

Station Management Plan

Maine Coast National Wildlife Refuges



U.S. Fish and Wildlife Service
Region 5

February 1989

STATION MANAGEMENT PLAN

MAINE COAST NATIONAL WILDLIFE REFUGES

FEBRUARY, 1989

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3/2/89
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PREFACE

The following plan stems from a recent initiative of Region 5 to produce general management guidance based on stated objectives for individual field stations. In this planning approach, refuge objectives and management strategies are arrived at through consensus of knowledgeable professionals. It is intended to be applied to stations where management issues are relatively clear. The process and documentation take 2-3 months to accomplish.

Plan implementation may vary somewhat as new information and insights emerge.

The Maine Coast Refuges Station Management Plan has been prepared through the joint efforts of:

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TABLE OF CONTENTS

	Page
INTRODUCTION	1
BACKGROUND	
Location	4
History of the Refuges	4
Current Land Use Status	5
Environment	
Climate	5
Topography	6
Geology and Soils	6
Surface Water	6
Marine Ecosystem	6
Refuge Resources	
Habitat	6
Wildlife	7
Cultural Resources	8
Public Use Opportunities	8
Social and Economic Resources	9
Aesthetic Resources	9
Equipment and Facilities	9
Refuge Administration	9
Permits and Agreements	9
CURRENT MANAGEMENT GUIDANCE AND DIRECTION	
Legal Direction	10
Policy Direction	10
Current Fish and Wildlife Service Priorities	11
Issues Specific to the Maine Coast Refuges	11
MANAGEMENT OBJECTIVES	
Wildlife	12
Land Protection	13
Public Use	13
Historic/Archaeologic Resources	13
MANAGEMENT STRATEGIES	
Wildlife	14
Land Protection	16
Public Use	17
Historic/Archaeologic Resources	17
Administration	17
GENERAL MANAGEMENT STRATEGY	
Current Management	19
Management Prospects	19
Management Deficit	20
General Management Overview	20

3-5 YEAR MANAGEMENT PROGRAM

Endangered Species	
Bald Eagle	22
Roseate Tern	23
Information Management	24
Black Duck	
Nesting	25
Staging	26
Wintering	26
Seabirds	27
Land Protection	28
Public Use	29
Historic/Archaeologic Resources	29
Administration	
Health and Safety of Refuge Users	30
Refuge Operations Capability	30

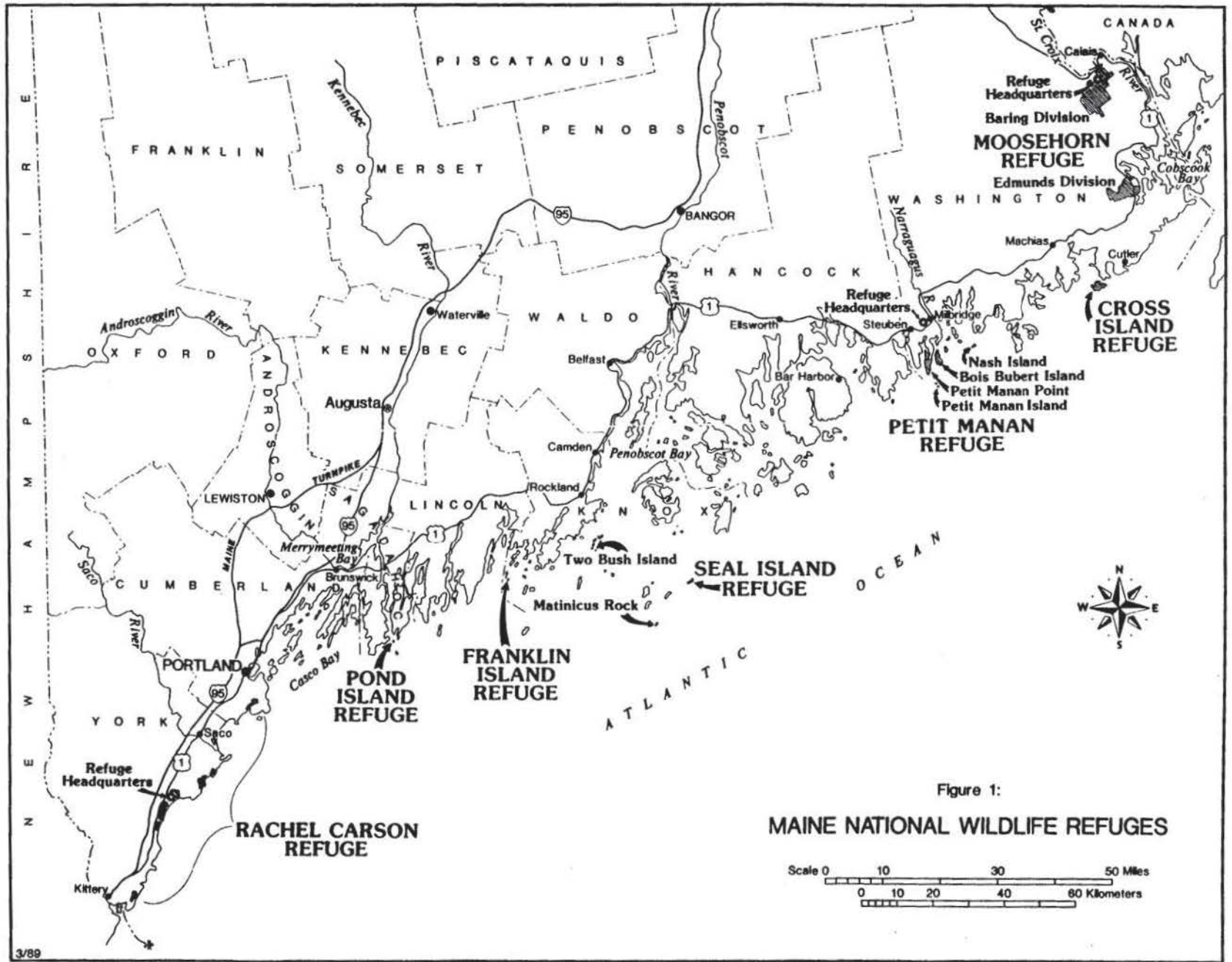
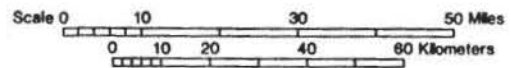


Figure 1:
MAINE NATIONAL WILDLIFE REFUGES



INTRODUCTION

The Maine Coast Islands and associated rocky headlands constitute a nationally significant wildlife area; the region is the southern extent of breeding range for the Atlantic puffin, razorbill, black guillemot, common eider and Leach's storm petrel and the northern limit of breeding range for the endangered roseate tern, and the laughing gull, snowy egret and glossy ibis. The coast also provides important habitat for the bald eagle, black duck, Arctic tern, common tern, osprey and harbor seal.

The first Maine coast island to become a National Wildlife Refuge (NWR) was Seal Island in 1972. Since then four separate refuges have been established that collectively contain 12 islands and one peninsula totalling approximately 5,123 acres.

Cross Island NWR is a 1,703-acre island complex donated to the Fish and Wildlife Service (FWS) by Thomas and Virginia Cabot in 1980. Eighteen acres of Cross Island is owned by Hurricane Island Outward Bound, Inc. and 20 acres have been retained by the Cabot family. Refuge land is located in the town of Cutler in Washington County and is composed of six islands: Cross Is., 1,654 acres; Scotch Is., 10 acres; Inner Double Head Shot Is., 8 acres; Outer Double Head Shot Is., 14 acres; Mink Is., 11 acres; and Old Man Is., 6 acres. Cross, Scotch and Mink islands are mostly vegetated with red and white spruce. One pair of eagles and several pairs of osprey nest on Cross Is. and many eagles regularly loaf and feed there. The wetland between the island and Northwest Head is an important black duck staging area and stopover point for migrating shorebirds.

The Double Head Shot Islands and Old Man Is. support over 270 nesting pairs of doubled-crested cormorants, 200 pairs of eiders, 200 pairs of black guillemots and 30 pairs of razorbills. These islands support large gull colonies and two state listed rare plants: beachhead iris and roseroot stonecrop.

Petit Manan NWR is a 3,335-acre refuge acquired largely through The Nature Conservancy. It consists of 2,166 acres on Petit Manan Peninsula, 1,155 acres on Bois Bubert Is., 9 acres on Petit Manan Is., and 5 acres on Nash Is. Waters around the peninsula and Bois Bubert Is. are important staging areas for black ducks and are used by common eiders and migrating shorebirds. Petit Manan Island is treeless and was reclaimed as a major common, Arctic and roseate tern nesting colony when nesting gulls were removed in May, 1984. About 30 pairs of herring and great black-backed gulls and 20 pairs of eiders nest on Nash Is., which has been used by nesting roseate and arctic terns.

Seal Island NWR is a 65-acre treeless island, 25 miles off Rockland, that was transferred to the FWS from the Navy in 1972. Formerly a bombing target, the remote, grassy and rocky island provides some of the best colonial seabird nesting habitat on the Maine coast. Current estimates include over 1,000 pairs of Leach's storm-petrels, 45 pairs of double-crested cormorants, and 350 pairs of eiders, 100 pairs of black guillemots plus great black-backed gulls, and herring gulls.

Matinicus Rock is a 34-acre treeless island near Seal Island. It is one of the most important colonial seabird nesting islands in Maine, it supports 550 pairs of Leach's storm-petrels, 980 pairs of Arctic terns, 125 pairs of puffins and 175 pairs of laughing gulls. In response to a 1966 request from the National Audubon Society, the FWS signed an agreement with the Coast Guard, who maintains a light station on the island, to map, fence, and post areas on the rock to permit "public viewing of bird life".

Franklin Island NWR is a 12-acre island near Friendship in Muscongus Bay. It was acquired from the Coast Guard in 1973 and still hosts a working light. Approximately half the island is vegetated with red spruce, and half with raspberry and various grasses. The island may have the largest eider colony in Maine - over 1,300 pairs. It also supports about 20 nesting pairs of black guillemots, 20 pairs of Leach's storm-petrels, herring and great black-backed gulls, two osprey nests and 30 pairs of black-crowned night herons.

Two Bush Island, located approximately 16 miles east of Franklin Island, is an eight acre treeless island. It is owned by the Coast Guard and leased at no charge to the FWS for five year periods. It has an automated light tower.

On November 30, 1988 the FWS convened a four day workshop at the Eagle Hill Wildlife Research Station to consider objectives and strategies for management of the existing and future National Wildlife Refuges within the Maine coast ecosystem east of Portland, Maine. The Region 5 Technical Services Section coordinated the planning effort and facilitated the workshop. Using available information, a discussion approach was employed to gain a better understanding of refuge resources, identify possible management options, and achieve a consensus on how the refuges should be managed over the next three to five years.

The group decided early in the workshop to focus on refuge management from a Maine coast ecosystem perspective rather than dwell on individual refuges or specific units of them. This decision was predicated on the need to manage these refuges as components of the larger ecosystem because the same biogeochemical forces that drive the Maine coast ecosystem greatly influence the wildlife resources and habitats of each refuge. These forces and the significance of their interactions are well documented in the FWS publication, An Ecological Characterization of Coastal Maine. Most of the plan content, therefore, is applicable to all refuge units; items specific to individual refuges are so noted.

Plan results are presented first as a summary of the desired 3-5 year management actions. These actions are then addressed from two perspectives: 1) the level of anticipated accomplishment under current funding and staff, and 2) projected funding and staff needs to accomplish all desired management actions. The plan responds to specific refuge issues and potentials in conjunction with national and regional FWS priorities. It generally follows the guidance provided in the Refuge Manual chapter on Management Planning, 4RM3. This station management plan is a working document: to keep it usable and relevant, an automatic review and updating effort will be triggered by the refuge manager one year from the date of Regional Director approval.

Participants in the planning process are listed below

Doug Mullen	Refuge Manager Moosehorn NWR Calais, Maine
Tom Goettel	Assistant Refuge Manager Petit Manan NWR Milbridge, Maine
Greg Sepik	Wildlife Biologist Moosehorn NWR
Gerry Atwell	Refuge North Biologist Great Meadows NWR Sudbury, MA
Mark Sweeny	Refuge Manager Regional Office Newton Corner, MA
Bob Miller	Chief of Realty Regional Office
Curt Laffin Lynn Bjorklund	Technical Services Regional Office

BACKGROUND

Location

The four Maine coast Refuges are widely distributed across 130 miles of coastal water between the mainland towns of Friendship to the west and Cutler to the east. The 12 islands and one peninsula total 5,123 acres with portions in Knox and Washington Counties, in Congressional District 2.

These refuges form one of two groups of coastal national wildlife refuges in Maine. The other group consists of nine divisions distributed between Kittery and Portland that make up the Rachel Carson NWR. These refuge divisions consist primarily of tidal wetlands and upland forests that differ significantly from the rocky geological makeup of the coastal refuges east of Portland.

In addition, Parker River NWR with headquarters in Newburyport, MA, manages Pond Island NWR, a 10-acre coastal island that was acquired from the US Coast Guard in 1973; it has a light station. It is a grassy and rocky island located in the Town of Popham Beach, Sagadahoc County. It has nesting habitat for eiders, terns and Leach's storm petrel and its adjacent waters are used by migrating black ducks and other waterfowl.

The island refuges are accessible only by boat. The entrance to the Petit Manan peninsula is accessible by auto in the Town of Steuben but public access to its interior is by foot.

History of the Refuges

The refuges are relatively recent acquisitions by the FWS. The year and source of the first acquisition at each refuge unit is listed below. The total acreage of each unit that is an island is given next to the island's name. The number of acres now owned by FWS is given with the acquisition information.

Seal Island 65 ac.	Acquired in 1972 from U.S. Navy 65 ac. owned by FWS
Nash Island 9 ac.	Acquired in 1983 from U.S. Coast Guard 4.5 ac. owned by FWS
Franklin Island 12 ac.	Acquired in 1973 from U.S. Coast Guard 12 ac. owned by FWS with several hundred square feet held by USCG
Petit Manan Island 9 ac.	Acquired in 1974 from U.S. Coast Guard 9 ac. owned by FWS with several hundred square feet held by USCG
Petit Manan Point 1991 ac.	Acquired 1743 ac. in 1976 through The Nature Conservancy, and 284 ac. in 1977
Bois Bubert Island 1300 ac.	Acquired in 1980 by donation through The Nature Conservancy 1155 ac. owned by FWS

The Islands listed below were acquired in 1980 through donation from Thomas and Virginia Cabot

Cross Island - 1,692 ac.....	1,654 ac. owned by FWS
Scotch Island - 10 ac.....	10 ac. owned by FWS
Inner Double Head shot Island - 8 ac.....	8 ac. owned by FWS
Outer Head Shot Island - 14 ac.....	14 ac. owned by FWS
Mink Island - 11 ac.....	11 ac. owned by FWS
Old Man Island - 6 ac.....	6 ac. owned by FWS

Management had been limited to low-key trail construction, wildlife inventory, boundary posting and related work that could be conducted from the Moosehorn NWR in Calais, Maine, until 1984 when an assistant refuge manager was stationed in the Milbridge area. Since then a Milbridge office has been established and a biological technician and maintenance worker have been added to the staff. Current management activities include maintaining a reclaimed tern nesting colony on Petit Manan Island, mowing and prescribed burning to maintain shorebird and woodcock migration habitat on Petit Manan Point, trail improvement on Petit Manan Point, wildlife inventories, waterfowl habitat improvement and seabird management with the National Audubon Society on Seal Island.

Current Land Use Status

Although many sections of the Maine coast are being altered by commercial, recreation and second home development, FWS owned lands are protected from change due to Service policy and relative inaccessibility. Boaters occasionally land on Refuge islands but this activity has not altered land use. Petit Manan Point is the only refuge unit connected to the mainland and it is open only to foot access.

FWS management on these refuges has and will continue to involve manipulation of habitat types at selected sites and, for all practical purposes, land use will continue to be wildlife oriented. It is probable that the FWS will acquire additional Maine coast lands that will be managed similarly. Management must accommodate various limitations due to land inholdings on those parcels not totally owned by the FWS.

Environment

Climate:

Coastal Maine has a northern temperate climate with sufficient rainfall to support large forests, extensive agriculture, and abundant fish and wildlife resources. Mean annual temperature is approximately 44 F (7°C) and extremes range from 100 to -30 F (38 to -34°C). Mean annual precipitation is 44 inches (112 cm) and monthly rainfall usually ranges between 3 and 5 inches (8 to 13 cm). The southerly flow of the cold Labrador current interacts with humid air along the Maine coast to produce significant amounts of fog. Fog is present an average of 33% of the time in summer but is less frequent in other seasons.

Maine's climate is controlled by the same factors that control the weather over much of New England, but temperatures and humidities of coastal areas are modified by air masses flowing from offshore waters. A particular location is affected by its distance from the ocean, its elevation, and its terrain. The latter factors create three natural weather zones: coastal, southern interior, and northern. Maine is noted for its rapidly changing weather conditions and its severe winters.

Topography:

In general each unit of the four refuges slopes irregularly upward from sea level to not more than 160 feet elevation (Cross Island). Shorelines are mostly rocky and some shorelines have steep cliffs.

Geology and Soils:

The substrate consists of exposed solid bedrock or unconsolidated glacial deposits underlain by bedrock. The geology of the Maine coast, characterized by deeply indented bays, high rocky cliffs, broad mud flats, and numerous coastal islands, is unique in the Eastern United States. The igneous and metamorphic bedrock determines the general shape of the shoreline and the shallow complex bathymetry of the coastal waters.

Maine coastal zone surface soils are derived from the bedrock or glacial-derived inorganic deposits. The three major soil types present are Peru-Marlow-Lyman; Hermon-Lyman-Peru; and Lyman-Scantic-Peru.

Surface Water:

Surface water on all Refuge units is derived from local precipitation. The capacity of each unit to retain precipitation as ground water determines surface water availability during dry periods. Petit Manan peninsula has a relatively large and efficient watershed compared to the other Refuge units so is the only unit having substantial freshwater wetland habitats.

Marine Ecosystem:

The environment of each Refuge unit is strongly influenced by the adjacent marine ecosystem. Each unit is dominated by a marine shoreline that is subjected to a twice daily tidal range of from 7-12 feet at Seal Island to 9-17 feet at Cross Is. The marine ecosystem also influences vegetation by affecting air temperatures, moisture and soil salinity.

Refuge Resources

Habitat:

The habitats formed by the geology, climate and marine ecosystem of the Maine coast are unique along the eastern coast of the United States. Rocky shorelines and open areas on islands are used as nesting habitats by colonial nesting seabirds because they are relatively undisturbed by human activity and free of mammalian predators.

The dominant forest type on the refuges is spruce/mixed hardwoods, which provides good eagle nesting and loafing habitat.

Freshwater wetlands and small ponds occur only on the larger refuge units where the geology allows fresh water to be retained in depressions or as groundwater. Petit Manan Point contains the major concentration of these habitat types.

Tidal wetlands and mudflats are important habitats for migrating and wintering waterfowl and migrating shorebirds. There are extensive mudflats and some saltwater wetlands on Petit Manan Point, and on Bois Bubert and Cross Islands.

Marine waters provide critical finfish and shellfish food sources for the seabird and waterfowl species that are dependent on the Refuges.

Wildlife:

Endangered species: A pair of bald eagles nests on one Refuge unit and numerous eagles winter on others. More than half of the 60-70 pairs of roseate terns still nesting in Maine occur on Petit Manan Island; this success is in response to a gull control program. A few pairs occasionally nest on Nash Island; implementation of the Roseate Tern Recovery Plan could encourage nesting on other Refuge islands.

Waterfowl: The Maine coast refuges are very important migration and wintering habitat for black ducks that use freshwater wetlands prior to freeze-up and marine bays during winter. Some black ducks also nest in refuge freshwater wetlands, primarily on Petit Manan Point. Other waterfowl species common to the area are green and blue-winged teal, wood duck, common goldeneye, oldsquaw, bufflehead and red-breasted merganser.

Seabirds and Eiders: The Maine coast islands are extremely important to seabirds and eiders because they provide the only nesting habitat in the eastern United States for several of these species. With the exception of herring and black-backed gulls, the FWS considers these species to have high priority for the Maine coast Refuges. The following species nest on Refuge islands and except for the terns and gulls, they nest nowhere else along our Atlantic coast:

- Arctic Tern
- Common Tern
- Roseate Tern
- Herring Gull
- Great Black-backed Gull
- Laughing Gull
- Atlantic Puffin
- Black Guillemot
- Razorbill
- Leach's Storm-Petrel
- Common Eider

Shorebirds: The Maine coast islands are not important nesting sites for most shorebirds but this ecosystem is critical to the success of shorebird migrations. Tidal flats associated with some of the refuges provide resting and feeding areas that allow these birds to prepare for their extended migration flights. Petit Manan peninsula provides important breeding, nesting, and summer habitat for the American woodcock, and it harbors large numbers of woodcock during the spring and fall. The hay and blueberry fields of the peninsula are also used as fall migration feeding areas by whimbrels.

Songbirds: Numerous songbird species nest in the relatively undisturbed upland forest, shrubs and open field habitats of the islands and many more use them during migrations.

Mammals: Marine mammal use of the Refuges includes harbor and gray seal haul-out sites along shorelines while porpoise and whales frequent marine waters adjacent to the Refuges. Marine mammal management is the responsibility of the National Marine Fisheries Service.

Upland mammals inhabit most of the refuges. Most species are of general interest to the refuge but some are of management concern. Deer overbrowse upland habitat when their population levels exceed habitat capacity. Beaver management may have potential for sustaining wetland habitats. Coyote, fox, skunk, and raccoon predation is a threat to ground nesting birds.

Cultural Resources:

The Maine coast islands have a long history, and prehistory, of human use. There is evidence of Indian use following retreat of the last glacier and the the white man's settlement has been well documented since colonial times. Life centered on farming, granite quarrying, fishing and logging. The coming of mainland railroads and highways improved transportation efficiency that began the demise of basic island industries. Remnants of this period occur on some Refuge units but most sites have not been adequately documented.

Lighthouses and Life-saving Stations were common features on Maine coast islands and headlands. Cross Island has a former Life-saving Station. Active, but unmanned, historic lighthouses are on Petit Manan Is., Nash Is., Matinicus Rock, Franklin Is. and Two Bush Is.

Public Use Opportunities:

Petit Manan Point is the only refuge unit that is accessible to the public by automobile. It therefore has the best potential for public usg activities such as trails, visitor contact and interpretation of wildlife management.

There may be potential to allow camping on some Refuge islands in conjunction with the Maine Island Trail System that is being created to accommodate boaters travelling the Maine coast. This would present an opportunity to contact outdoor enthusiasts. Remoteness restricts opportunities for incorporating a conventional on-refuge public use program. The most effective public use management technique that will foster support for our Maine coast wildlife programs is to convey the Maine Coast Refuges' station message through off-Refuge techniques such as speaking engagements and the news media.

Social and Economic Resources:

The Maine coast is a very popular summer recreation area and supports several thriving population centers. This situation does not directly influence management of the Maine coast Refuges but it is of indirect concern because the continuously rising number of people who inhabit and visit the area increase the potential for human conflict with wildlife.

Larger islands support year round communities that depend on fishing and other local industries for economic support. Some of these communities stem from white settlements that have existed along the coast for over two centuries.

Aesthetic Resources:

The coast of Maine is world famous for its aesthetic values. Each of the Maine coast Refuges contributes to the spectacular visual qualities of the area.

Equipment and Facilities:

Refuge buildings consist of a rented office and one-bay maintenance building located in Milbridge, Maine. Major equipment and vehicles consist of: a 24' boat with wheelhouse; a 20' open outboard boat; a 1985 4WD Blazer; a 1975 2WD pickup truck; an IBM AT computer; firefighting equipment; a gas generator, air compressor and basic hand tools.

Refuge Administration

The Refuges are managed by an Assistant Refuge Manager as satellites of the Moosehorn NWR, headquartered in Calais, Maine. A separate office was established at Milbridge in September, 1985. The current staff consists of the Assistant Refuge Manager, a Biological Technician and a Maintenance Worker; the annual budget is approximately \$114,000.

Agreements and Permits

The Refuge Manager works with other organizations according to the conditions of the following formal arrangements:

- Special Use Permit for the National Audubon Society to manage seabirds on Seal Island NWR
- Cooperative Agreement with the College of the Atlantic to manage seabirds of Petit Manan Island
- Cooperative Agreement with Outward Bound School to use portions of Cross Island NWR
- Memorandum of Understanding with the U.S. Coast Guard for seabird management on Matinicus Rock

CURRENT MANAGEMENT GUIDANCE AND DIRECTION

Legal Direction

Legal direction for management of Maine Coast Refuges is provided through the terms of the deeds establishing the Refuges and by other laws and executive orders affecting management of all refuges. The Refuges have been established for the management and protection of migratory birds under provision of the Migratory Bird Conservation Act, 16 U.S.C. Sections 1531 - 1543, as amended; or through the transfer of real property from other Federal agencies.

Refuge management must also comply with federal environmental laws, executive orders and regulations affecting land and water use as well as the conservation and management of fish and wildlife resources. Management is further guided by the National Wildlife Refuge Management System Administration Act of 1966 that directs the Service to administer refuges for the conservation of fish and wildlife and authorizes recreation that is compatible with the major purposes for which the Refuges were established.

The National Historic Preservation Act of 1966 (as amended) provides for the protection, rehabilitation, restoration, and reconstruction of historic and archaeological resources that occur on any refuge.

Policy Direction

The policies of the Fish and Wildlife Service for the National Wildlife Refuge System are stated in its primary management document, the Refuge Manual:

The goal of the National Wildlife Refuge System is,

to provide, preserve, restore and manage a national network of lands and waters sufficient in size, diversity, and location to meet society's needs for areas where the widest possible spectrum of benefits associated with wildlife and wildlands is enhanced and made available.

To achieve this goal, each refuge emphasizes specific contributions it can make that are consistent with the following long-range System objectives (given in priority order):

1. To preserve, restore, and enhance in their natural ecosystem (when practicable) all species of animals and plants that are endangered or threatened with becoming endangered.
2. To perpetuate the migratory bird resource.
3. To preserve a natural diversity and abundance of fauna and flora on refuge lands.
4. To provide an understanding and appreciation of fish and wildlife ecology and people's role in their environment, and to provide refuge visitors with high quality, safe, wholesome, and enjoyable recreational experiences oriented toward wildlife to the extent these activities are compatible with the purposes for which the refuge was established.

Current Fish and Wildlife Service Priorities

The health and safety of refuge users, both visitors and Service employees, is a consistently high priority concern of the Service.

Protection and restoration of endangered species is a high priority on the Maine coast Refuges. The bald eagle continues to make a modest comeback and the roseate tern has recently been listed as endangered. These Refuges play a role in implementation of the North American Waterfowl Management Plan (NAWMP) through their contribution to staging and wintering black ducks and, to a lesser extent, nesting black ducks. The role is specific to two Focus Areas identified within the Atlantic Coast Joint Venture of the NAWMP. They are the East and West Coast (of Maine) Focus Areas.

A unique feature of the Maine coast island Refuges is that they are the only National Wildlife Refuges that provide nesting habitat for the Atlantic puffin, Leach's storm petrel, razorbill and black guillemot. These species nest nowhere else in the United States.

The direction set forth for in this plan is specific to field level management of existing Maine coast island and headland National Wildlife Refuges. Concurrently the FWS Northeast Regional Office has increased its Realty Division activities in the area. That effort focusses on acquiring additional wildlife habitats for the National Wildlife Refuge System, so it is not specifically addressed in this plan.

Issues Specific to the Maine Coast Refuges

The planning group had a lengthy discussion of issues facing the Maine coast islands, and their relationships to the Refuges. A complete list of these items is found in Appendix A. The major issues that are the focus of this plan are stated below.

The quality of wildlife management and land protection decision making can be improved by 1) making current wildlife and habitat data readily available to the Refuge Manager, 2) defining additional Refuge-specific information needs, and 3) collecting needed information and incorporating it into the Refuge data base.

The Service's contribution toward protecting island and headland wildlife habitat is not fully realized because the Fish & Wildlife Service is not widely known as a major land management agency in coastal Maine.

The Refuge lacks the manpower and operations capability to adequately manage existing Refuge units and to effectively participate in acquiring or otherwise protecting additional habitat.

The ability to maintain the quality and quantity of freshwater wetland habitat on Petit Manan Point may have diminished due to a reduction in the level of beaver activity that is causing the beaver dams to weaken.

MANAGEMENT OBJECTIVES

The following management objectives for the Maine coast Refuges respond to the broad management guidance and the issues outlined in the preceding sections. These 3-5 year objectives are key tools in tracking the responsiveness of management decisions to identified refuge concerns. The objectives are ranked as either high or medium priority.

WILDLIFE OBJECTIVES

High Priority

1. Maximize bald eagle production and fledgling survival
2. Define and implement a roseate tern recovery strategy for the Refuges
3. Protect peregrine falcon migration habitat
4. Create and maintain a Refuge wildlife data base
5. Increase black duck broods on Petit Manan Point from 15 to 20 and maximize fledgling survival
6. Enhance the quantity and quality of black duck staging habitat
7. Maximize survival of wintering black ducks
8. Maximize production and fledgling survival of selected seabird species
9. Restore historic, but unused, seabird colonies (other than for large gulls)

Medium Priority

10. Maintain the quality of intertidal habitat used by migrating shorebirds
11. Maintain open habitat for whimbrel migration and woodcock singing and roosting fields
12. Restore woodcock nesting habitat where it has "gone by"
13. Protect state listed wildlife and plant species
14. Determine the extent of habitat degradation from deer overbrowsing and prevent it when feasible

LAND PROTECTION OBJECTIVE

High Priority

1. Increase FWS land and easement holdings of important coastal wildlife habitat

PUBLIC USE OBJECTIVES

High Priority

1. Maintain current public use facilities and activities

Medium Priority

2. Develop and implement a public use plan consistent with Region 5 Guidance

HISTORIC/ARCHAEOLOGIC RESOURCE OBJECTIVE

High Priority

1. Comply with historic and archaeological resource protection laws and regulations

ADMINISTRATION OBJECTIVES

High Priority

1. Ensure the health and safety of all Refuge users
2. Develop the operations capability to accomplish the objectives of this plan

MANAGEMENT STRATEGIES

This section states the strategies to achieve the Refuge management objectives. They were derived through consensus following discussions of options. Strategies are presented in response to each of the objectives stated on the preceding pages. The General Management Strategy on Page 19 summarizes how strategies will be implemented to improve the wildlife data base, enhance FWS effectiveness in protecting additional Maine coast wildlife habitat; conduct habitat management projects that improve the public's perception of the FWS as a responsible land management agency, and build the management capability to implement the desired 3-5 year management plan.

Strategies marked (*) are being, or are most likely to be, implemented with current funding and manpower. Additional funds and staff will be needed before significant progress can be made toward implementing the others. A few strategies for Priority 2 objectives are marked with (*) because they are incidental to high priority activities, or because the Refuge realizes cost-effective or public relations benefits from conducting them.

WILDLIFE OBJECTIVES AND STRATEGIES

High Priority

1. MAXIMIZE BALD EAGLE PRODUCTION AND FLEDGLING SURVIVAL
 - For each nest develop a management plan that includes a posting scheme and methods to account for habitat requirements, eggs produced and fledgling success
 - * -Educate the public about eagle use and protection on Maine Coast Refuges
 - Establish a periodic law enforcement presence in the vicinity of active eagle nests
 - Determine the desirability of feeding over-wintering eagles
2. DEFINE AND IMPLEMENT A ROSEATE TERN STRATEGY FOR THE REFUGE
 - * -Coordinate with the Roseate Tern Recovery Team
 - * -Coordinate with the Maine non-game wildlife coordinator
 - * -Write a management strategy that responds to the Recovery Plan
 - Implement the management strategy
3. PROTECT PEREGRINE FALCON MIGRATION HABITAT
 - Coordinate with the Peregrine Falcon Recovery Team to identify the refuge's role in protecting migrating falcons
 - Prevent refuge management conflicts with migrating falcons
4. CREATE AND MAINTAIN A REFUGE WILDLIFE DATA BASE
 - * -Maintain knowledge of all eagle nest locations on Refuge lands
 - * -Maintain knowledge of the location of current and potential roseate tern nesting sites on Refuge lands
 - * -Conduct black duck brood counts on Petit Manan Point
 - Inventory wintering black ducks on and adjacent to Refuge lands
 - * -Encourage periodic update of Korschgen's 1977 seabird inventory
 - * -Inventory nesting seabirds on Refuge lands annually
 - Develop and implement an inventory of fall migrant shorebirds
 - Locate and monitor wading bird rookeries on Refuge lands
 - * -Periodically update the deer census of Petit Manan Point (see wlf. obj 14)

NOTE: The Refuge Manager will ensure that implementation of strategies for the following black duck objectives will be consistent with the direction provided, and actions taken by the FWS within the East and West Coast (of Maine) focus areas of the NAWMP Atlantic Coast Joint Venture.

5. INCREASE BLACK DUCK BROODS ON PETIT MANAN POINT FROM 15 TO 20 AND MAXIMIZE FLEDGLING SURVIVAL
 - Assess potential to increase broods, and implement recommendations
 - Manage freshwater impoundments to favor brood habitat
 - Initiate an animal control program on Petit Manan Point in compliance with 7 RM 3.5G and the FWS Predator Management Policy

6. ENHANCE THE QUANTITY AND QUALITY OF BLACK DUCK STAGING HABITAT
 - * -Study the feasibility of creating and maintaining freshwater wetland staging habitat by sustaining habitat that will support an active beaver population on Petit Manan Point
 - * -Create 160 acres of staging habitat on Petit Manan Point (3 impoundments)
 - * -Develop and implement management plans for new impoundments
 - * -Initiate easements with Mr. Mague to permit FWS access for construction and management of wetland impoundments on Petit Manan Point
 - Restrict public access to staging areas on all Refuge units through posting, education and law enforcement

7. MAXIMIZE SURVIVAL OF WINTERING BLACK DUCKS
 - * -Encourage the Office of Migratory Birds to survey black duck wintering areas from Casco Bay to Calais
 - Convey the location of potential black duck wintering areas to the public to stimulate assistance and support for protecting these areas from disturbance
 - Restrict human disturbance in wintering areas between the time freshwater wetlands freeze and black ducks disperse in spring.

8. MAXIMIZE PRODUCTION AND FLEDGLING SURVIVAL OF SELECTED SEABIRD SPECIES
 - Eliminate human disturbance on seabird colonies from April 1 thru July 31
 - * -Control competition for nesting space and predation from other species
 - * -Encourage research to determine food sources and habitat requirements of nesting seabirds
 - * -Encourage development of seabird habitat management techniques
 - Implement workable seabird habitat management techniques
 - Develop and maintain an eider staging and wintering habitat inventory

9. RESTORE HISTORIC, BUT UNUSED, SEABIRD COLONIES (OTHER THAN FOR LARGE GULLS)
 - * -Control predation on Petit Manan Island
 - Implement habitat management techniques at historic colonies exhibiting little or no current use

Medium Priority

10. MAINTAIN THE QUALITY OF INTERTIDAL HABITAT USED BY MIGRATING SHOREBIRDS
 - * -Encourage periodic updates and improved accuracy of Korschgen 1977 inventory
 - Assure intertidal habitat is available from July 1 thru Oct 31
 - Eliminate human disturbance from July 1 thru Oct 31
11. PROVIDE OPEN HABITAT FOR MIGRATING WHIMBRELS AND, SINGING AND ROOSTING WOODCOCK
 - Mow and burn 40 acres of open habitat on Petit Manan Point
 - Conduct a literature search to determine whimbrel food and habitat requirements and initiate a management program to encourage establishment of those habitat features
12. RESTORE WOODCOCK NESTING HABITAT WHERE IT HAS "GONE BY"
 - Inventory areas having potential for reversion to higher quality woodcock nesting habitat on Petit Manan Point and Bois Bubert Is.
 - Develop and implement plans to reclaim all or portions of potential woodcock nesting and feeding habitat on Petit Manan Point
13. PROTECT STATE LISTED WILDLIFE AND PLANT SPECIES
 - * -Coordinate with the Chief of the Maine Inland Fisheries & Wildlife nongame program and the manager of the Maine Critical Areas Program
14. DETERMINE THE EXTENT OF HABITAT DEGRADATION FROM DEER OVERBROWSING AND PREVENT IT WHEN FEASIBLE
 - Monitor the impact of browsing on Petit Manan Point, Bois Bubert Is. and Cross Is.
 - Census the deer populations on Bois Bubert and Cross Islands
 - Periodically update deer censuses of Petit Manan Point (see wlf. obj. 4)
 - Develop and implement methods to remove excess deer from overbrowsed areas

LAND PROTECTION OBJECTIVE AND STRATEGIES

High priority

1. INCREASE FWS LAND AND EASEMENT HOLDINGS OF IMPORTANT COASTAL WILDLIFE HABITAT
 - * -Enhance communications and interactions with local governments, other agencies, private groups, political interests and individuals having concern for protection of the Maine coast
 - * -Through example, such as mowing and burning of open habitat on Petit Manan Point, enhance landowner and local community acceptance of the FWS as a responsible and effective land management and protection agency
 - * -Maintain an awareness of the location of habitat having potential for FWS protection and notify the Regional FWS Division of Realty when areas become available
 - * -Initiate actions to acquire inholdings

PUBLIC USE OBJECTIVES AND STRATEGIES

High Priority

1. MAINTAIN CURRENT PUBLIC USE FACILITIES AND ACTIVITIES

- * -Maintain the one-mile Shore Trail, three mile Birch Point Trail, and parking lot at Petit Manan Point (trail lengths are round trip on dead-end trails)

Medium Priority

2. DEVELOP AND IMPLEMENT A PUBLIC USE PLAN CONSISTENT WITH REGION 5 GUIDANCE

- Seek assistance and guidance from Technical Services to develop a plan

HISTORIC/ARCHAEOLOGIC RESOURCE OBJECTIVE AND STRATEGIES

High Priority

1. COMPLY WITH HIST./ARCH. RESOURCE PROTECTION LAWS AND REGULATIONS

- * -Report any vandalism or looting of archaeological sites to the Regional Historic Preservation Officer (RHPO) and Regional law enforcement personnel, in compliance with the Antiquities Act and Archaeological Resource Protection Act (ARPA).
- * -Initiate RHPO review of all non-federal ground disturbing activities on the refuge, in compliance with the permitting provisions of the ARPA and the Antiquities Act.
- * -Participate in the archaeological resource management survey program being conducted at R-5 refuges in compliance with Sec. 110 of the National Historic Preservation Act.
- * -Initiate RHPO review of Service-proposed actions involving ground disturbance or impact upon historic architectural resources on the refuge, in compliance with Sec. 106 of the National Historic Preservation Act.
- * -Initiate coordination with the RHPO for any actions regarding the Petit Manan Light Station (listed on the National Register of Historic Places).
- * -Initiate documentation and coordination to determine the historic significance of the Cross Island Lifesaving Station and the Bois Bubert farm.

ADMINISTRATION OBJECTIVES AND STRATEGIES

High Priority

1. ENSURE THE HEALTH AND SAFETY OF ALL REFUGE USERS

- * -Assess and remedy unforeseen hazards that arise on the refuge

2. DEVELOP THE OPERATIONS CAPABILITY TO ACCOMPLISH THE OBJECTIVES OF THIS PLAN
- * -Determine the cost, scheduling, and priority for developing the following operational capabilities:
 - Establish an independent Maine Coast National Wildlife Refuge
 - Staff the refuge as follows:
 - 1 - Refuge Manager.....GS-11
 - 1 - Asst. Refuge Manager.....GS-09
 - 1 - Refuge Biologist.....GS-09
 - 1 - Outdoor Recreation Planner.GS-07/09
 - 2 - Maintenance Workers.....WG-07/09
 - 1 - Clerk/Receptionist.....GS-05
 - Determine the most cost-effective location for the office and maintenance facility considering potential land acquisitions and management needs
 - Construct an office building containing:
 - Three offices
 - Clerk work area with receptionist and visitor contact features
 - Meeting room
 - Map storage and light table
 - Laboratory space
 - Staff lounge
 - Restrooms
 - Utility room
 - Construct a maintenance/storage facility containing:
 - A four-bay enclosed building having one heated bay and an office
 - An enclosed and secure workshop equipped with tools and storage space
 - A four-bay pole shed
 - A concrete block oil storage shed
 - Provide the following equipment and support:
 - 1 - 2 WD pick-up truck
 - 1 - 4 WD pick-up truck
 - 1 - 4 WD utility vehicle
 - 1 - 35 ft. boat, cradle and mooring in the vicinity of Petit Manan NWR
 - 1 - 20 ft. boat with trailer
 - 1 - Passenger vehicle
 - 1 - 4 WD tractor with mower
 - Radio communication to satisfy marine needs
 - A \$3000 annual budget for wildlife inventory flights

GENERAL MANAGEMENT STRATEGY

The following is a summary of the current management, the management prospects, the management deficit (i.e. the difference between current management and management needed to achieve objectives), and, a general management overview that presents a strategy to overcome the management deficit and achieve Refuge objectives. This General Management Strategy is derived from the list of strategies previously identified.

Current Management

Since establishment of the first Maine Coast National Wildlife Refuge east of Portland, Seal Island in 1972, the Fish & Wildlife Service has acquired 11 additional islands and the Petit Manan Peninsula. These refuges were managed as satellites of the Moosehorn NWR until 1984 when an assistant refuge manager was stationed in Milbridge. Up to that time the difficulties of "long distance management" had curtailed implementation of major on-refuge actions and off-refuge communications with the public.

Work done by the current staff includes data gathering on Refuge wildlife; control of gull competition at some seabird colonies; maintenance of upland habitat diversity on Petit Manan Point; presentations on the coastal refuges to local governments, schools and private groups; boundary posting; road, trail and exhibit maintenance; and maintenance of historic light station buildings.

Management Prospects

The Maine coast islands collectively form a major component of the unique Maine coast ecosystem. The ecosystem is one of this Nation's most valued natural areas due to its coastal geology, marine environment, and its fish and wildlife resources, including nesting colonies of species that nest nowhere else in the United States. It is also a very popular tourist environment recently subjected to intense development pressures. Although most of the unique wildlife areas are on fairly inaccessible islands, they are sensitive to human disturbance that is becoming more common as recreational activity in Maine's offshore waters increases.

A strong public sentiment supports protection of Maine's natural features. This, combined with the high natural resource values mentioned above, has caused the FWS to expand its presence in coastal Maine and to advocate the management direction projected in this plan. Emphasis will be to enhance: 1) management and use of knowledge on the area's wildlife populations and habitats, primarily through monitoring and use of data collected by others; 2) bald eagle, roseate tern, black duck and seabird wildlife management actions that will be publicized to increase FWS credibility and visibility with landowners and local authorities, and; 3) land acquisition and protection by stimulating interaction among landowners, land protection agencies and groups, and the FWS Division of Realty.

These three areas will receive attention under current management but the degree of effort, given current funding and staffing, will be insufficient to allow the Service to take full advantage of the trend favoring protection of sensitive wildlife habitat in Maine. The degree of accomplishment will relate directly to the level of effort the Service can dedicate to plan implementation.

Management Deficit

The management deficit is the difference between current management capability and the management needs required to accomplish objectives. Current capability only provides for work to be done on the Strategies marked (*) in the Management Strategies section of this plan (page 14). Objective accomplishment will require work on all the strategies. The deficit, therefore, identifies a need to increase operational capability to accelerate the current management thrust. It is addressed through a strategy to establish and operate an independent Maine coast National Wildlife Refuge.

General Management Overview

Management of the Maine coast Refuges is and will continue to be directed toward protection and management of nesting habitat for the Federally endangered bald eagle and roseate tern and for seabirds (except large gulls) that nest on coastal islands and headlands from Casco Bay east to the Canadian border. Equally important are the protection and management of black duck nesting, staging and wintering habitat. Many other wildlife species will benefit incidentally from implementation of management and habitat protection strategies described in this plan.

The plan's success will be measured in terms of the level of wildlife production and the use of available habitat by the species mentioned above. Measurement necessitates the availability and analysis of wildlife and habitat information. The Refuge will therefore be a focal point for current information on the status of coastal Maine species of National or Regional importance to the FWS. Much of the information needed to make these determinations is gathered by other agencies or private groups. The Service will use such information when available and will gather and share its own information when appropriate. Two basic types of information will be maintained at the refuge: maps of habitat currently being used or having the potential to be used by the important species and site specific data on populations of those species.

Refuge units will be managed to protect wildlife from human disturbance and from controllable impacts such as excessive predation caused by factors that upset natural predator-prey relationships. Refuge units will be managed to enhance production and/or protection of the wildlife species given priority by this plan. These management activities will be publicized to enhance the Service's credibility as a responsible land management agency and to give the Service visibility among landowners interested in protecting their land to benefit wildlife resources.

The Refuge Manager will work in concert with the Region's Division of Realty to stimulate and respond to opportunities to acquire, or protect through easement, wildlife habitats that are not now protected by the Fish and Wildlife Service, the State of Maine, another Federal agency, or a private land protection group. The areas to be investigated for acquisition potential will be identified through analysis of data that is available to, or gathered and maintained by, the Refuge Manager. The success of the coastal Maine land protection effort will be determined by the degree of communication that occurs among the many national, state and local agencies, and groups working to maintain the ecological integrity of the Maine coast ecosystem as it contends with development. The Refuge Manager will actively participate in and, where possible, enhance the communication network linking these interests.

The following section provides details of implementation of this strategy.

3-5 YEAR MANAGEMENT PROGRAM

Over the life of this plan, management will concentrate on: (1) improving the quality of wildlife management decision making through better use of information on wildlife species important to the FWS, (2) bald eagle and roseate tern nesting, (3) management of black duck nesting, wintering and staging habitats, (4) seabird nesting colonies, and (5) protection of eagle, roseate tern, black duck and seabird habitats that are not owned by, or under easement with, a wildlife oriented agency or private group. Focus will be on accomplishing High Priority objectives.

As these aims are perused and other management options are revealed they will be reviewed and, where necessary, updated by the Refuge Manager approximately one year from the approval date of this plan.

Objectives supported by management actions are noted next to the following statements of proposed activities.

ENDANGERED SPECIES

Bald Eagle

Current Status:

The bald eagle has made a partial recovery in Maine since curtailment of pesticide use. Several active nests occur along the Maine coast; one is on a unit of the coastal island Refuges, Cross Is. The Service depends on State surveys to maintain an awareness of nest locations and productivity. Some of this information is publicized and used in talks given by Refuge personnel.

Proposed Activities:

Communication with the Regional Endangered Species Coordinator will be kept open to encourage acquisition of active or potential eagle nesting habitat through the Endangered Species Program.

Land Acquisition Obj. 1
Increase holdings of important wildlife habitat

Management plans will be developed and implemented for each active eagle nest on Refuge land. Plans will include a posting scheme, documentation of habitat and a method to account for eggs produced and birds fledged. Nest site protection will include posting, periodic law enforcement presence and public education.

Wildlife Obj. 1
Increase bald eagle production and fledgling survival

The desirability of feeding overwintering eagles will be determined.

Program Needs:

An off-season visit to most, if not all, nest sites will be needed prior to writing individual plans. Input from eagle ecology experts may also be necessary before completing a plan.

Increased education and law enforcement presence will require additional staff.

Winter feeding will not be considered until adequate staff is available to coordinate such work.

Roseate Tern

Current Status:

The northeast population of the roseate tern was formally listed as endangered on Nov. 2, 1987. The recovery team released a draft recovery plan in Oct. 1988 indicating that two-thirds of the State's roseate tern population nests on Petit Manan Is. The Refuge Manager maintains contact with the team.

Proposed Activities:

The Refuge Manager will prepare and implement a management plan to assist the roseate tern recovery effort. This plan will respond to direction given in the Final Recovery Plan and will be developed in coordination with the Maine non-game wildlife coordinator.

Wildlife Obj. 2
Define a roseate tern
recovery strategy for the Refuges

Communication with the Regional Endangered Species Coordinator will be kept open to encourage acquisition of active or potential roseate tern nesting habitat through the Endangered Species Program.

Land acquisition Obj. 1
Increase holdings of important
wildlife habitat

Program Needs:

No additional staff or funds are needed to prepare the Refuge's roseate tern management plan. The importance of implementing that plan will most likely cause the Refuge Manager to reorder his priorities.

INFORMATION MANAGEMENT

Current Status:

The Maine coast Refuge Manager depends heavily on other FWS Divisions, other agencies and private groups to gather and share wildlife information. Some of the information is gathered sporadically and is not always responsive to Refuge needs. The information is usually received in a variety of forms, so its utility is limited.

A volunteer is currently documenting wildlife use on Petit Manan Point in a Refuge specific format.

Proposed Activity:

The Refuge Manager will coordinate development of an automated data base to serve his/her information needs on the important wildlife identified in this plan. Existing data sources will be used when applicable; where necessary the Refuge Manager will develop a refuge specific data gathering program.

Wildlife Obj. 4
Create and maintain a Refuge
wildlife data base

Continuing Refuge information needs are fledgling success for important species, and locations of: eagle nests, roseate tern colonies and potential colony sites, black duck nesting areas, black duck staging and wintering concentrations, and seabird colonies.

Program Needs:

The Refuge Manager will obtain necessary assistance to design and implement an automated data base that responds to Refuge and Regional needs and is compatible with Service computer systems. The data base will be designed to accommodate usable Maine coast wildlife data, gathered by other sources, to the extent practicable. The Refuge Manager will fill information gaps that retard implementation of this station management plan by implementing a long-term data gathering program.

BLACK DUCK

NOTE: Management actions to protect nesting, wintering or staging black ducks, or to acquire black duck habitat will be developed and implemented in partnership with NAWMP efforts in the East and West Coast (of Maine) Focus Areas established through the Atlantic Coast Joint Venture Plan.

Nesting

Current Status:

Black duck nesting occurs at three freshwater beaver ponds, and their adjacent wetlands, on Petit Manan Point. Their average production is 15-20 broods of black ducks per season. These habitats resulted from the activity of beaver that were released on the Point in the 1950s. The beaver population is apparently decreasing because the habitat quality has diminished.

Proposed Activities:

The Refuge Manager has requested and received assistance from the FWS Engineering Division to develop a proposal to construct a system of dikes and water control structures to permanently replace the beaver dams. This costly alternative will require several years to implement; in the interim the Refuge Manager will explore the feasibility of restoring and maintaining better quality beaver habitat that will, in turn, allow the beaver population to recover to the point where it can maintain the beaver dams. Management techniques include controlled burning to favor the growth of aspen stands and control of deer overbrowsing on aspen shoots.

Wildlife Obj. 5
Increase black duck broods on Petit Manan point from 15 to 20 and maximize fledgling survival

Program Needs:

Funding and outside contracting will be needed to construct the proposed dike system. If feasible, beaver habitat management could be implemented by current staff with assistance from volunteers and the State through the NAWMP joint venture interest in using beaver management to enhance wetland quality.

Staging:

Current Status:

Black ducks use the beaver ponds on Petit Manan Point, and coves adjacent to some Refuge islands and Petit Manan Point for staging. The only management currently proposed for maintaining staging areas is the effort mentioned under black duck nesting to perpetuate impoundments on Petit Manan Point.

Proposed activities

Completion of structural work designed to perpetuate impoundments on Petit Manan Point will create up to 160 acres of shallow freshwater staging habitat; there are now approximately 80 acres. Interim success toward improving beaver habitat will help sustain beaver ponds used as staging habitat.

Wildlife Obj. 6
Enhance the quantity and quality of black duck staging habitat

As funds and manpower allow, posting, law enforcement, and public education will be directed toward reducing human disturbance of black duck staging areas that are on or adjacent to any Refuge unit. The desire is to eliminate disturbance of staging black ducks during the months of September and October.

Wintering

Current Status:

The Refuge maintains an awareness of data on wintering black ducks that is collected by the Office of Migratory Birds. No specific management is conducted for wintering birds.

Proposed Activities:

The Refuge Manager will increase his level of coordination with the Migratory Bird Office to assure he has constant access to black duck data and that it is incorporated into the Refuge's data base. Where feasible, the Manager will restrict human disturbance in wintering areas between the time freshwater wetlands freeze, and black ducks disperse in spring.

Wildlife Obj. 4
Create and maintain a Refuge wildlife data base

Wildlife Obj. 7
Maximize survival of wintering black ducks

Program Needs:

In conjunction with the NAWMP Atlantic Coast Joint venture the Refuge Manager will enhance public understanding of the vulnerability of wintering black ducks to stress caused by human disturbance. The time period of concern is between freshwater wetland freeze-up and dispersal from coastal wintering areas in spring.

SEABIRDS

Current Status:

With the exception of herring and black-backed gull colonies, the Refuge Manager strives to protect seabird colonies from human disturbance, competition from gulls and excessive predation. The location and productivity of all colonies are monitored according to fund and manpower availability; this does not, however, provide adequate management information.

Proposed Activities:

The Refuge Manager will encourage researchers to gather and analyze data that will help to determine food source and habitat requirements of nesting seabirds. He will also develop and maintain an eider staging and wintering habitat inventory. Some historic seabird colonies will be evaluated to determine their potential for restoration. The Refuge Manager will anticipate land use threats to unprotected seabird colonies to assess their vulnerability. If he determines that protection may be needed he will communicate his concerns to island protection agencies and groups while alerting the FWS Division of Realty to initiate its land acquisition ascertainment process.

Wildlife Obj. 4
Create and maintain a Refuge wildlife data base

Wildlife Obj. 8
Maximize production and fledgling survival of selected seabird species

Land acquisition Obj. 1
Increase holdings of important wildlife habitat

Program Needs:

There are no significant needs preventing the continuation of these actions at their current level. Additional operations capability, as recommended in Administration Objective 2, will be needed to produce the amount of work necessary to accomplish seabird objectives.

LAND PROTECTION

Current Status:

The Refuge Manager keeps his lines of communication open to maintain an awareness of islands and headlands that may be available for acquisition or protection under conservation easement. When important wildlife areas may be threatened by sale or proposed development, he initiates the FWS's land acquisition ascertainment process.

When the Realty staff follows up on such items the Refuge Manager assists with information gathering and communication at the local and state levels.

Proposed Activities:

The Refuge Manager will increase communications with landowners, local and state governments and private groups. Interaction with the FWS Realty staff will also increase consistent with an elevated interest at the Service's Regional level to protect important wildlife habitat in Maine.

Land acquisition Obj. 1
Increase holdings of important
wildlife habitat

The Service's image as a responsible land management agency will be enhanced through refuge efforts to publicize its wildlife and habitat management actions that increase populations of important wildlife species and enhance the quality of their habitat. The intent is to enhance opportunities for the FWS to acquire wildlife habitat that becomes available for sale or protection under easement.

Program Needs:

Additional staff time will be needed to enhance interaction with landowners, the Regional Office Realty staff and Public Affairs Office.

PUBLIC USE

Current Status:

Public use facilities at the coastal Maine Refuges consists of an information kiosk, a 10 car parking lot and two dead-end hiking trails (1 and 3 miles round trip) at Petit Manan Point. The major public use strategy is an outreach effort to give presentations and interact with the news media.

Proposed Activities:

The level of outreach will increase and the type of information conveyed to the public will change to reflect the direction given by this plan.

The facilities at Petit Manan Point will be maintained at, or similar to, their current status.

Small parts of some Refuge units may be incorporated into the Maine Island trail system.

Program Needs:

These actions will continue through use of the current staff. An Outdoor Recreation Planner will be needed to develop and implement a more effective public use program.

Public Use Obj. 1
Maintain current public use
facilities and activities

HISTORIC/ARCHAEOLOGIC RESOURCES

Current Status:

Historic resources known to exist on the Refuges are the Petit Manan Light Station, the Cross Island Lifesaving Station, and the Bois Bubert farm. The Refuge Manager protects these sites from vandalism and looting under provision of the Antiquities Act when he is aware of ongoing or potential violations.

Funding will be sought to protect the Petit Manan Is. Light Station buildings from deterioration.

Proposed Activities:

Since the Petit Manan Light Station is already listed on the National Register of Historic Places no action will be taken at that site. Action will be initiated to determine the historic significance of the Cross Is. and Bois Bubert Is. sites. Following that determination appropriate steps will be taken.

Hist./Arch. resource Obj. 1
Comply with historic and
archaeologic resource
protection laws and regulations

Program Needs:

There are no significant needs preventing implementation of these actions.

ADMINISTRATION

Health and Safety of Refuge Users

The well being of Refuge users is now and will continue to be an item of highest priority. The Refuge staff will continue to assess and remedy hazards that arise on the Refuges.

Administration Obj. 1
Ensure the health and safety of
all Refuge users

Refuge Operations Capability

Current Status:

The four Refuges mentioned in this plan are managed from a single office with a staff of three that functions as a satellite of the Moosehorn National Wildlife Refuge. The office was established in 1984 and operated with essentially one person until 1988. Wildlife management has been concentrated on the more accessible units due to limited staff and equipment.

The foundation that has been built by the Assistant Manager during this short history is reflected in the direction presented in this plan.

Proposed Activities:

The current management structure and capacity will persist for the short-term. Implementation of portions of this plan will proceed based on reordering of priorities.

The Refuge Manager will project the costs and recommended phasing to establish and operate an independent Maine Coast National Wildlife Refuge. Projections will be based on the needs identified as Management Strategies under Administration Objective 2 on page 18 of this plan. Information from this assessment will be analyzed at the Regional Office level to determine and act upon the feasibility of establishing an independent Refuge.

Program Needs:

The Refuge staff will require assistance from other Regional Office Divisions such as Engineering to project building and facility costs but no significant Refuge needs are anticipated to implement this action.

Administration Obj. 2
Develop the operation capability to accomplish the objectives of this plan

APPENDIX A

Maine Coast Refuges Issues Discussion

ENDANGERED SPECIES

Eagles: As coastal development and human presence increases in eastern Maine, human disturbance may effect eagle activities. The state controls eagle research records, and reports an increase in nesting pairs (implying increased production) and few unproductive nests in coastal areas. The refuge currently lacks information about local eagle activity; the Petit Manan project leader knows of one nesting pair on Cross Island, and possibly another pair on Bois Bubert, but has insufficient staff and funds to monitor or look for other nests.

Peregrine Falcons: Peregrine falcons prey on the refuge's tern colonies, probably effecting roseate tern production.

Roseate Terns: The refuge will respond to the draft recovery plan. Two thirds of the state's roseate tern population nest on Petit Manan Island. More research is required to understand this population's habitat requirements and it's relationship with the common terns that share the island.

State-Listed Species: Several rare and unusual species occur on the refuge, including osprey, puffin, loon, and arctic tern. Deer may be overbrowsing state-listed rare plants on Petit Manan Point, however plant locations have not been inventoried or monitored.

WATERFOWL

Black Ducks:

NESTING: Wetlands on Petit Manan Point currently provide good nesting habitat that has the potential of substantial improvement. Mammalian and avian predation, though not acute, is evident. Predators include gulls, owls, the peregrine falcon, raccoon, skunk, coyote, mink, fox, and possibly bobcat.

STAGING: The Petit Manan Point freshwater wetlands provide good feeding and congregating habitat (before freeze-up) that could be improved. Saltwater staging areas in the refuge vicinity have not been inventoried. The North American Waterfowl Management Plan may provide the thrust to monitor intertidal staging areas, especially if State black duck hunting regulations are not tightened.

WINTERING: The refuge lacks knowledge of black duck wintering in the vicinity. Jerry Longcore's circa 1978 data should be investigated.

North American Waterfowl Management Plan priorities will effect refuge management, as will the state's black duck program.

Eiders: Waterfowl hunters will move toward eiders and sea ducks in general as black duck hunting is more stringently regulated. Although gull control is improving eider nesting habitat, an expanding commercial shellfishing industry (dragging natural mussel beds as well as farming) is depleting the eider's natural food base and increasing shellfish farmer's perception of eiders as pests. Eiders are the waterfowl species hit worst by local annual cholera outbreaks.

SHOREBIRDS

Tidal flats needing habitat protection during the shorebird migration/staging season (July 15 through October 15) have been identified by the state, the International Shorebird Reserve Network, and Stu Fefer. In general these areas overlap black duck areas. No nesting occurs on the refuge.

Whimbrels use blueberry fields on Petit Manan Point August 15 - September 15. Historically, their use was much greater, and they were a popular attraction for local birders. The refuge lacks knowledge of whimbrel habitat and feeding requirements.

OTHER BIRDS

Woodcock: Woodcock management on Petit Manan Point would provide the public with visual evidence of active FWS management, however this activity would take time, money, and effort from higher priority species management in less visible areas. Nesting and migrating woodcock habitat management could conflict with eagle management -- any clearcutting should exclude eagle nesting habitat. There is a potential for a hunting program. All management should be consistent with the American Woodcock Management Plan.

Gulls: The refuge lacks specific knowledge of local black-backed and herring gull population sizes, however general indications are that black-backed gull numbers are increasing, while herring gulls are probably leveling off. Public attitude towards gull control continues to depend on specific situations: They support the idea of controlling gulls to provide more habitat for other species on a case by case basis.

Cormorant: As the cormorant population rises, so does pressure from commercial fisherman to control them; cormorant prey on salmon, lobster trap bait, and inland fish farms. The refuge does not control cormorants, as they compete only with gulls for nesting habitat. The question remains as to whether or not cormorants alter habitat from treed to treeless.

Seabirds: Species, other than large gulls, that use the refuge islands include common, roseate, and arctic terns, the puffin, laughing gull, black guillemot, razorbill, and Leach's petrel. Nesting habitat needs protection from human disturbance as well as from natural predation by gulls, owls, peregrine falcon, rats, and mink. Food resources may be the central issue to local seabird productivity, however the refuge lacks knowledge of specific requirements and lacks management capability.

MAMMALS

Beaver: Beaver were introduced to the Point in the 1950s, and had maintained good quality wetlands until the mid-eighties, when beaver numbers decreased, possibly because of lack of young trees. Fewer than 10 beaver remain active on the Point.

Deer: Overbrowsing and hunting are the major deer issues. A recent deer pellet group count on Petit Manan Point indicated a deer density at least five times the state standard. Habitat degradation has not been officially documented, however overbrowsing may be harming state-listed rare plant species and may, because of lack of saplings, be a reason beaver no longer maintain dams on the Point.

Public opinion of a deer hunt program on the Point would probably be mixed. Some would want to keep the Point closed because it acts as a "seed" source for inland areas.

Deer may be overbrowsing Cross Island, however this has not been officially documented, and no census has been taken. Cross Island was declared a State Game Sanctuary, closed to hunting by law through the efforts of the Cabot family.

LAND PROTECTION

Easements: We should take better advantage of this land protection option as a means to limit homestead sites on inholdings on Petit Manan Point as well as to protect lands beyond the current boundary. This effort would be greatly enhanced by improved communication and coordination with other land protection interests, such as local land trusts, The Nature Conservancy (TNC), and Maine Coast Heritage Trust (MCHT).

Habitat: We must determine the types of habitat the Service is interested in protecting, and determine where this habitat is located. Much of this information was collected by Fefer and Korschgen. Other Maine island and coastal acquisition groups have other protection criteria and priorities, and improved communication and coordination with these groups will help make all our efforts more effective. Other groups include MCHT, the Island Institute, and the Maine Department of Inland Fisheries and Wildlife.

Habitat Threats: As Downeast Maine continues to develop, the Service must learn which areas are threatened with land use change or deterioration and attempt to curb these threats by encouraging deed, zoning, or legislative restrictions.

Inholdings: Many management problems stem from inholding issues, including access, safety, and trespass problems; lack of public use control; rental of inholdings causing frequent turnover and unknown economic use; and the threat of land development. The refuge does not maintain an active list of inholdings, and is not automatically alerted to acquisition opportunities.

Besides inholdings on Petit Manan Point, private landholders own portions of

Nash, Bois Bubert, and Cross Islands. The Coast Guard maintains lighthouses on Petit Manan, Franklin, Two Bush, and Matinicus Rock Islands.

Public Opinion/Awareness: The refuge must remain sensitive to local public opinion and increase its visibility as a land protection agency, because currently people don't know who to contact if they want to sell their land for conservation purposes. We need to ensure that the public perceives the FWS as a responsible land manager. The local conservation community is providing increasing support, and local opinion of the federal government is positive. Loss of tax revenues has caused minor local opposition.

North American Waterfowl Management Plan (NAWMP): The Atlantic Coast Joint Venture Plan, under the NAWMP, defines habitat protection and waterfowl production goals for each participating state. The Maine coast Refuges project leader must coordinate with other joint venture participants in Maine to meet these goals.

HISTORICAL RESOURCES

Preservation of the lighthouse buildings on Petit Manan Island is an expensive process that should be conducted in cooperation with other organizations better equipped to do the work. The Coast Guard owns lighthouses on two Refuge islands as well as on several Coast Guard-owned islands that could be transferred to us.

The refuges have not been surveyed for archeological resources.

PUBLIC USE

Public behavior and the quality of the public use experience is currently very good. With a slow but steady increase in visitation, public use management practices must continue to maintain this quality of experience.

ADMINISTRATION

The current organization hierarchy (i.e. administering the Maine coast Refuges through Moosehorn) is cumbersome (inefficient) and/or confusing for communications with the Regional Office, Law Enforcement, ES offices, the State, and private groups.

The magnitude and complexity of the Maine coast Refuges staff's workload and project area continues to grow toward a stage calling for independence from Moosehorn.

Coastal refuge management practices and issues are significantly different from inland practices and issues at Bog Brook, Sunkhaze, and Moosehorn.

A current lack of clearly defined management priorities at both the Maine coast Refuges and at Moosehorn with respect to these Refuges contributes to the administration problem.

Moosehorn management projects require staff and equipment that are therefore unavailable to share with the coastal Refuges. This staff/equipment/project stress at Moosehorn will increase as the Maine coast Refuges needs increase.

Current staffing levels are insufficient to satisfy wildlife/habitat management needs while maintaining local visibility for donation/acquisition purposes.

PMN equipment is inadequate to do the job. Boat access to the islands is unreliable during colder months, and most heavy equipment must be borrowed from Moosehorn.

The one-room refuge office is inadequate for current and anticipated needs, including private space to meet with landowners, and a self-service public reception area that separates visitors from other office activity.

The maintenance/storage building is too small and unheated.

FUN lacks sufficient equipment and funds to properly maintain buildings on Cross Island and Petit Manan Island.