Point. Hunters were allowed to hunt with a muzzleloader on 655 acres for one week in December. No deer were harvested during the hunt. Although moose hunting is permitted on the Refuge, we do not anticipate that more than one moose per year would be harvested. The Refuge supports an extremely low density of moose, and most Refuge staff have never observed a moose on the Refuge. We do not anticipate that deer or moose hunting on the Refuge will have any effect on deer or moose populations on or adjacent to the Refuge.

For species such as ruffed grouse, we would expect moderate hunter interest but would not expect more than 10 grouse to be harvested each year. Species such as snowshoe hare, bobcat, red fox, coyote, and raccoon are traditionally harvested using pursuit dogs or trapping. Since neither of these methods is permitted on the Refuge, we anticipate that less than five individuals of each species

would be harvested each year. We do not anticipate a significant interest in hunting skunk, porcupine, or woodchuck and estimate that less than five individuals, of the three species combined, would be harvested per year. While grey squirrel and opossum (*Didelphis marsupialis*) can be legally hunted in Maine, they either do not occur in this region of the state or have not been observed on the Refuge.

The majority of black bears harvested in Maine (75%) are taken while hunting over bait. This method of hunting is not permitted on Maine Coastal Islands NWR. The Refuge only allows bears to be harvested during the firearm season for white-tailed deer. This method of hunting resulted in 12% of the total harvest within WMD 27 (Table 11). In many years, hunters will not even have access to bears as the animals frequently begin to den prior to the firearm season for deer. Therefore, we estimate that less than two bears would be harvested on the Refuge.

While the Refuge acknowledges that there may be some interest in hunting resident wildlife on the Refuge, we do not anticipate a significant number of hunters will participate in these activities. The majority of land adjacent to the Refuge is open to hunting, and may provide more suitable habitat for targeted species. We also believe that the majority of hunting will occur on lands that permit the use of pursuit dogs, trapping, or hunting over bait. The level of estimated harvest reported for the above mentioned resident wildlife species is not sufficient to effect the local, regional, or state population of any of the species.

### **Socioeconomic Impacts**

This alternative would continue to allow a small number of individuals to continue hunting on Refuge lands. However, we do not anticipate any socioeconomic impact from allowing the hunt to continue as hunters are believed to be local residents. Hunters would likely continue to hunt on and around the Refuge, and continue to use traditional services (i.e. fuel and supplies). Much of the land surround the Refuge is open to hunting, without the limitations we have listed under this alternative (i.e no baiting and no pursuit dogs), therefore it is unlikely that the Refuge would serve as a “destination” for local hunters.

While allowing hunting to continue on the Refuge may not have a significant effect on an individual’s ability to hunt in this region, it may have a significant effect on community relations with the Service. Hunting is a very strong tradition in this region of the State, and a limited number of local residents have questioned the Refuge about allowing hunting on Refuge lands. In addition, ongoing Endangered Species issues outside the Refuge have fueled the fear of many residents that any Federal presence in this county means an end to all traditional land uses. The Refuge believes that maintaining a hunting program on Maine Coastal Islands NWR will enhance public relations with many local residents.

### **Cultural and Historical Resource Impacts**

Several of the islands supporting historical structures are open to migratory waterfowl hunting. While hunters may technically visit these islands to hunt waterfowl, their activities will likely be restricted to the inter-tidal ledges surrounding the islands. All of these islands are open to day use, outside of the seabird nesting season, therefore we do not anticipate that access by hunters would be any more significant than use by other Refuge visitors. We do not anticipate that this alternative would result in any adverse impact to the six prehistoric archaeological sites on the Refuge.

**C. Alternative 3-** A portion of Petit Manan Point would be open to a one week muzzleloader season for white-tailed deer. Bois Bubert Island would be open to white-tailed deer hunting. Sawyer's Marsh and Gouldsboro Bay Divisions would be open to the hunting of migratory game birds and waterfowl, small and big game. The 26 islands listed in Table 1 would be open to migratory waterfowl hunting. All hunts would be conducted under controlled hunting conditions (i.e. permit system). The hunt would be conducted in accordance with State and Federal regulations, with the exceptions listed under Alternative 2.

Under this alternative, specified areas of the Refuge would be open to hunting of migratory game birds and waterfowl, small and big game. The hunt would be conducted in accordance with State and Federal regulations, with the exceptions listed on page 9 of this document, and under a Maine Coastal Islands NWR specific permit system.

Deer hunting conditions would be controlled using a Refuge Deer Hunting Program. Restrictions that could be employed include a permit system, hunting allowed in designated areas only, regulations on hunting methods, and fixed season dates and lengths. Hunters would be subject to regulations contained in 50 CFR pertaining to the National Wildlife Refuge System Administration Act.

Waterfowl hunting would be controlled by a Waterfowl Hunting Program developed for Maine Coastal Islands NWR. Restrictions that could be employed include: a permit system, limiting the number and placement of blinds, further limiting the harvest of certain species, and refining season dates (i.e. shortening).

This alternative would allow the Refuge to open to hunting, while providing the opportunity to establish site-specific regulations which could serve to protect or target animals by species, age class, or sex. Hunters could be required to check any wildlife species taken on the Refuge with a member of Refuge staff. This information could be used to determine the health status, sex and age ratio, and diversity of wildlife utilizing the Refuge and may influence future Refuge hunting regulations.

### **Physical Impacts**

Maine Coastal Islands NWR does not anticipate significant hunting pressure to occur on Refuge lands as a result of keeping these areas open to hunting. The impacts associated with this alternative would be similar to those outlined under Alternative 2.

### **Biological Impacts**

Although this alternative would allow the Service to develop Refuge specific regulations, we have no information to indicate that this management action is warranted. Available information indicates that interest in hunting on the Refuge is relatively low, and success rates are also thought to be low. Refuge restrictions on certain methods of hunting (i.e. not hunting over bait or no use of pursuit dogs) likely limit interest in hunting on the Refuge. Local residents are free to hunt on adjacent lands, without having their preferred methods of harvest limited by Refuge regulations. The impacts associated with this alternative would be similar to those outlined under Alternative 2.

### **Socioeconomic Impacts**

This alternative would continue to allow a small number of individuals to continue hunting on Refuge lands. However, we do not anticipate any socioeconomic impact from allowing the hunt to continue as hunters are believed to be local residents. Hunters would likely continue to hunt on and around the Refuge, and continue to use traditional services (i.e. fuel and supplies). Much of the land surround the Refuge is open to hunting, without the limitations we have listed under this alternative (i.e no baiting and no pursuit dogs), therefore it is unlikely that the Refuge would serve as a “destination” for local hunters.

### **Cultural and Historical Resource Impacts**

Several of the islands supporting historical structures are open to migratory waterfowl hunting. While hunters may technically visit these islands to hunt waterfowl, their activities will likely be restricted to the inter-tidal ledges surrounding the islands. All of these islands are open to day use, outside of the seabird nesting season, therefore we do not anticipate that access by hunters would be any more significant than use by other Refuge visitors.

## **D. Anticipated Direct and Indirect Impacts of Proposed Hunt on Wildlife Species**

### Endangered Species

#### *Refuge Closed to Hunting Alternative*

We do not anticipate any effects to endangered species from implementing this alternative.

#### *Proposed Action Alternative*

We do not anticipate any effects to endangered species from implementing this alternative. The Refuge completed a Section 7 Evaluation in association with the assessment for opening the Refuge to hunting. While this alternative would result in increased Refuge visitation by hunters, the visitation would occur outside of the breeding season for both bald eagles and roseate terns. Although eagles are resident on the Refuge year-round any disturbance related to the presence of hunters would be similar to that resulting from non-consumptive visitors utilizing the Refuge. Roseate terns are present on four Refuge islands between May and August. Public access to these islands is not permitted during the seabird nesting season.

#### *Controlled Hunt Alternative*

We do not anticipate any effects to endangered species from implementing this alternative that were not discussed under the proposed alternative.

### Migratory Birds

#### *Refuge Closed to Hunting Alternative*

Under this alternative, the refuge would close to all hunting. Current public use levels on the refuge would likely decrease slightly as compared to those observed while hunting was permitted. While migratory birds would not be harvested on the Refuge under this alternative, hunting pressure would likely shift to lands surrounding the Refuge. Disturbance by hunters to hunted and non-hunted wildlife would be eliminated.

#### *Proposed Action Alternative*

The U.S. Fish and Wildlife Service annually prescribes frameworks, or outer limits, for dates and times when hunting may occur and the number of birds that may be taken and possessed. These frameworks are necessary to allow State selections of season and limits for recreation and sustenance; aid Federal, State, and tribal governments in the management of migratory game birds; and permit harvests at levels compatible with population status and habitat conditions. Because the Migratory Bird Treaty Act stipulates that all hunting seasons for migratory game birds are closed unless specifically opened by the Secretary of the Interior, the Service annually promulgates regulations (50 CFR Part 20) establishing the frameworks from which States may select season dates, bag limits, shooting hours, and other options for the each migratory bird hunting season. The frameworks are essentially permissive in that hunting of migratory birds would not be permitted without them. Thus, in effect, Federal annual regulations both allow and limit the hunting of migratory birds.

Migratory game birds are those bird species so designated in conventions between the United States and several foreign nations for the protection and management of these birds. Under the Migratory Bird Treaty Act (16 U.S.C. 703-712), the Secretary of the Interior is authorized to determine when "hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any ... bird, or any part, nest, or egg" of migratory game birds can take place, and to adopt regulations for this purpose. These regulations are written after giving due regard to "the zones of temperature and to the distribution, abundance, economic value, breeding habits, and times and lines of migratory flight of such birds, and are updated annually (16 U.S.C. 704(a)). This responsibility has been delegated to the U.S. Fish and Wildlife Service as the lead federal agency for managing and conserving migratory birds in the United States. Acknowledging regional differences in hunting conditions, the Service has administratively divided the nation into four Flyways for the primary purpose of managing migratory game birds. Each Flyway (Atlantic, Mississippi, Central, and Pacific) has a Flyway Council, a formal organization generally composed of one member from each State and Province in that Flyway.

The process for adopting migratory game bird hunting regulations, located in 50 CFR part 20, is constrained by three primary factors. Legal and administrative considerations dictate how long the rule making process will last. Most importantly, however, the biological cycle of migratory game birds controls the timing of data-gathering activities and thus the dates on which these results are available for consideration and deliberation. The process of adopting migratory game bird hunting regulations includes two separate regulations-development schedules, based on "early" and "late" hunting season regulations. Early hunting seasons pertain to all migratory game bird species in Alaska, Hawaii, Puerto Rico, and the Virgin Islands; migratory game birds other than waterfowl (e.g. dove, woodcock, etc.); and special early waterfowl seasons, such as teal or resident Canada geese. Early hunting seasons generally begin prior to October 1. Late hunting seasons generally start on or after October 1 and include most waterfowl seasons not already established. There are basically no differences in the processes for establishing either early or late hunting seasons. For each cycle, Service biologists and others gather, analyze, and interpret biological survey data and provide this information to all those involved in the process through a series of published status reports and presentations to Flyway Councils and other interested parties (USFWS 2006).

Because the Service is required to take abundance of migratory birds and other factors in to consideration, the Service undertakes a number of surveys throughout the year in conjunction with the Canadian Wildlife Service, State and Provincial wildlife-management agencies, and others. To determine the appropriate frameworks for each species, we consider factors such as population size

and trend, geographical distribution, annual breeding effort, the condition of breeding and wintering habitat, the number of hunters, and the anticipated harvest. After frameworks are established for season lengths, bag limits, and areas for migratory game bird hunting, migratory game bird management becomes a cooperative effort of State and Federal Governments. After Service establishment of final frameworks for hunting seasons, the States may select season dates, bag limits, and other regulatory options for the hunting seasons. States may always be more conservative in their selections than the Federal frameworks but never more liberal. Season dates and bag limits for National Wildlife Refuges open to hunting are never longer or larger than the State regulations. In fact, based upon the findings of an environmental assessment developed when a National Wildlife Refuge opens a new hunting activity, season dates and bag limits may be more restrictive than the State allows.

NEPA considerations by the Service for hunted migratory game bird species are addressed by the programmatic document, “Final Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds (FSES 88– 14),” filed with the Environmental Protection Agency on June 9, 1988. We published Notice of Availability in the Federal Register on June 16, 1988 (53 FR 22582), and our Record of Decision on August 18, 1988 (53 FR 31341). Annual NEPA considerations for waterfowl hunting frameworks are covered under a separate Environmental Assessment, “Duck Hunting Regulations for 2006-07,” and an August 24, 2006, Finding of No Significant Impact. Further, in a notice published in the September 8, 2005, Federal Register (70 FR 53376), the Service announced its intent to develop a new Supplemental Environmental Impact Statement for the migratory bird hunting program. Public scoping meetings were held in the spring of 2006, as announced in a March 9, 2006, Federal Register notice (71 FR 12216). More information may be obtained from: Chief, Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Department of the Interior.

The Refuge estimates that 210 hunters participated in our waterfowl hunt in 2005. Refuge property open to waterfowl hunting includes two mainland divisions and islands that span 200 miles of the coast. We estimate that less than 150 ducks, of all species combined, are harvested from the Refuge each year. This level of harvest represents less than 0.001% of the estimated waterfowl population observed during the mid-winter inventory. This level of take would not result in any measurable change in waterfowl populations on or near the Refuge.

Refuge staff estimate that less than 10 woodcock are harvested each year on the Refuge. The majority of the upland habitat on both the Gouldsboro Bay and Sawyer’s Marsh Divisions are not likely to support significant numbers of woodcock. This species prefers early successional habitat, while much of the Refuge habitat is mature conifer forest or mature northern hardwood forest. This level of take would have no adverse cumulative effects on local, regional or flyway populations of woodcock.

#### *Controlled Hunt Alternative*

The effects on migratory species would be similar to those identified under the proposed alternative. The primary outcome of this alternative would likely be that the Refuge would obtain accurate information on hunter effort and success rate through the implementation of permit system.

#### Resident Species

##### *Refuge Closed to Hunting Alternative*

Under this alternative harvesting of all resident wildlife species would stop on the Refuge. Public use levels on the refuge would likely decrease slightly as compared to those observed while hunting resident species was permitted. While wildlife would not be harvested on the Refuge under this alternative, hunting pressure would likely shift to lands surrounding the Refuge.

It is possible that white-tailed deer populations on Bois Bubert and Petit Manan Point could increase to levels that adversely impact vegetation conditions on the Refuge. Both of these units are geographically “isolated” from mainland based predators and would have limited opportunities for deer to emigrate. Disturbance by hunters to hunted and non-hunted wildlife would be eliminated.

#### *Proposed Action Alternative*

Implementation of the proposed alternative would have insignificant to minor consequences on resident wildlife populations. The anticipated level of harvest of most species (i.e. less than 5 individuals) would not impact Refuge, regional, or state populations for any of the species harvested. Maine Department of Inland Fisheries and Wildlife periodically reviews populations of all harvested resident species, and has determined that populations are adequate to support hunting and trapping efforts throughout the state.

Continuation of the white-tailed deer hunt on Bois Bubert Island and Petit Manan Point Division could help maintain deer populations at levels supported by existing habitat conditions. Both of these units are geographically “isolated” from mainland based predators and would have limited opportunities for deer to emigrate. In the 1990’s, the Refuge had grown concerned that providing deer with supplemental feed over the winter had allowed the herd to reach higher densities than would have been supported by existing habitat conditions. We observed well defined browse lines on vegetation adjacent to the private property where the feeding occurred and documented reduced regeneration of upland habitat on the Refuge. We believe that hunting will help maintain the deer herd at a level that can be supported by existing habitat conditions.

In 2006, the Refuge implemented our first white-tailed deer hunt on Petit Manan Point. Hunters were allowed to hunt with a muzzleloader on 655 acres for one week in December. No deer were harvested during the hunt. Although moose hunting is permitted on the Refuge, we do not anticipate that more than one moose per year would be harvested. The Refuge supports an extremely low density of moose, and most Refuge staff have never observed a moose on the Refuge. We do not anticipate that deer or moose hunting on the Refuge will have any effect on deer or moose populations on or adjacent to the Refuge.

For species such as ruffed grouse, we would expect moderate hunter interest but would not expect more than 10 grouse to be harvested each year. Species such as snowshoe hare, bobcat, red fox, coyote, and raccoon are traditionally harvested using pursuit dogs or trapping. Since neither of these methods is permitted on the Refuge, we anticipate that less than five individuals of each species would be harvested each year. We do not anticipate a significant interest in hunting skunk, porcupine, or woodchuck and estimate that less than five individuals, of the three species combined, would be harvested per year. While grey squirrel and opossum (*Didelphis marsupialis*) can be legally hunted in Maine, they either do not occur in this region of the state or have not been observed on the Refuge.

The majority of black bears harvested in Maine (75%) are taken while hunting over bait. This

method of hunting is not permitted on Maine Coastal Islands NWR. The Refuge only allows bears to be harvested during the firearm season for white-tailed deer. This method of hunting resulted in 12% of the total harvest within WMD 27 (Table 11). In many years, hunters will not even have access to bears as the animals frequently begin to den prior to the firearm season for deer. Therefore, we estimate that less than two bears would be harvested on the Refuge.

While the Refuge acknowledges that there may be some interest in hunting resident wildlife on the Refuge, we do not anticipate a significant number of hunters will participate in these activities. The majority of land adjacent to the Refuge is open to hunting, and may provide more suitable habitat for targeted species. We also believe that the majority of hunting will occur on lands that permit the use of pursuit dogs, trapping, or hunting over bait. The level of estimated harvest reported for the above mentioned resident wildlife species is not sufficient to effect the local, regional, or state population of any of the species.

#### *Controlled Hunt Alternative*

The effects on resident wildlife would be similar to those identified under the proposed alternative. The primary outcome of this alternative would likely be that the Refuge would obtain accurate information on hunter effort and success rate through the implementation of a permit system. At this point in time, we have no information that would lead us to restrict the number of hunters allowed to participate in the Refuge hunt program, therefore we would not anticipate any change in harvest levels with implementation of this alternative.

#### Non-hunted Wildlife Species

Non-hunted wildlife would include non-hunted migratory birds such as songbirds, wading birds, raptors, and woodpeckers; small mammals such as voles, moles, mice, shrews, and bats; reptiles and amphibians such as snakes, turtles, salamanders, frogs and toads; and invertebrates such as butterflies, moths, insects and spiders. Except for migratory birds, these species have very limited home ranges and hunting could not possibly affect their populations regionally; thus, only local effects will be discussed.

#### *Refuge Closed to Hunting Alternative*

Under this alternative, the refuge would close to all hunting. There would not be any incidental hunting mortality to non-hunted resident wildlife. However, the lack of hunting has the potential to increase predators of non-hunted resident wildlife including small mammals, reptiles and amphibians. We do not have sufficient information to thoroughly evaluate the significance of this alternative to non-hunted wildlife species. Current public use levels on the refuge would likely decrease slightly as compared to those observed while hunting was permitted. Disturbance by hunters to non-hunted wildlife would be eliminated.

#### *Proposed Action Alternative*

Disturbance by hunting to non-hunted wildlife would be the most likely negative cumulative impact. However, we do not anticipate that this would be a significant concern at Maine Coastal Islands NWR. We believe the level of participation in our proposed hunt program is minor compared to the level of Refuge use by non-consumptive users. In addition, regional and flyway effects would not be applicable to species that do not migrate such as most woodpeckers, spruce grouse, and chickadees. Disturbance by hunting to non-hunted migratory birds should not have cumulative negative impacts for the following reasons. The majority of migratory birds that utilize the Refuge are not present during the hunting season. For those species that are present, hunting

seasons do not coincide with the nesting season. Therefore there would not be any long-term impacts resulting from reduced reproductive rates associated with disturbance from hunters. Disturbance to the daily wintering activities, such as feeding and resting, of birds may occur. Disturbance to birds by hunters is probably commensurate with that caused by non-consumptive users.

We recognize that there is potential for some non-hunted wildlife to be disturbed by the presence of hunters on the Refuge. However, we believe the disturbance would be unlikely for the following reasons. Small mammals, including bats, are inactive during winter when hunting season occurs. These species are also nocturnal. Both of these qualities make hunter interactions with small mammals extremely rare. Hibernation or torpor by cold-blood reptiles and amphibians also limits their activity during the hunting season when temperatures are low. Hunters will rarely encounter reptiles and amphibians during most of the hunting season. Encounters with reptiles and amphibians in the early fall are few and should not have cumulative negative effects on reptile and amphibian populations. Invertebrates are also not active during cold weather and will have few interactions with hunters during the hunting season. All of these potential adverse effects must also be considered in the context of expected hunter participation in the hunt program. Past observations of hunter effort on the Refuge indicate that less than 400 hunters participate in our hunting program that spans 30 separate parcels of land.

One potential benefit of the hunt program to non-hunted species would be the potential removal of some predators from the Refuge. Many of the small game species targeted by hunters are considered to be generalists and will prey on migratory birds, small mammals, reptiles and amphibians. Local populations of these nongame species could benefit from continuation of the hunt program.

While there is potential for incidental hunting mortality to non-hunted resident wildlife we believe the risk is not significant. Hunters are required to complete a “Hunter Safety Course” that addresses target identification. MDIFW Hunting and Trapping Laws and Rules and other educational material reinforces the requirement that “while hunting, a hunter may not shoot at a target without at that point in time being certain that it is the wild animal or wild bird sought” (12 MRSA 11222). The potential for injuring a non-target species is also reduced by the fact that the Refuge does not permit night hunting.

#### *Controlled Hunt Alternative*

The effects on non-hunted wildlife species would be similar to those identified under the proposed alternative.

Summary: The Refuge does not believe that there will be any direct or indirect adverse effects on any endangered, migratory, resident, or non-hunted population of wildlife through implementation of a hunt program on Maine Coastal Islands NWR.

### **E. Anticipated Direct and Indirect Impacts on Proposed Action on Refuge Programs, Facilities, and Cultural Resources**

#### A - Other Refuge Wildlife-Dependent Recreation

Coastal Maine is a major attraction for outdoor enthusiasts. While the Refuge is not typically the principal destination in and of itself, it does enhance the coastal experience by offering public

access to a premiere setting with outstanding opportunities for wildlife-dependent recreational activities. Since Refuge lands are held in the public trust by the Service, access is ensured for these activities unless Federal trust resources would be impacted. Refuge lands are open to the following priority, wildlife-dependent public uses: hunting, wildlife observation and photography, and environmental education and interpretation.

Total visitation on the Refuge in 2005 was estimated to be 42,000 visitors; 17,000 visitors on the mainland divisions units, and 25,000 to the islands or surrounding waters. The mainland divisions are open year round from sunrise to sunset. We currently maintain two interpretive hiking trails, the Hollingsworth Memorial Trail (1.5 miles) and the Birch Point Trail (four miles round-trip), both on the Petit Manan Point Division. The Hollingsworth Trail has parking for approximately eight cars; the Birch Point Trail has parking for approximately 10 cars. The only universally accessible facility on the Refuge Complex is an informational kiosk on the Petit Manan Point Division. The Gouldsboro Bay and Sawyer's Marsh divisions contain old logging roads that are passable by foot but have no designated trails or parking lots.

Of the 25,000 visitors to the Refuge islands during 2005, 21,000 of these visitors only experienced them aboard commercial tour boats. With the exception of Machias Seal Island, these tour boat visits do not involve landing on the islands. We estimated that the remaining 4,000 visitors land on Refuge islands, typically by kayak or canoe. In order to minimize disturbance to nesting birds, the Refuge's seabird nesting islands are closed to public use from April 1 - August 31. In addition, active bald eagle nesting islands are closed to public access from February 15 - August 31. Historic bald eagle nesting islands are also closed to public access from February 15 - August 31, but may be open after May 1 if no nesting occurs. While island closures limit the public's access during the popular spring and summer tourist seasons, all islands (except Seal and Duck Islands) are open in the early fall, when weather still allows visitation.

Cross, Scotch, and Bois Bubert islands, along with a portion of Halifax Island, are open year round because they do not support nesting seabirds. Most of Halifax Island is closed year round to protect botanical resources. Seal and Duck Islands are closed to all public uses year round due to unexploded ordnance.

Some popular activities are not compatible and are prohibited by Refuge regulations. Activities prohibited include seaweed harvesting, collecting balsam fir branches for making Christmas wreaths, use of offroad vehicles, and open fires. While leashed dogs are permitted on the Refuge mainland, dogs are prohibited on Refuge islands. Local residents expressed concern when these restrictions were first implemented, but complaints have diminished in recent years. Public trapping has never been allowed on Refuge lands.

#### *Refuge Closed to Hunting Alternative*

The public would not have the opportunity to harvest a renewable resource and participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established, have an increased awareness of Maine Coastal Islands NWR and the National Wildlife Refuge System; nor would the Service be meeting public use demand. Public relations would not be enhanced with the local community. There would be no conflict between hunters and non-consumptive wildlife-dependent recreational users.

#### *Proposed Action Alternative*

One of the intentions of the Refuge Improvement Act is to provide Refuge visitors with a quality, safe and enjoyable recreational experience oriented toward wildlife. These uses must be compatible with the purpose for which the Refuge was established. The Service recognizes that hunting and fishing are acceptable, traditional form of wildlife-dependent recreation as well as a management tool to effectively control certain wildlife population levels. However, Maine Coastal Islands NWR provides additional wildlife dependent opportunities throughout the year.

The Refuge Improvement Act clearly identifies the top six wildlife dependent activities such as Hunting, Fishing, Environmental Education, Environmental Interpretation, Wildlife Photography and Observation. In addition to hunting, Maine Coastal Islands NWR provides visitors with a wide variety of the remaining opportunities. Historically hunting has had minimal impacts on those opportunities that occur during the hunting season. Preliminary numbers show that less than 1% of the total visitation to the Refuge occurs during the hunting season. The majority of public visitation to the Refuge occurs via commercial tour boats during the summer months. These visitors would not be affected by the hunt program in any way. The Refuge does not anticipate any significant impacts to other forms of wildlife dependent activities on Maine Coastal Islands NWR.

During development of our hunt program the Refuge carefully evaluated existing public use and compared this to potential hunting opportunities. We recognized that the majority of the public use on our four mainland divisions occurred on Petit Manan Point. We currently maintain two interpretive hiking trails, the Hollingsworth Memorial Trail (1.5 miles) and the Birch Point Trail (four miles round-trip), both on the Petit Manan Point Division. In an effort to balance use between hunters and non-hunters, the Refuge has restricted the hunting opportunities on Petit Manan Point. Hunting is only permitted during a one week muzzleloader season in early December, a time of year when visitation to the Refuge is typically very low. We also restrict the muzzleloader hunt to a designated "Hunt Zone". This represents a 655 acre section of the 2,195 acre Division. The Hollingsworth Trail is located outside of the hunt zone and remains open to public use during the six day hunt. In addition, hunting is not permitted on Sundays in Maine. In an effort to minimize any potential conflict with other Refuge users or adjacent landowners, the Refuge does not permit the use of pursuit or trailing dogs. While MDIFW permits year-round coyote hunting, the Refuge has limited the coyote hunting season to November 1 – March 31. Crow hunting is also prohibited to the Refuge. The Refuge has no information indicating that hunting permitted under this alternative has had any type of negative effect on any of the other wildlife dependent activities.

#### *Controlled Hunt Alternative*

The effects on wildlife-dependent recreation would be similar to those identified under the proposed alternative.

### B - Refuge Facilities

#### *Refuge Closed to Hunting Alternative*

Additional damage to roads and trails due to hunter use during wet weather periods would not occur with this alternative. However, other users would still be using roads, thereby necessitating periodic maintenance. The Refuge would no longer need to post the boundaries of the designated "Hunt Zone" on Petit Manan Point. Additionally, costs associated with a continued hunting program in the form of road maintenance, instructional sign needs, and law enforcement would not be applicable.

### *Proposed Action Alternative*

Under the proposed action, periodic maintenance or improvement of existing parking areas, roads, boundary lines, and trails will cause minimal negative impacts. However, these efforts would be required even in the absence of a hunt program. These activities may cause some wildlife disturbances and small-scale, site-specific soil erosion and damage to vegetation. Activities would be timed to cause the least amount of disturbance to wildlife. There would be some costs associated with a hunting program in the form of boundary maintenance, instructional sign needs, and law enforcement. These costs should be minimal relative to total refuge operations and maintenance costs and would not diminish resources dedicated to other refuge management programs. Refuge facilities are not expected to be negatively impacted by the proposed action.

### *Controlled Hunt Alternative*

The effects on Refuge facilities would be similar to those identified under the proposed alternative.

## C - Cultural and Historic Resources

### *Refuge Closed to Hunting Alternative*

This alternative requires no development of new trails, roads, or other facilities, and therefore, will not have a negative effect on the refuge's cultural and historic resources.

### *Proposed Action Alternative*

The preferred alternative requires no development of new trails or facilities, thereby producing no negative effect on the refuge's cultural and historic resources. Development of existing roads or trails would have previously required review by the Service's Regional Archaeologist in consultation with the State of Maine's Historic Preservation Office, as mandated by Section 106 of the National Historic Preservation Act.

Service acquisition of land with known or potential archaeological or historical sites provides two major types of protection for these resources: protection from damage by federal activity and protection from vandalism or theft. The National Historic Preservation Act requires that any actions by a Federal agency which may affect archaeological or historical resources be reviewed by the State Historic Preservation Office, and that the identified effects must be avoided or mitigated. The Service's policy is to preserve these cultural, historic, and archaeological resources in the public trust, and avoid any adverse effects wherever possible.

Land acquisition by the Service would provide some degree of protection to significant cultural and historic resources. If acquisition of private lands does not occur and these lands remain under private ownership, the landowner would be responsible for protecting and preserving cultural resources. Development of off-refuge lands has the potential to destroy archaeological artifacts and other historical resources, thereby decreasing opportunities for cultural resource interpretation and research. There are no anticipated adverse cumulative impacts to this resource on- or off-refuge resulting from implementing the proposed action.

### *Controlled Hunt Alternative*

The effects on Refuge cultural and historic resources would be similar to those identified under the proposed alternative.

Summary: The Refuge believes that there will be minimal direct or indirect adverse effects on any

Refuge wildlife-dependent recreation, Refuge facilities, or cultural and historical resources through implementation of a hunt program on Maine Coastal Islands NWR.

## **F - Anticipated Impacts of Proposed Hunt on Refuge Environment and Community**

### *Refuge Closed to Hunting Alternative*

Under this alternative, there would be no additional effects on the Refuge environment and community.

### *Proposed Action Alternative*

The Refuge expects no significant, adverse impacts of the proposed alternative on the refuge environment which consists of soils, vegetation, air quality, water quality and solitude. Some disturbance to surface soils and vegetation would occur in areas selected for hunting; however we believe this to be minimal. Hunting could benefit Refuge vegetation as it is used to keep many resident wildlife populations in balance with the habitat's carrying capacity. Motorized vehicles are not authorized on any of the Refuge trails, therefore all hunters would need to access the Refuge by foot or in a boat.

The Refuge expects impacts to air and water quality to be minimal and only due to Refuge visitors' automobile and off-road vehicle emissions and run-off. The effect of these Refuge-related activities, as well as other management activities, on overall air and water quality in the region are anticipated to be relatively insignificant, compared to the contributions of industrial centers and non-refuge vehicle traffic. Existing State water quality criteria and use classifications are adequate to achieve desired on-refuge conditions; thus, implementation of the proposed action would not impact adjacent landowners or users beyond the constraints already implemented under existing State standards and laws.

We do not anticipate any significant economic impact of the Maine Coastal Islands NWR hunt program on the local economy. In 2005, MDIFW sold 207,381 licenses that permitted deer hunting. Given the availability of land open to hunting in the vicinity of the Refuge, it is unlikely that any of these permits were purchased with the sole intent of hunting on the Refuge.

The Refuge has worked closely with land owners whose property abuts the Refuge to minimize or avoid any potential adverse effects. Prior to implementing the Refuge hunt program, we held a hunter education session to explain Refuge specific regulations and address any potential concerns from adjacent landowners. We annually maintain all Refuge boundaries to insure hunters and other Refuge users are aware of public / private landowner boundaries. Prior to implementing our 2006 muzzleloader hunt on Petit Manan Point, the Refuge purchased and installed a gate to restrict hunter access to private property adjacent to the hunt zone.

Impacts associated with solitude are expected to be minimal given time and space zone management techniques, such as seasonal access and area closures, used to avoid conflicts among user groups. In an effort to minimize any potential conflict with other Refuge users or adjacent landowners, the Refuge does not permit the use of pursuit or trailing dogs. The majority of public use on the Refuge occurs outside of the hunting season. Therefore, no direct or indirect cumulative impacts to the refuge environment and community will occur.

### *Controlled Hunt Alternative*

The effects on Refuge environment and community would be similar to those identified under the proposed alternative.

Summary: The Refuge does not believe that there will be any direct or indirect adverse effects on any Refuge environment or community through implementation of a hunt program on Maine Coastal Islands NWR.

## **G - Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts**

### *Refuge Closed to Hunting Alternative*

No hunting would be permitted under this alternative, therefore, no cumulative effects on other past, present, proposed and reasonable foreseeable hunts are expected.

### *Proposed Action Alternative*

Maine Coastal Islands NWR recently identified a number of nationally significant seabird islands that lack permanent protection by a conservation agency. Our Comprehensive Conservation Plan outlines a strategy to acquire these islands and to manage the valuable wildlife resources they support. As part of the management review, we will evaluate whether an island should be open to migratory waterfowl hunting. Many of these islands are located a considerable distance from the mainland, making them valuable seabird nesting islands, but also limiting potential access to hunters. Although Service acquisition could result in new islands being open to waterfowl hunting, we do not anticipate significant hunting pressure to occur as a result of this process. As discussed earlier in this document, there is abundant private land open to hunting outside the Refuge and many of the Refuge islands are simply too difficult to access.

The refuge will work closely with State, Federal, and private partners to minimize impacts to adjacent lands and its associated natural resources; however, no indirect or direct impacts are anticipated. The newly opened hunts would result in a net gain of public hunting opportunities positively impacting the general public, nearby residents, and refuge visitors.

The Service anticipates the economic effects of this alternative to be negligible. As noted, the Service does not anticipate hunting pressure to originate outside the local community due to hunting opportunities within this region of Maine. The quantities of fuel and supplies purchased by local hunters should not be affected by this alternative.

### *Controlled Hunt Alternative*

The effects past, present, and proposed hunts would be similar to those identified under the proposed alternative.

Summary: The Refuge believes that there are minimal adverse effects due to past, present, proposed, or reasonably foreseeable hunts on Maine Coastal Islands NWR.

## **H - Anticipated Impacts if Individual Hunts are Allowed to Accumulate**

### *Refuge Closed to Hunting Alternative*

This alternative would not permit any hunting on the Refuge; therefore, no cumulative effects of hunting would occur.

*Proposed Action Alternative*

Maine Coastal Islands NWR opened the refuge hunt program in 2002 to provide Refuge visitors with an opportunity to participate in a priority public use. The cumulative impact analysis has looked at each type of hunting allowed on refuge lands and has discussed the impacts associated with individual hunt programs. We believe the cumulative impact of the combined harvest on all national wildlife refuges in Maine would be negligible due to the low level of harvest and the considerable distance among the refuges. In this section, potential impacts of accumulated hunts will be addressed.

The following table shows the refuge hunting seasons for 2006, along with the dates when specific species may be hunted.

<b>Refuge Hunt</b>	<b>Hunt Season</b>	<b>Hunt Days</b>
White-tailed deer (firearm season)	Oct 28 <sup>th</sup> – Nov 25 <sup>th</sup>	25
Muzzleloader hunt for White-tailed deer on Petit Manan Point	Nov 27 <sup>th</sup> – Dec 2 <sup>nd</sup>	6
White-tailed deer	Sept 28 <sup>th</sup> – Oct 27 <sup>th</sup> (Archery) Oct 28 <sup>th</sup> – Nov 25 <sup>th</sup> (firearm)	57
Moose	Oct 9 <sup>th</sup> – Oct 14 <sup>th</sup>	6
Migratory Waterfowl	Oct 2 <sup>nd</sup> – Oct 28 <sup>th</sup> Nov 13 <sup>th</sup> – Dec 23 <sup>rd</sup>	60
Seaducks	Oct 2 <sup>nd</sup> – Jan 31 <sup>st</sup>	108
Woodcock	Oct 2 <sup>nd</sup> – Oct 28 <sup>th</sup> Oct 30 <sup>th</sup> – Nov 1 <sup>st</sup>	27
Wilson’s snipe	Sept 1 <sup>st</sup> – Dec 16 <sup>th</sup>	92
Rail	Sept 1 <sup>st</sup> – Nov 9 <sup>th</sup>	60
Bear	Oct 28 <sup>th</sup> – Nov 25 <sup>th</sup>	25
Ruffed Grouse Raccoon Gray Squirrel	Oct 1 <sup>st</sup> – Dec 31 <sup>st</sup>	78

Table 13: continued		
Snowshoe hare	Oct 1 <sup>st</sup> – Mar 31 <sup>st</sup>	156
Bobcat	Dec 1 <sup>st</sup> – Feb 14 <sup>th</sup>	65
Fox	Oct 16 <sup>th</sup> – Feb 28 <sup>th</sup>	93
Skunk / opossum	Oct 16 <sup>th</sup> – Dec 31 <sup>st</sup>	66
Coyote	Nov 1 <sup>st</sup> – March 31 <sup>st</sup>	126
Woodchuck, Red squirrel, and Porcupine	No closed season	313

The Refuge does not anticipate that a significant number of hunters will participate in the Refuge hunt program due to the limited acreage open to hunting on the Refuge, the availability of private lands open to hunting outside the Refuge, and the low densities of preferred game species. However, we do recognize that some hunters will continue to visit the Refuge. We anticipate that the majority of hunting effort will occur in October and November.

U.S. Fish and Wildlife Service staff recognize that all uses of Refuge lands create some impact to Refuge wildlife and their habitats. These uses, when taken together, have the potential to create accumulating impacts as the number of Refuge uses increases. Because of this potential, Refuge uses are limited to those uses which have been formally determined to be compatible with the purposes for which the Refuge was established and with the Mission of the National Wildlife Refuge System. When these formal compatibility determinations are reviewed (every ten to fifteen years) possible accumulating impacts that may have occurred in succeeding years will be considered and will be addressed as necessary. Accumulated impacts are not expected to have significant impacts.

## **VII. Consultation and Coordination with Others**

During the preparation of this Environmental Assessment, Refuge staff consulted Service and MDIFW biologists with expertise and experience in the research and management of the wildlife species discussed in this document. During the revision of the Maine Coastal Islands NWR EA, the Refuge consulted with other Refuges in Maine in order to address cumulative impacts of Refuge hunting programs. A Section 7 consultation has been conducted to ensure that implementing the hunting program at Maine Coastal Islands NWR will not adversely affect any listed species.

The Hunt Plan, Compatibility Determination and this Environmental Assessment were made available for public review and comment. News Releases were sent to local newspapers, and several articles resulted.

In addition copies of the documents were sent to MDIFW (both Regional and State Offices), Maine Warden Service Regional Headquarters, and several adjacent landowners.

Written comments were received from MDIFW and 10 individuals. Half of the letters from private citizens supported the proposed alternative, while four other respondents opposed all hunting on the

Refuge. One respondent requested additional hunting opportunity on Bois Bubert Island.

The Refuge also held four Public Hearings during the development of our Comprehensive Conservation Plan and Environmental Impact Statement. The Plan included our existing hunt program and the Refuge received several comments on hunting during the public involvement portion of the process.

## **VIII. Regulatory Compliance**

The actions proposed in the preferred alternative will be carried out according to all applicable local, State, and Federal laws. The Hunt Plan, Compatibility Determination and this Environmental Assessment were made available for public review and comment. News Releases announcing the availability of these documents were sent to local newspapers. A Section 7 Endangered Species evaluation was completed and approved for this action. Refuge-specific regulations were developed for this action and can be found on page 9 of this document. This Environmental Assessment meets NEPA requirements. Maine Coastal Islands NWR completed a Comprehensive Conservation Plan (CCP) and Environmental Impact Statement in October 2005. The CCP included the existing hunt program.

## **IX. Appendices**

### **Appendix A**

#### **Response to Public Comment**

The Draft Amended Environmental Assessment (EA) for Public Hunting at Petit Manan National Wildlife Refuge (Refuge) was available for public review and comment from 15 March 2007-16 April 2007. The availability of the EA was announced in local newspaper and notices were posted at the United States Post Office's in Steuben and Milbridge, Maine. Notices were also displayed at the Library and Refuge Office in Milbridge, Maine. The EA and accompanying Hunt Plan were also available for public review at the refuge office for the entire public review and comment period.

Two comments by the public were received. One comment was in favor of the proposed action and one comment was opposed. The comment opposed to this proposed action was from the Humane Society of the United States that contained comments related to hunting on the National Wildlife Refuge System as a whole and containing elements related to litigation filed in 2003 by the Fund for Animals against the U.S. Fish and Wildlife Service (Service). These comments were not specific to this draft EA and are noted but not responded to here. Comments by the HSUS directly related to the draft EA are summarized and responded to below.

The HSUS states that the "FWS is failing to provide adequate notice and the opportunity to comment" on the document. The original EA was written in 2001 and a 30 day review and comment period was provided. Five comments were received in favor and five comments against opening the refuge to public hunting. The EA was amended in 2007 to address cumulative impacts in response to a 2003 lawsuit filed by the Fund for Animals. The

amended EA was available for review and comment for a 30 day period from 15 March – 13 April 2007.

The HSUS states that the Refuge Improvement Act does not allow for sport hunting on refuges unless it is “compatible with the purposes for which the refuge and refuge system were established.” The refuge completed a compatibility determination in 2001 and again in 2005 within the framework of the Comprehensive Conservation Plan and determined that public hunting was compatible with the establishing purposes of refuges within the Maine Coastal Islands NWR Complex. This compatibility determination was signed by the U.S. Fish and Wildlife Service Region 5 Regional Chief of Refuges on March 28, 2005

The HSUS states that the refuge must ensure the availability of sufficient funds before approving hunting on the refuge under the statutes of the Refuge Recreation Act. Sufficient funds are available to implement the hunting plan as stated within the plan on page 11.

The HSUS states that the environmental assessment fails to take into account the “cumulative impacts on the Refuge System from the FWS’s decision to expand hunting throughout the system.” The Service notes the comment.

The HSUS states that in the cumulative impacts analysis, the environmental assessment states that “while cumulative effects may result from hunting and, when viewed as a whole, these impacts may become substantial over time, the impacts from hunting are not expected to be substantial.” The HSUS feels these statements violate NEPA. The Service notes the comment.

The HSUS states that the environmental assessment does not justify the cumulative impacts of hunting on targeted wildlife species. The Service notes the comment.

The HSUS states that “allowing hunting ‘materially interfere[s]’ and ‘detracts’ from the non-consumptive priority uses of refuges.” The Service notes the comment.

The HSUS feels that an EIS should be prepared. The Service notes the comment.

The HSUS states that the “EAs fail to address cumulative impacts throughout the entire refuge system, the flyways of migratory birds, specific regions of the country or even the state in which the refuge is located.” The Service has provided such a cumulative impact analysis in this EA.

The HSUS states that the Service may “not unduly narrow the purpose and need for hunting in the refuge.” The Service notes the comment.

The HSUS states that the Service has not adequately studied, developed, and described alternatives. Moreover, the HSUS asks the Service to “consider and provide analysis of a ‘Non-Consumptive Use’ Alternative. Three alternatives were analyzed in the EA including Alternative 1: Refuge is officially closed to all hunting.

The HSUS states that the Service fails to examine non-lethal management of wildlife and explain why non-lethal management practices are not included in the alternative being analyzed. The Service notes the comment.

The HSUS states that the Service did not comply with the Endangered Species Act. An intra-service Section 7 consultation was completed.

The HSUS states that the Service has compromised the biological integrity of refuges by allowing hunting and that the Service does not consider impacts of hunters on non-consumptive users. The HSUS also claims that hunting and the number of hunters is decreasing and the Service has not capitalized on potential economic gain that would come from non-consumptive users. The Service notes these comments.

The HSUS states that the eastern United States landscape is highly modified, and that deer play a role in the function of the ecosystem. The HSUS states that deer herbivory ultimately does not effect the resulting climax condition of a forested landscape and that there is no data to support that hunting deer will reduce deer vehicle collisions. The Service notes the comments.

The HSUS states that bears are apex consumers and as such, their populations are naturally regulated by food availability. They also state that there is no scientific evidence to support a connection between hunting and the reduction of bear/human conflicts. They further state that hunting bears in “wilderness” areas may put selective pressure on bears to move into suburban areas to avoid being hunted. The Service notes the comment.

The HSUS states that woodcock, American black ducks, pintail, greater and lesser scaup, and king rails should not be hunted because their populations are declining. The Service relies on the Migratory Bird Sport Hunting Frameworks to set hunting regulations of migratory birds annually. The Frameworks are based on the best biological information available.

The HSUS states that the EA does not “elaborate as to the species of duck that may be harvested.” The EA does state that hunters must comply with state regulations which dictate the number and species of ducks that may be harvested.

The HSUS states that the ability of hunters to correctly identify most waterfowl species is “deplorable.” The Service notes the comment.

The HSUS references potential impacts of spring turkey and nuisance wildlife hunting. No spring hunting is proposed in this EA.

The HSUS states that hunting has a “major, detrimental effect on wildlife viewing opportunities.” The Service notes the comment.

## Appendix B

### Compatibility Determination – Maine Coastal Islands National Wildlife Refuge

#### *Public Hunting*

##### **Establishing/Acquisition Authority:**

Authorized through an Act Authorizing the Transfer of Certain Real Property for Wildlife, or other purposes. The establishing and acquisition authorities are:

1. 16 U.S.C. 667b, Public Law 80-537, An Act Authorizing the Transfer of Certain Real Property for Wildlife, or other Purposes; and,
2. 16 U.S.C 715-715r, The Migratory Bird Conservation Act, as amended and Established under the authority of the Migratory Bird Conservation Act, as amended.

##### **Refuge Purpose:**

1. “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. 715d (Migratory Bird Conservation Act).
2. “... suitable for - (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ...” 16 U.S.C. 460k-1 (Refuge Recreation Act).
3. “...particular value in carrying out the national migratory bird management program.” 16 U.S.C. 667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife, or other purposes).
4. “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. 3901(b), 100 Stat. 3583 (Emergency Wetlands Resources Act of 1986).

##### **National Wildlife Refuge System Mission:**

The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats in the United States for the benefit of present and future generations of Americans.

##### **Description of Use:**

1. *What is the use?*  
This determination covers opening several sections of the Refuge to the hunting of migratory game birds and waterfowl, small and big game.

2. *Where would the use be conducted?*  
 Areas of the Refuge that are open to hunting and are identified in the Refuge Hunt Plan (USDI-Petit Manan NWR 2001a) and Refuge Specific Regulations (USDI-Petit Manan NWR 2001b) include; Sawyers Marsh Division and Bois Bubert Island in Milbridge, Gouldsboro Bay Division in Gouldsboro, and 22 islands which are open to hunting of migratory birds. In addition, the Refuge proposes to open to deer hunting a portion of the 2,200 acre Petit Manan Point Division located in Steuben Maine.
  
3. *When would the use be conducted?*  
 Hunting takes place in Maine normally from September through March.
  
4. *How would the use be conducted?*  
 All hunting will be conducted under State and Federal regulations and Refuge Specific Regulations. Refuge Specific Regulations are available to the public in brochure format.  
  
 The Refuge ownership on coastal lands in Maine extends to the mean low tidal mark, thus, they normally encompass intertidal lands that lie between the high and low tidal ranges. These intertidal lands are considered Public Trust Lands of the people of Maine, and as such, certain rights (fishing, fowling, and navigation) are held in common by the people of Maine. The Legislature of Maine states that these rights held in public trust are generally derived from English Common Law and from the Massachusetts Colonial Ordinance of 1641-1647 (State of Maine Bureau of Public Lands). These recreational uses held in trust are among the most important to the people of Maine. The Service recognizes these rights and, unless there is evidence that such uses detract from the Service's mission to protect these lands, will allow such uses. Hunting occurs outside the seabird nesting season (April 1 to August 31) and eagle nesting season (February 15 to August 31).
  
5. *Why is this use being proposed?*  
 Hunting is one of the priority uses outlined by Congress in the Refuge Improvement Act of 1997. The Service supports and encourages priority uses on National Wildlife Refuge lands where appropriate and compatible. Hunting is used in some instances to manage wildlife populations and can provide pertinent biological information to State wildlife agencies. Hunting is also a traditional form of wildlife oriented recreation that can be accommodated on many NWRs lands. In coastal Maine, many private lands and State areas offer similar hunting opportunities.

**Availability of Resources:**

Additional fiscal resources to conduct this activity would be minimal as hunting would occur under State regulations and not as a Refuge regulated hunting program.. Staff time and resources necessary to monitor this use are provided below. Staff from the Rockport and Milbridge offices will provide limited monitoring. The Refuge would also coordinate with State wardens of the Department of Inland Fisheries and Wildlife and Department of Marine Resources Marine Patrol personnel.

Costs associated with administration of this use include:

Preparation of Annual Hunt Plan (16 staff hrs @ \$29.98/hr) .....	\$480.00
Preparation of Refuge Hunting Information/maps (16 staff hrs @ \$22.43/hr) ...	\$413.00
Law Enforcement (40 staff hrs @ \$28.61/hr) .....	\$1144.40
Boat Operation (\$50/hr @ 10 hrs) .....	\$500.00

News Releases (8 staff hrs @ \$24.60/hr) .....	\$240.00
Hunter Orientation Session .....	\$320.00
Program Cost .....	\$3097.00

\*FY 2004 Refuge Budget Allocation included:

Salaries .....	\$428,609.00
Fixed Costs .....	\$ 64,613.00
Annual Maintenance .....	\$34,100.00
Total Available Funds .....	\$527,322.00

Based on a review of the budget allocated for recreational use management, I certify that funding is adequate to ensure compatibility and to administer and manage the recreational use listed.

**Anticipated Impacts of Use:**

Hunting is consistent with the purposes of the Refuge when carried out within established regulations and is a priority uses identified in the Refuge Improvement Act. Island visitation is expected to be minimal and anticipated uses and impacts should also be minimal provided that access is limited to outside the seabird nesting season. The Refuge does not anticipate significant hunting pressure to occur on Refuge lands as a result of opening these areas (islands and mainland units) to hunting due to the availability of private lands open to hunting outside the Refuge (USDI-Petit Manan NWR 2001).

Adverse effects on wildlife (waterfowl) populations are not expected to occur because of the hunting regulations and bag limits that have been set in place by the Federal (USFWS-Migratory Bird Office) and State (Dept. Of Inland Fisheries and Wildlife) agencies that manage the harvest of waterfowl populations. Significant conservation measures and extensive pre and post season population monitoring and the institution of Adaptive Harvest Management are safeguards inherent in waterfowl management. Adverse effects on other game species are not expected to occur because hunting will occur under State regulations. The State Dept. Of Inland Fisheries and Wildlife sets harvest limits that takes into account game species population data collected by State biologists and wildlife species assessments.

**Public Review and Comment:**

A draft EA for public hunting on Petit Manan NWR was prepared and distributed to meet NEPA compliance in 2001. A news release was published in the Downeast Coastal Press and Ellsworth American providing information on availability of the EA. Copies were made available at the Refuge office and at other locations in all towns affected by the proposed action. Copies were also sent to State agencies and to Refuge neighbors. The EA document was available for a 30 day comment period.

This determination was prepared concurrently with the Comprehensive Conservation Plan (CCP). The listed use has been discussed at CCP public scoping meetings and identified in CCP Planning Updates. Further public comment opportunities were afforded when the Draft CCP/EIS was released for a 60-day review. Appendix I of the EIS summarizes the public comments and our responses to them. We modified our hunt proposal for Petit Manan Point in response to the comments we received. Instead of opening the Point to all deer seasons, we have limited it as described above.

**Determination (Check one below):**

Use is Not Compatible agencies and to Refuge neighbors.

Use is Compatible With the Following Stipulations

**Stipulations Necessary to Ensure Compatibility:**

Access for hunting will occur during the State hunting season (October-January) which is outside the window of the seabird and eagle nesting season. State hunting regulations, including bag limits will be in place. In addition, Refuge specific regulations will be in place to minimize conflicts with other public uses allowed on the Refuge. Federal regulations under 50CFR will also be in place. This activity will occur on Refuge mainland units and off-shore islands that have been historically hunted for many years with no adverse effects to wildlife populations or the landscape. Islands that are normally hunted are rock ledges or the intertidal rocky ledge portion of islands. Access to hunt within the intertidal area has already been established through Colonial Ordinance of 1641-1647 as clarified by Title 12 M.R.S.A. 571 et. seq. Hunting will occur under conditions outlined above unless safety or overriding resource concerns would make hunting incompatible.

**Justification:**

Hunting is a wildlife dependent priority public use with minimal impact on refuge resources. Hunting would be conducted under State regulations, thereby reducing the amount of staff time and effort needed to oversee this activity. Staff time and resources that would be needed will be identified during annual work planning to minimize impacts on other refuge programs. In addition, hunting is consistent with the purposes for which the Refuge was established; the Service policy on hunting; the National Wildlife Refuge System Improvement Act of 1997; and the broad management objectives of the National Wildlife Refuge System. Hunting is compatible with and will not detract from the mission of the National Wildlife Refuge System or the objectives of the Refuge. Furthermore, hunting on public lands in Maine is a popular and traditional recreation activity that is strongly support by the State Department of Inland Fisheries and Wildlife. This agency strongly supports hunting on National Wildlife Refuges in Maine.

Signature: Refuge Manager Charles W. Blain 3-23-2005  
(Signature/Date)

Concurrence: Regional Chief: Anthony D. Lejeune March 24, 2005  
(Signature/Date)

Mandatory 15-Year Re-Evaluation Date: 3-1-2020

## Literature Cited

State of Maine Bureau of Public Lands (no date). State Statutes, Title 12 (revised). Bureau of Public Lands, Augusta.

USDI-Petit Manan NWR 2001). Final Environmental Assessment for Public Hunting on Petit Manan National Wildlife Refuge. Refuge files. 14 pp.

USDI-Petit Manan NWR 2001). Hunt Management Plan - Petit Manan National Wildlife Refuge. Refuge files. 11 pp.

Appendix C:

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person: Linda Welch  
Petit Manan National Wildlife Refuge  
P.O. Box 279  
14 Water Street  
Millbridge, ME 04658  
207 546-2124

Date: request dated September 17, 2004

**I. Region:** R5

**II. Service Activity (Program):** Petit Manan National Wildlife Refuge Complex, Draft Comprehensive Conservation Plan and Environmental Impact Statement

Log # 04-395

**Pertinent Species and Habitat:**

**A. Listed species and/or their critical habitat within the action area:**

Bald eagle (*Haliaeetus leucocephalus*)  
Roseate tern (*Sterna dougallii*)

There is no Critical Habitat in the action area.

**B. Proposed species and/or proposed critical habitat within the action area:**

none

**C. Candidate species within the action area:**

none

**Geographic area or station name and action:** Petit Manan National Wildlife Refuge

**V. Location (attach map):**

**A. Ecoregion Number and Name:**

The proposed refuge expansion would be in the U.S. portion of the Gulf of Maine Rivers ecosystem: in particular, the 7,691 acres on our mainland refuges and 42 refuge islands, and the 151 nationally significant coastal nesting islands not permanently protected of York, Cumberland, Sagadahoc, Lincoln, Knox, Hancock, and Washington counties.

- B. County and State:** York, Cumberland, Sagadahoc, Lincoln, Knox, Hancock, and Washington Counties, Maine
- C. Section, township, and range (or latitude and longitude):** The preferred alternative for refuge expansion includes 87 islands from the Isles of Shoals on the Maine/New Hampshire border to Little River Island in Cutler in eastern Maine.
- D. Distance (miles) and direction to nearest town:** Varies
- E. Species/habitat occurrence:**

The 42 islands in the existing Refuge Complex display incredibly diverse habitats and associated fish, wildlife, plant, and insect species. Some are Federal or State-listed as threatened, endangered, or special concern; among them, bald eagles, roseate terns, common terns, Arctic terns, Atlantic puffins, razorbill, and harlequin ducks. The coast of Maine supports approximately half of Maine's 340 pairs of nesting eagles and all 240 pairs of nesting roseate terns.

**VI. Description of proposed action (attach additional pages as needed):**

This plan describes four alternatives for refuge expansion. The preferred alternative B would expand the refuge by 2,467 acres and notably increase habitat management and opportunities for compatible, wildlife-dependent recreation. Selecting this alternative would expand the Petit Manan refuge by 2,314 acres beyond the current approved boundary on 87 nationally significant seabird, wading bird, or bald eagle coastal nesting islands and 153 acres of wetlands on the mainland. It would add six new seabird restoration projects to the present six, and intensify the focus of the refuge biological programs on birds of high conservation priority in the Gulf of Maine. Alternative B would increase opportunities for wildlife-dependent recreation, especially in the refuge's environmental education and interpretation programs, build new trails on the Gouldsboro Bay, Sawyers Marsh, and Corea Heath divisions, and open the Petit Manan Point division for deer hunting. Alternative B would recommend that 13 Refuge Complex islands in 8 wilderness study areas be included in the National Wilderness Preservation System. Refuge staffing and budgets would increase commensurately.

Goals of the proposed refuge expansion are to:

**Goal 1:** Perpetuate the biological diversity and integrity of upland communities on Refuge Complex mainland properties to sustain high quality habitat for migratory birds.

**Goal 2:** Maintain high quality wetland communities on Refuge Complex mainland properties, primarily to benefit migratory birds of high conservation priority, while also supporting other native, wetland-dependent species of concern.

**Goal 3:** Perpetuate the biological diversity and integrity of upland communities

on Refuge Complex islands to sustain high quality habitat for nesting bald eagles and migratory songbirds and raptors and protect rare plant sites.

**Goal 4:** Protect the high quality wetland communities on Refuge Complex islands to benefit nesting and migrating shorebirds and waterfowl.

**Goal 5:** Protect and restore nesting seabird populations on Refuge Complex islands to contribute to regional and international seabird conservation goals.

**Goal 6:** Promote the public enjoyment and stewardship of coastal Maine wildlife and their habitats by providing priority, wildlife-dependent recreational and educational opportunities.

**Goal 7:** Protect the integrity of coastal Maine wildlife and habitats through an active land acquisition and protection program.

**Goal 8:** Communicate and collaborate with local communities, Federal, State, local and Tribal representatives and other organizations throughout coastal Maine to advance the mission of the National Wildlife Refuge System.

## **VII. Determination of effects:**

### **A. Explanation of effects of the action on species and critical habitats in items III.A, B, and C (attach additional pages as needed):**

Four alternatives were considered in the CCP plan. Alternatives A, B, and C would maintain the seasonal closures to protect roseate terns and bald eagles nesting on the Refuge Complex. Alternative D would close Refuge Complex islands to public use year-round. Roseate terns are nesting on two Refuge Complex islands, and bald eagles are nesting on four islands and the Gouldsboro Bay Division. Alternatives A, B and C would continue to manage the six seabird restoration projects, which provide nesting or foraging sites for roseate tern. Alternative C, with the largest expansion proposal, would provide the greatest long-term benefits to roseate tern and bald eagles by protecting existing and potential future nesting sites, and would contribute the most to those species' recovery goals. Alternative B would provide the second greatest long-term benefits, followed by alternative A. Alternative D does not propose an expansion, and would provide the least support to recovery goals.

The preferred alternative, B, would acquire existing eagle nesting islands and expand nesting opportunities for roseate terns by adding 6 new seabird restoration islands. This option would maintain permanent protection of active and historic bald eagle and roseate tern nesting sites on current refuge lands, including predator control and seasonal closures. The preferred alternative would appreciably increase protection of active bald sites; 37 islands in the proposed expansion are bald eagle nesting sites, and 2 are historic roseate tern nesting sites.

This refuge expansion proposal provides habitat for bald eagles and roseate terns to expand to new areas.

Alternative C would appreciably increase protection of active bald eagle sites; 101 islands in this expansion proposal are bald eagle nesting sites, and 2 are historic roseate tern nesting sites. This refuge expansion proposal provides habitat for bald eagles and roseate terns to expand to new areas.

All of the alternatives are intended to maintain or improve biological resources on the Refuge Complex, in coastal Maine, and within the Gulf of Maine Rivers ecosystem. The combination of our management actions with other organizations' actions could result in significant, beneficial cumulative effects by (1) increasing protection and management for Federal and State-listed threatened and endangered species; (2) improving uplands and wetlands habitats that are regionally declining; and (3) reducing invasive, exotic plants and animals.

All four alternatives for future management of Petit Manan Wildlife would benefit bald eagles and roseate terns. Since the refuge is managed to benefit these species, no negative or adverse effects will take place. The Maine Field Office concurs that the CCP, and especially alternatives B and C, will provide only positive effects and no adverse effects to bald eagles and roseate terns.

**B. Explanation of actions to be implemented to reduce adverse effects:**

Bald eagle nesting islands would be closed to public use during the nesting season. Roseate tern nesting islands would be closed to public use during the nesting season. Seabird nesting islands would be managed by resident biologists during the nesting season.

**VIII. Effect determination and response requested: [\* optional]**

**A. Listed species/critical habitat:**

<u>Determination</u>	<u>Response requested</u>
no effect (species: _____)	*Concurrence
is not likely to adversely affect (species: <u>bald eagle and roseate tern</u> )	<input checked="" type="checkbox"/> Concurrence <input type="checkbox"/> *Formal Consultation
is likely to adversely affect (species: _____)	Formal consultation

**B. Proposed species/proposed critical habitat: No Critical Habitats**

Determination

Response requested

no effect  
(species: \_\_\_\_\_)

\*Concurrence

is not likely to adversely affect  
(species: \_\_\_\_\_)

\_\_\_ Concurrence

is likely to adversely affect  
(species: \_\_\_\_\_)

\_\_\_ Informal conference

is likely to jeopardize/adverse modification of  
critical habitat  
(species: \_\_\_\_\_)

\_\_\_ Conference

**C. Candidate species:      No candidate species**

Determination

Response requested

no effect  
(species: \_\_\_\_\_)

\*Concurrence

is likely to jeopardize  
(species: \_\_\_\_\_)

\_\_\_ Conference

This concludes informal consultation on the Petit Manan National Wildlife Refuge CCP. Accordingly, no further action is required under Section 7 of the ESA, unless: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Mark McCollough      9/27/04  
Mark McCollough      Date  
Endangered Species biologist  
Maine Field Office

## X. Literature Cited

- Banasiak, C. 1964. Deer in Maine. Game Division Bulletin No. 6. Department of Inland Fisheries and Game, Augusta, ME. 163 pp.
- Banasiak, C., F. Dunn, and K. Morris. 1980. Moose Management Plan. Pages 110-142 In: Planning for Maine's inland fish and wildlife, Vol. 1 Part 1. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 696 pp.
- Boone, R. B. and W. B. Krohn. 1998. Maine Gap Analysis vertebrate data – Part I: distribution, habitat relations, and status of amphibians, reptiles, and mammals in Maine. Final contract report to the U.S. Geological Survey's Biological Resources Division, Gap Analysis Program, Moscow, Idaho. 175 pp. plus appendices.
- Caron, M. 1986. Red fox assessment 1985. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 34 pp.
- Conkling, P.W. 1995. From Cape Cod to the Bay of Fundy: An Environmental Atlas of the Gulf of Maine. The Inland Institute. Connolly, J. M. 1986. Raccoon assessment 1985. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 32 pp.
- Conway, C. J. W.R. Eddleman. 1994. Virginia Rail Pp. 460-501 in Management of Migratory shore and upland game bird management in North America. Inter. Assoc. Fish Wild. Agencies, Washington, D.C.
- Conway, C.J., W.R. Eddleman, S.H. Anderson. 1994. Nesting success and survival of Virginia rail and soras. *Wilson Bulletin* 106: 466-473.
- Cross, R.A. 1986. Maine Snowshoe Hare (*Lepus americanus*) assessment. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 30 pp.
- Fogarty, M. J., K. A. Arnold, L. McKibben, L. B. Pospichal, and R. J. Tully 1977. Management of Migratory Shore and Upland Game Birds in North America. Univ. of Nebraska Press. 358 pp.
- Griffith, F. 1976. A Preliminary Study of the Coastal Islands in the Land Use Regulation Commission's Jurisdiction. Maine Department of Conservation.
- Jakubas, W. J. 1999. Coyote assessment – 1999. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 67 pp.
- Jakubas, W. J. 2004. Furbearers and small game mammals. Pages 20-22 In: Wildlife Division research & management report 2004. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 78 pp.

- Jakubas, W. J. and R. Cross. 2002. Snowshoe hare (*Lepus americanus*) assessment 2001. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 60 pp.
- Jakubas, W. J. and J. Vashon. 2004. Black bear. Pages 15-19 In: Wildlife Division research & management report 2004. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 78 pp.
- Kemp, G.A. and L.B. Keith. 1970. Dynamics and Regulation of Red Squirrel (*Tamiasciurus Hudsonicus*) Populations. *Ecology*, Vol. 51, No. 5. (Sep., 1970), pp. 763-779.
- Lavigne, G. R. 1999. White-tailed deer assessment and strategic plan 1997. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 101 pp. plus appendices.
- Lavigne, G. R. 2004. White-tailed deer population management system and database. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 68 pp.
- Maine Department of Inland Fisheries and Wildlife (MDIFW). 2000. Wildlife Division: Research and Management Report 2000. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. 68 pp.
- Maine Department of Inland Fisheries and Wildlife (MDIFW). 2001. Wildlife Division: Research and Management Report 2001. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. 72 pp.
- Maine Department of Inland Fisheries and Wildlife (MDIFW). 2002. Wildlife Division: Research and Management Report 2001. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. 76 pp.
- Maine Department of Inland Fisheries and Wildlife (MDIFW). 2003. Wildlife Division: Research and Management Report 2001. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. 76 pp.
- Maine Department of Inland Fisheries and Wildlife (MDIFW). 2004. Wildlife Division: Research and Management Report 2004. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. <http://www.state.me.us/ifw/wildlife/report04/introduction.htm>.
- Maine Department of Inland Fisheries and Wildlife (MDIFW). 2005. Wildlife Division: Research and Management Report 2005. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. <http://www.state.me.us/ifw/wildlife/report05/index.htm>.
- Maine Department of Inland Fisheries and Wildlife (MDIFW). 2006. Wildlife Division: Research and Management Report 2006. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. <http://www.state.me.us/ifw/wildlife/wildlifereport06.pdf>.

- McAuley, D.G, J.R. Longcore, D.A. Clugston, R. B. Allen, A. Weik, S. Staats, G.F. Sepik, Wl Halteman. 2005. Effects of hunting on survival of American woodcock in the northeast. *Journal of Wildlife Management* 69(4): 1565–1577.
- McLaughlin, C. R. 1988. Bear management system and data base. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 29 pp. plus appendices.
- McLaughlin, C. R. 1995. Bobcat management system. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 21 pp. plus appendices.
- McLaughlin, C. R. 1999. Black bear assessment and strategic plan 1999. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 53 pp. plus appendices.
- Melvin, S.M., J.P. Gibbs. 1994. Sora. Pp. 209-217 in *Management of migratory shore and upland game bird management in North America*. Inter. Assoc. Fish Wild. Agencies, Washington, D.C.
- Morris, K. I. 1986. Bobcat assessment – 1985. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 22 pp.
- Morris, K. I. 1999. Moose assessment. Maine Department of Inland Fisheries and Wildlife, 284 State Street, State House Station 41, Augusta, Maine, 04333-0041. 62 pp. plus appendices.
- Morris, K. I. and K. Elowe. 1993. The status of moose and their management in Maine. *Alces* 29:91-97.
- Porter, E.M. 2002. Personal comment. Environmental specialist, U.S. Fish and Wildlife Service, Air Quality Branch, Denver, CO.
- Stanton, D. C. 1963. A history of the white-tailed deer in Maine. *Game Division Bulletin No. 6*. Department of Inland Fisheries and Game, Augusta, ME. 163 pp
- Tiner, R.W., Jr.. 1984. Wetlands of the United States: current status and recent trends. *National Wetlands Inventory*. Govt. Print. Office, Washington, D.C.
- TRIGON-PARC (The Research Institute of the Gulf of Maine – Public Affairs Research Center). 1974 *A Socio-Economic and Environmental Inventory of the Northern Atlantic Region, Sandy Hook to Bay of Fundy*. Vol. 1, Book 2.
- Wilson, P. J., W. J. Jakubas, and S. Mullen. 2004. Genetic status and morphological characteristics of Maine coyotes as related to neighboring coyote and wolf populations. Final report to the Maine Outdoor Heritage Fund Board, Grant #011-3-7. Maine Department of Inland Fisheries and Wildlife, Bangor. 59 pp.
- U.S. Census Bureau. 2000. <http://quickfacts.census.gov/qfd/states/23000.html>

U.S. Fish and Wildlife Service. 2006. Waterfowl population status, 2006. Division of Migratory Bird Management, Laurel, Maryland, 60 pp.

U.S. Fish and Wildlife Service. 1988. Final supplemental environmental impact statement: issuance of annual regulations permitting the sport hunting of migratory birds. SEIS 88, U.S. Government Printing Office, Washington, D.C.

Figure 1: Petit Manan Point Division and Designated Hunt Zone

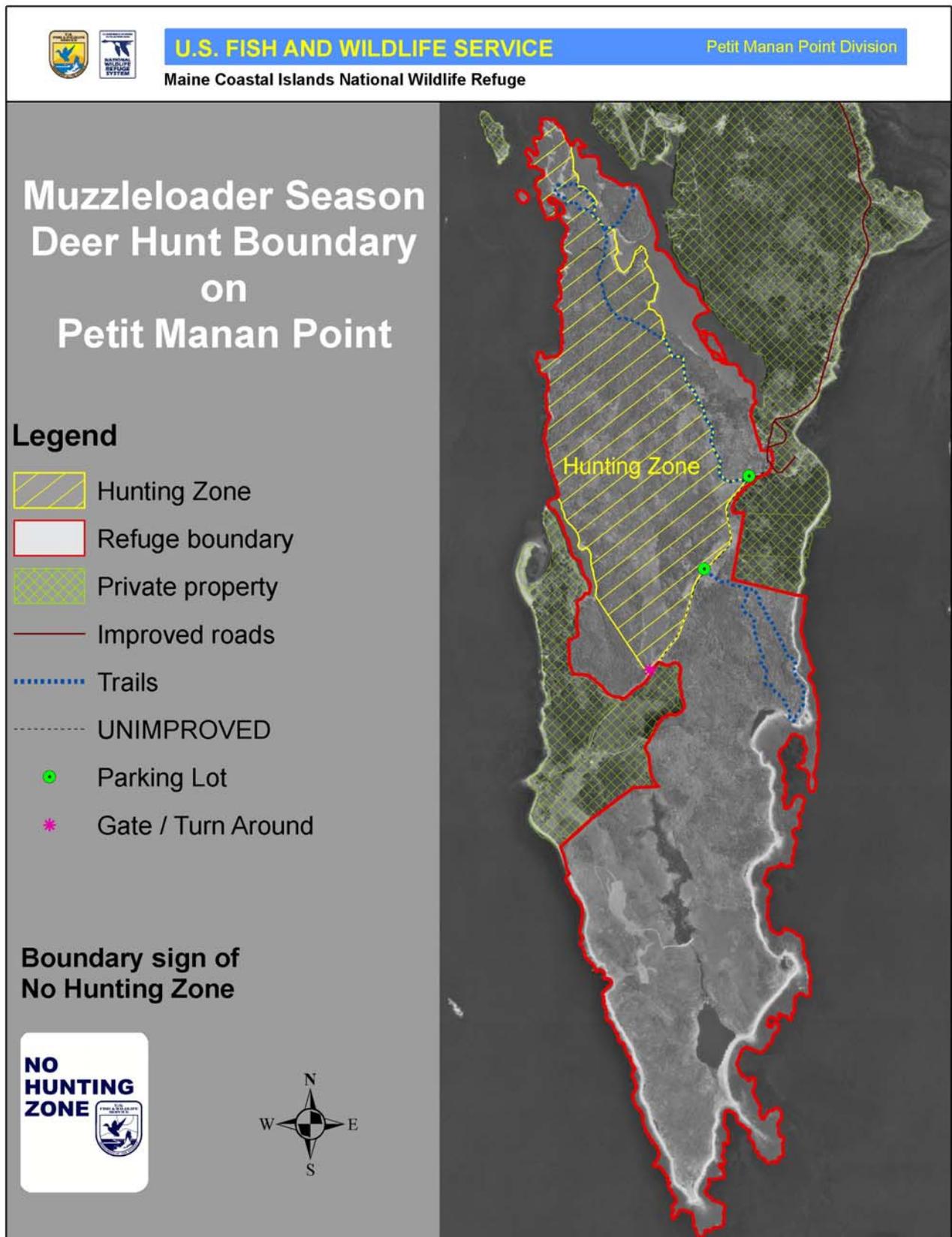
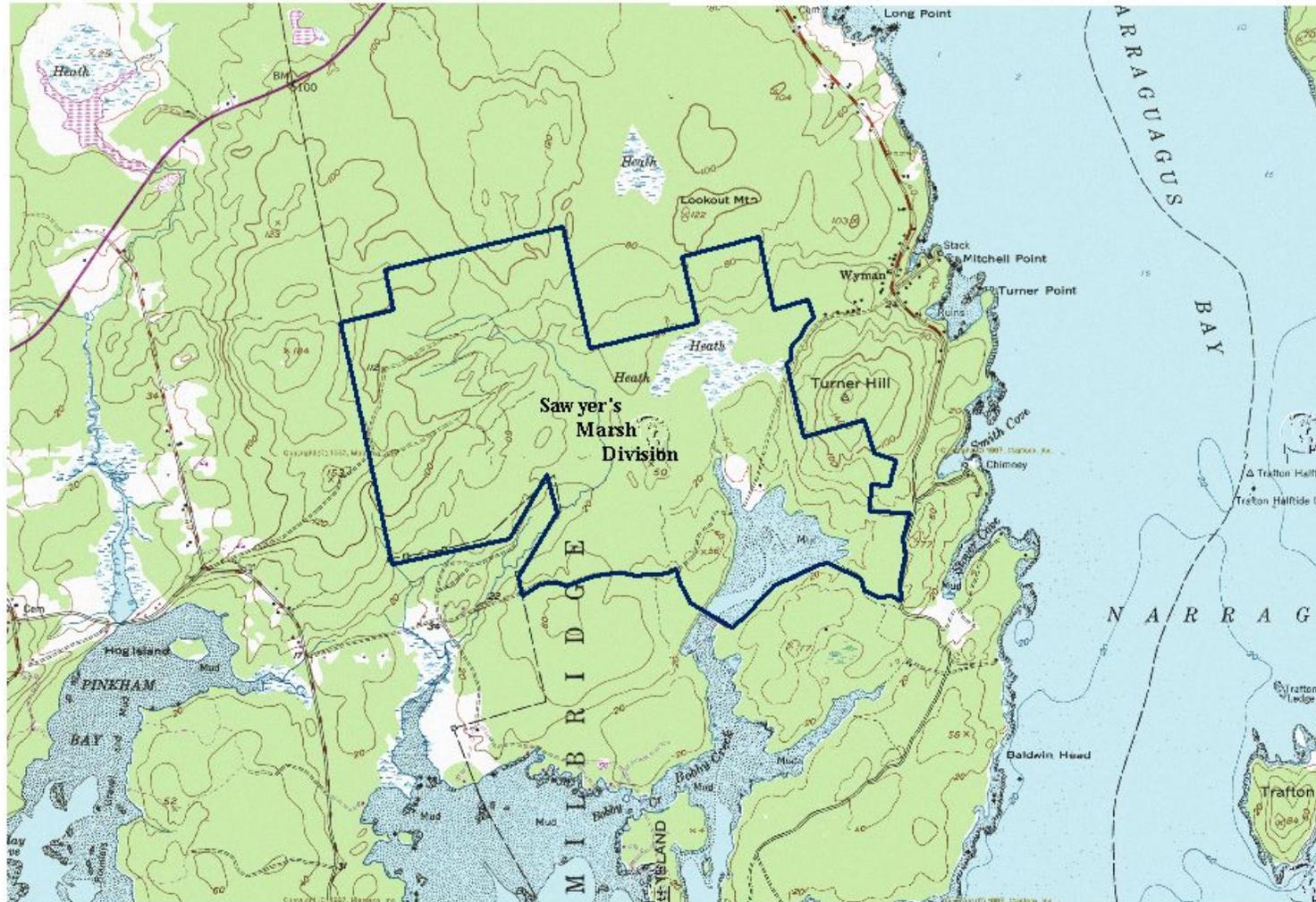


Figure 2: Sawyer's Marsh Division



## Maine Coastal Islands National Wildlife Refuge

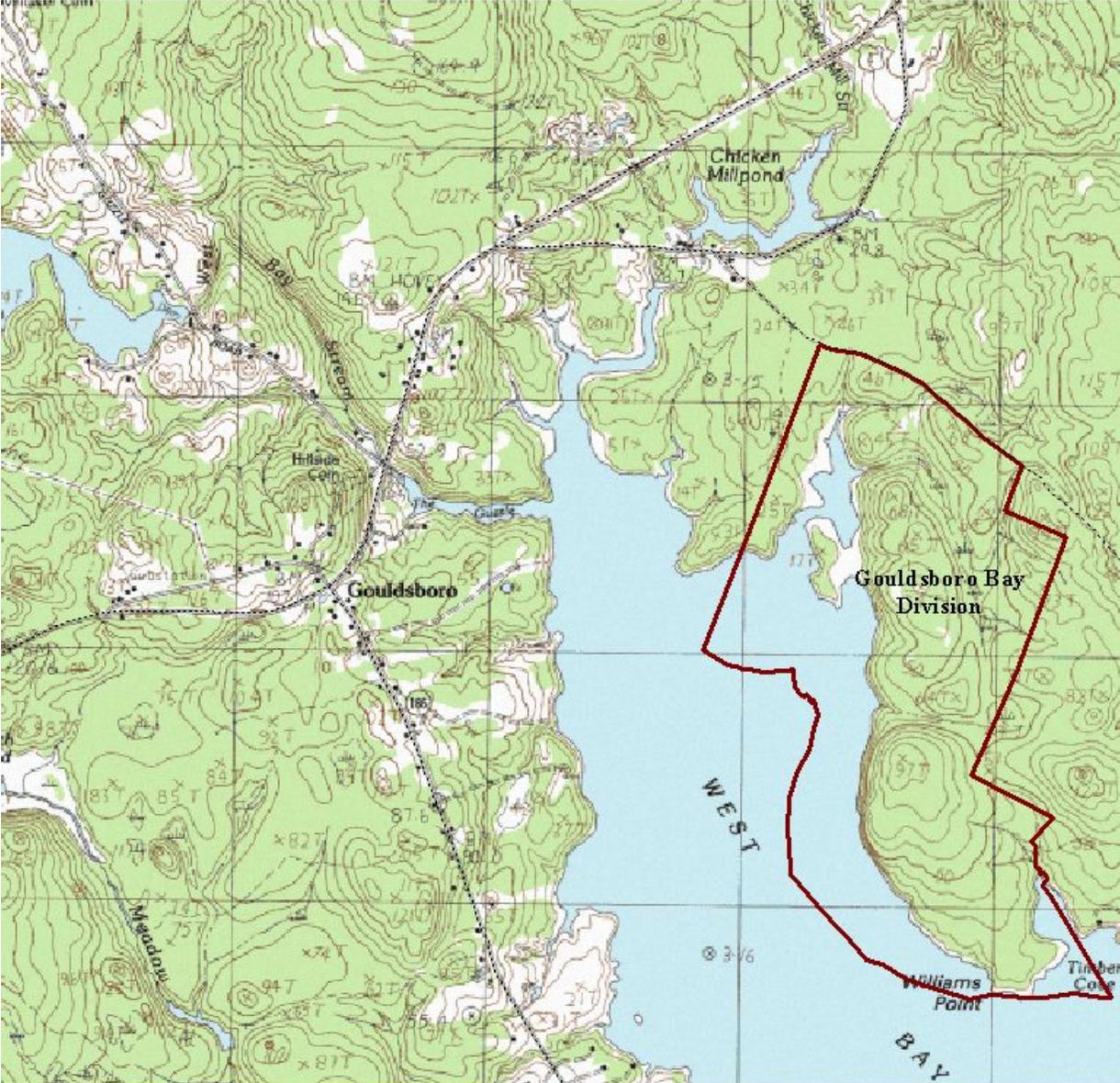


Sawyer's Marsh Division

Figure 3: Gouldsboro Bay Division



# Maine Coastal Islands National Wildlife Refuge

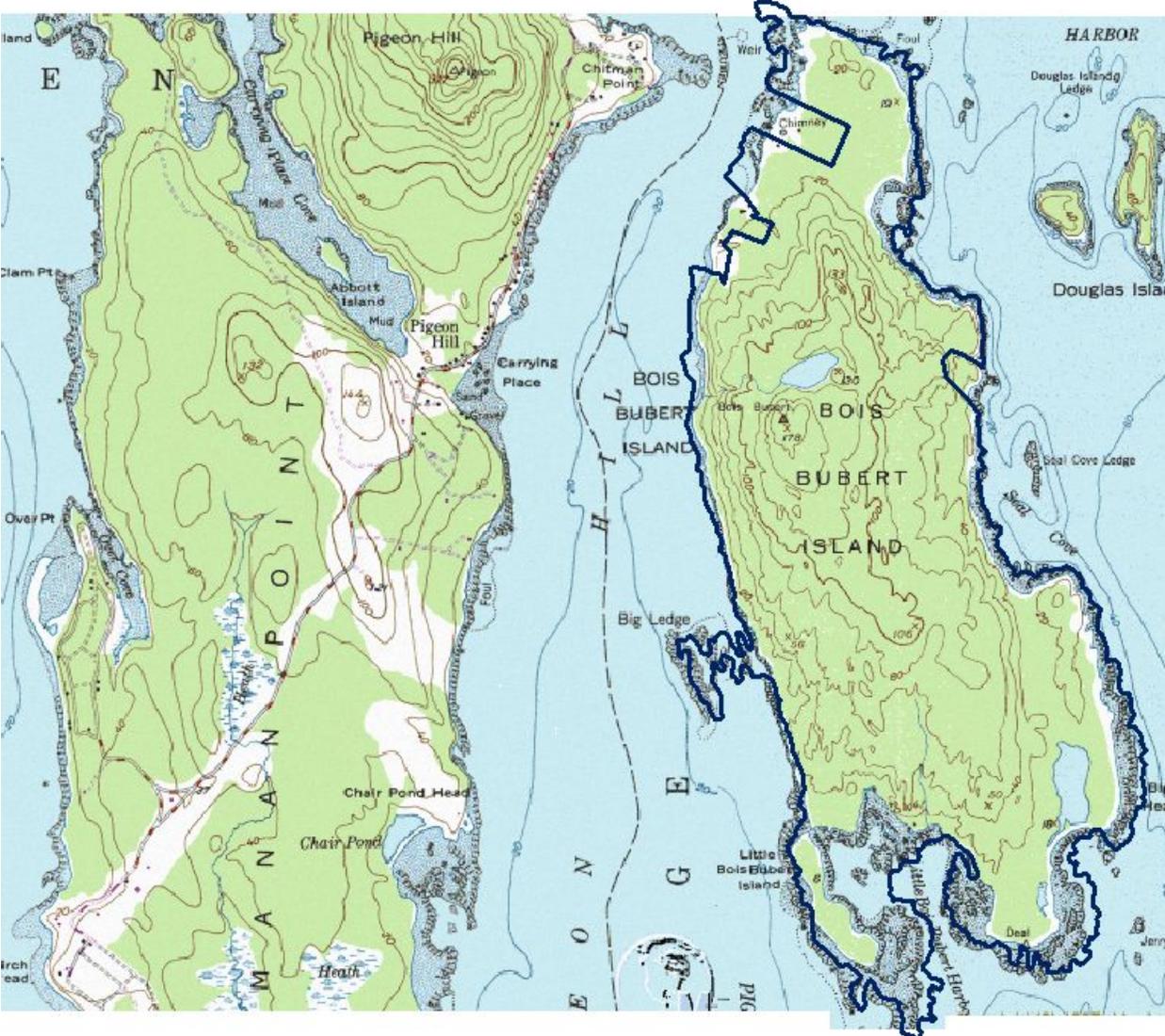


## Gouldsboro Bay Division

Figure 4: Bois Bubert Island

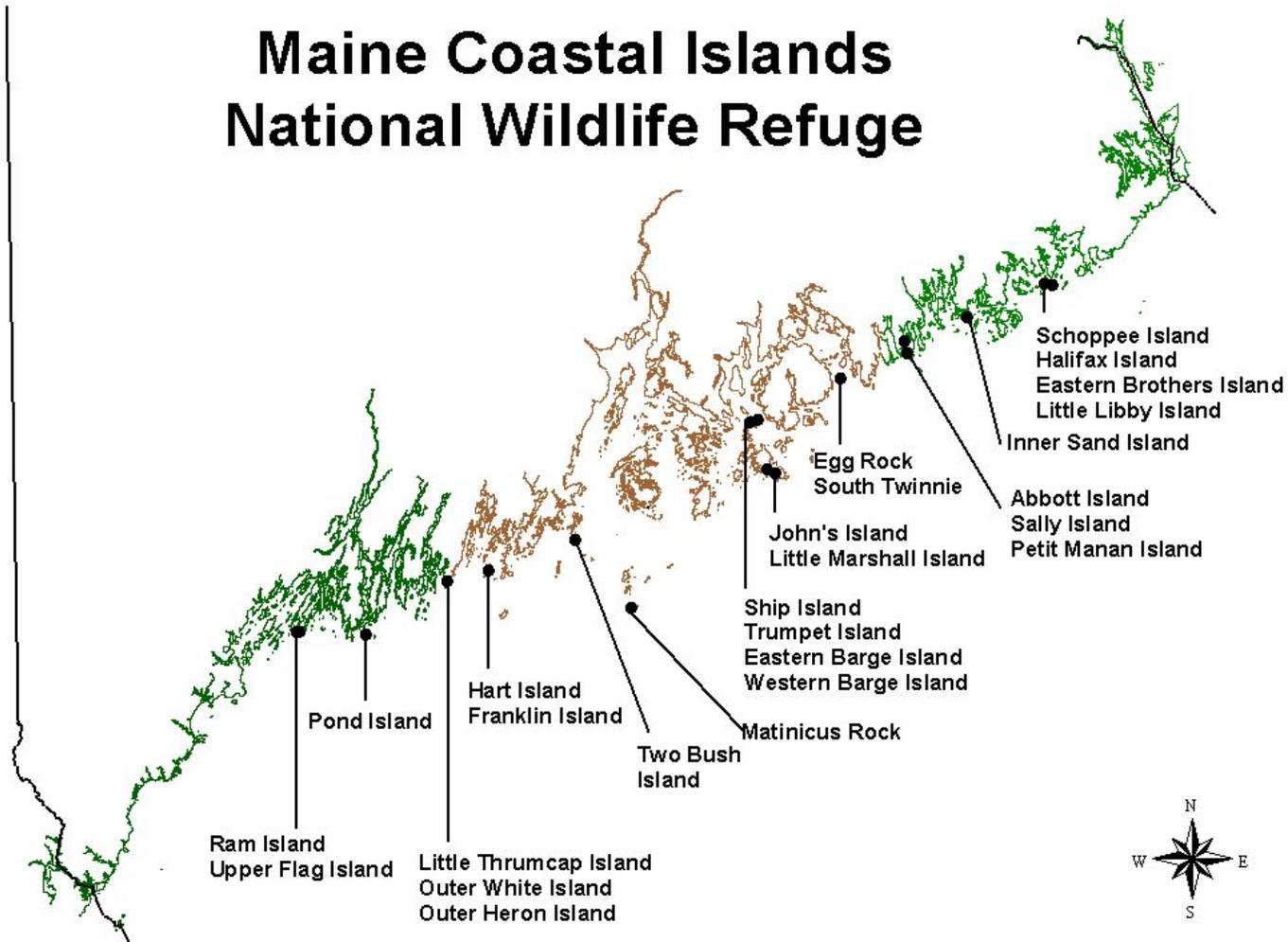


# Maine Coastal Islands National Wildlife Refuge



## Bois Bubert Island

Figure 5: Islands within Maine Coastal Islands NWR open to Waterfowl Hunting



Islands within Maine Coastal Islands NWR open to waterfowl hunting.