Appendix A. Compatibility Determination
Appendix B. Environmental Assessment and Finding of No Significant Impact
Appendix C. Section 7 Biological Evaluation
HUNTING PLAN
Great Bay National Wildlife Refuge
August 2019

United States Department of the Interior
Fish and Wildlife Service
Great Bay National Wildlife Refuge
Newington, New Hampshire

Submitted By:
Refuge Manager

Signature

Date

8/14/19

Concurrence:
Refuge Supervisor

Signature

Date

8/30/19

Approved:
Regional Chief,
National Wildlife Refuge System

Signature

Date

7/12/19
TABLE OF CONTENTS

I. Introduction ............................................................................................................................................ 1

II. Statement of Objectives ......................................................................................................................... 2

III. Description of Hunting Program ........................................................................................................ 3
    A. Areas to be Opened to Hunting ..................................................................................................... 3
    B. Species to be Taken, Hunting Periods, Hunting Access ............................................................... 8
    C. Hunter Permit Requirements ......................................................................................................... 8
    D. Consultation and Coordination with the State .............................................................................. 9
    E. Law Enforcement .......................................................................................................................... 9
    F. Funding and Staffing Requirements ............................................................................................. 9

IV. Conduct of the Hunting Program ....................................................................................................... 9
    A. Hunter Application, Registration and Selection Procedures ....................................................... 10
    B. Refuge-Specific Regulations ....................................................................................................... 11
    C. Other Rules and Regulations for Hunters ................................................................................... 12

V. Public Engagement ........................................................................................................................... 12
    A. Outreach Plan for Announcing and Publicizing the Hunt ........................................................... 12
    B. Anticipated Public Reaction to the Hunting Program ................................................................. 13
    C. How Hunters Will Be Informed of Relevant Rules and Regulations ......................................... 13

VI. Compatibility Determination ............................................................................................................ 14

VII. Literature Cited ................................................................................................................................ 14

List of Tables
Table 1. Primary Deer and Turkey Habitats on Great Bay NWR ..............................................................3
Table 2. Primary Waterfowl Habitats on Great Bay NWR ......................................................................6

List of Figures
Figure 1. Great Bay NWR Deer Firearms Hunting Map ................................................................. 4
Figure 2. Great Bay NWR Archery and Spring Turkey Hunting Map .............................................. 5
Figure 3. Great Bay NWR Waterfowl Hunting Map ...................................................................... 7

Appendices
Appendix A. Compatibility Determination ........................................................................................ A-1
Appendix B. Environmental Assessment, and Finding of No Significant Impact ................................. B-1
Appendix C. Section 7 Biological Evaluation ....................................................................................... C-1
Great Bay National Wildlife Refuge
Hunting Plan

I. INTRODUCTION

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (NWRS, Refuge System), the purposes of an individual refuge, U.S. Fish and Wildlife Service (Service) policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual.

Great Bay National Wildlife Refuge (NWR, refuge) was established by Congress in 1992 when 1,054 acres of land were transferred from the Department of Defense to the Department of the Interior (Public Law 102-154, Section 319(d) Department of the Interior and Related Agencies Appropriations Bill, 1992). The transfer occurred because the Pease Air Force Base (Pease AFB) was one of 89 U.S. military installations closed by the Base Closure and Realignment Act (Public Law 100-526). Although the refuge was dedicated in October 1992, it was not officially opened to public access until 1996.

In order to meet specific refuge and other broader Service directives, the following purposes were established for Great Bay Refuge:

1. To encourage the natural diversity of plant, fish and wildlife species within the refuge, and to provide for their conservation and management.
2. To protect species federally listed as endangered or threatened or identified as candidates pursuant to the Endangered Species Act of 1973 (16 U.S.C 1531 et seq.).
3. To preserve and enhance the water quality of aquatic habitat within the refuge.
4. To fulfill the international treaty obligations of the U.S. relating to fish and wildlife.

The mission of the NWRS, as outlined by the National Wildlife Refuge System Administration Act (NWRSSA), as amended by the National Wildlife Refuge System Improvement Act (16 U.S.C. 668dd et seq.), is to:

“... 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.”

The NWRSSA mandates the Secretary of the Interior in administering the Refuge System to (16 U.S.C. 668dd(a)(4):

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the NWRS;
- Ensure that the biological integrity, diversity, and environmental health of the NWRS are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the NWRS described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;
- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the NWRS are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the NWRS and the purposes of each refuge;
- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the NWRS through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the NWRS for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

Therefore, it is a priority of the Service to provide for wildlife-dependent recreation opportunities, including hunting and fishing, when those opportunities are compatible with the purposes for which the refuge was established and the mission of the Refuge System.

In addition to the initial 1,054-acre parcel, the refuge has acquired an additional 33 acres for a current size of 1,087 acres. The refuge is located in the town of Newington in southeastern New Hampshire, on the eastern shore of the tidally influenced Great Bay Estuary. It includes 5.5 miles of shoreline and is the largest parcel of protected land on the estuary. In the three decades prior to refuge establishment, the refuge lands were part of the former Pease AFB. Despite this intensive land use, and its earlier use for agriculture, the refuge has a rich diversity of habitat types, including oak-hickory forests, grasslands, shrub thickets, freshwater and saltwater wetlands, and open water.

When the refuge was first proposed, the Service received public comments that public deer hunting should continue, while others suggested that hunting be used only as a biological management tool. In response to these comments, a Hunt Plan was completed for the refuge in 1993 (USFWS 1993). In 1995, the Service completed an Environmental Assessment (EA) to evaluate establishing and conducting an annual, public white-tailed deer and waterfowl hunting program on the refuge. The decision from this EA was to open the refuge to controlled hunting of white-tailed deer and waterfowl in accordance with all Federal, State, and local regulations (USFWS 1995). White-tailed deer hunting is conducted through a two-day, controlled firearms hunt. Waterfowl hunting at the refuge is permitted along the Great Bay shoreline, with access to the shoreline occurring from off the refuge. This hunting structure has remained in place every year since 1996. As the previous hunt plan is over 25 years old, the Service has created this new plan to address existing and expanded hunting opportunities for white-tailed deer, wild turkey, and waterfowl on the refuge.

II. STATEMENT OF OBJECTIVES

The objectives of the hunting program on Great Bay NWR are to:

1. Provide the public with a high-quality recreational experience on refuge lands and increase opportunities and access for hunters;
2. Design a hunting program that is administratively efficient and manageable with existing staffing levels;
3. Implement a hunting program that is safe and enjoyable for all refuge users;
4. Provide hunting opportunities for youth, disabled, and apprentice hunters; and
5. Design a hunting program that is in alignment with refuge habitat management objectives.

III. DESCRIPTION OF HUNTING PROGRAM

A. Areas to be Opened to Hunting

As both deer and turkey are generalist species that utilize a variety of habitat types, the entire refuge, except the open-water habitats and developed areas, supports these species. With 62 acres in open-water or freshwater marsh and 10 acres developed, this leaves approximately 1,015 acres of suitable habitat for white-tailed deer and wild turkey.

Of particular importance are forested portions of the refuge containing hard mast producing trees, such as oak, which provide invaluable food sources for deer and turkey. In addition, areas of the refuge containing fields and early successional habitat provide important feeding habitat for both species, as well as prime breeding and nesting habitat for turkeys. As the majority of the refuge is comprised of these habitats (Table 1), Great Bay NWR is ideal for both deer and turkey.

<table>
<thead>
<tr>
<th>TABLE 1. PRIMARY DEER AND TURKEY HABITATS ON GREAT BAY NWR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitat</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Oak-hickory forest</td>
</tr>
<tr>
<td>Conifer Plantation</td>
</tr>
<tr>
<td>Forested Wetland</td>
</tr>
<tr>
<td>Shrubland</td>
</tr>
<tr>
<td>Grassland</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Of the 1,087 acres that comprise Great Bay NWR, 943 acres will be open for firearms deer hunting and 683 acres will be open for archery deer and turkey, and turkey hunting. Areas that will be closed include the Fabyan Point parcel and the former Weapons Storage Area (WSA). For firearms hunting, a safety zone has been placed around the main parking lot and buildings (Figure 1). During archery deer and turkey hunting, additional closed areas include the area between Arboretum Drive and the Weapons Storage Area, and the northern portion of the refuge which contains public roads and walking trails. This includes all lands north of Nottingham Road and all lands north of the creek that runs between the WSA and Great Bay on the west side of the WSA (Figure 2). This boundary will be posted with “No Hunting” signs. To maintain public safety during refuge bicycle and foot tours, fall archery hunters will be prohibited from discharging a bow and arrow within 15 feet of the traveled portion of, or across any refuge roads or trails. Additionally, spring (primarily shotgun) turkey hunting will not be permitted within 200 feet of any road or trail.
Figure 1: Great Bay NWR Deer Firearms Hunting Map
Figure 2: Great Bay NWR Archery and Spring Turkey Hunting Map
Waterfowl are present throughout the year on the refuge, with moderate breeding activity, largely by Canada geese, black ducks, mallards, and wood ducks, associated with the refuge’s forested wetlands, freshwater impoundments, salt marsh, and rocky shoreline (Table 2). The refuge also supports moderate numbers of waterfowl during the spring and fall migrations, largely in Stubbs Pond and along the refuge shoreline.

**TABLE 2. PRIMARY WATERFOWL HABITATS ON GREAT BAY NWR**

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forested Wetland</td>
<td>150</td>
</tr>
<tr>
<td>Freshwater Impoundment</td>
<td>62</td>
</tr>
<tr>
<td>Salt Marsh</td>
<td>36</td>
</tr>
<tr>
<td>Rocky Shoreline</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>250</strong></td>
</tr>
</tbody>
</table>

The refuge interior has been closed to waterfowl hunting since the refuge’s establishment; however, waterfowl hunting is permitted along the refuge’s 5.5 miles of shoreline under the 1993 Great Bay NWR Hunt Plan. Of the 5.5 miles of refuge shoreline, 3.3 miles would remain open to waterfowl hunting and 2.2 miles would be closed to prevent disturbance to waterfowl using Stubbs Pond, and to establish safety zones near the William Furber Ferry Way Trail, and off-refuge private residences (Figure 3). Access for waterfowl hunting is by boat launched from off-refuge sites only; overland access through the refuge is prohibited.

Waterfowl hunting and retrieval will be permitted within 20 feet of the tidal shoreline. The following locations will be closed to waterfowl hunting:

- Within 300 feet of the private home on Fabyan Point, as per state law.
- Within 2,700 feet of the north refuge boundary, to ensure the safety of William Furber Ferry Way Trail users.
- Within 1,640 feet of the Stubbs Pond dike, to prevent disturbance to resting waterfowl in Stubbs Pond.
Figure 3: Great Bay NWR Waterfowl Hunting Map

Great Bay NWR – Hunting Plan
B. Species to be Taken, Hunting Periods, Hunting Access

Species to be Taken:

- **White-tailed deer** – Deer may be hunted during the archery season in accordance with all State regulations posted in the New Hampshire Hunting and Trapping Digest. The two-day firearms hunt will occur during the first weekend of the New Hampshire firearms season.

- **Wild Turkey** – Turkey may be hunted during the fall archery season in accordance with all state regulations posted in the New Hampshire Hunting and Trapping Digest, except during the two-day firearms hunt, and no fall shotgun hunting of turkey will be permitted on the refuge. Dogs are prohibited for fall turkey hunting. Hunting will also be permitted during the spring season, including Youth Weekend, in accordance with state regulations.

- **Waterfowl** – Ducks, mergansers, coots, Canada geese, snow geese, brant, and sea ducks may be hunted in accordance with all State regulations posted in the New Hampshire Hunting and Trapping Digest. We allow the use of dogs for retrieving migratory game birds.

Separate permits will be issued through a lottery system for fall archery (combined deer and turkey) hunting, spring turkey hunting, and the two-day firearms deer hunt. Permits will not be required for waterfowl hunting.

**Hunting Periods:** All hunts will conform to applicable State and Federal regulations as published annually by the New Hampshire Fish and Game Department (NHFG)

**Hunting Access:** Primary access to Great Bay NWR for deer and turkey hunting is from one entrance and parking area at the end of Arboretum Drive. If funding becomes available, the refuge will construct a second, smaller parking lot at the McIntyre/Nottingham Road intersection, which will be used by archery and turkey hunters only. All hunter access will occur via foot. Firearm hunters will be permitted to drive on parts of the refuge roads, past the parking lot. Permittees may scout during the week prior to the archery season and spring turkey hunts. Scouting for the firearms hunt occurs the first Thursday through the first Sunday in November. Access for waterfowl hunting is by boat launched from off-refuge only; overland access across/through the refuge is prohibited.

C. Hunter Permit Requirements

Separate permits will continue to be issued for the two-day firearms deer hunt. Turkeys are very common on the refuge, which has never been open for turkey hunting. Due to the anticipated interest to turkey hunt on the refuge, we will require a permit. Permits will be issued via a lottery system, with a limited number of permits issued for safety reasons.

Each hunt permit will be free for hunters aged 17 years and younger, $10 for hunters aged 62 and older, and $20 for hunters aged 18 to 61. Permit fees will be used to support hunt signage, maps, hunt administration, and law enforcement. No permits will be required for waterfowl hunting.
D. Consultation and Coordination with the State

National Wildlife Refuges, including Great Bay NWR, conduct hunting programs within the framework of state and Federal regulations. The refuge has moved forward with developing this Hunting Plan based upon earlier formal coordination with NHFG as well as the intervening informal discussions. The results of this coordination are reflected in this plan. The refuge will continue to consult and coordinate with NHFG annually in an effort to monitor populations of deer and turkey.

E. Law Enforcement

The enforcement of refuge and State hunting regulations, trespass, and other public use violations normally associated with management of a national wildlife refuge is the responsibility of commissioned refuge law enforcement officers. Refuge law enforcement cooperates with, and is assisted by State, town of Newington police officers, as well as State conservation officers.

Regulations and maps will be posted on the refuge’s website, at refuge parking area(s), and will be given to each permitted deer and turkey hunter. Boundaries of the refuge are clearly marked by refuge boundary signs.

F. Funding and Staffing Requirements

As Great Bay NWR is an unstaffed refuge, staff located at Parker River NWR manage all activities occurring at Great Bay NWR. The expansion of the hunting program to include fall archery hunting for deer and turkeys and spring turkey hunting will involve staff time increases. The majority of the additional work will fall upon law enforcement and the visitor services staff, who run the hunt lotteries. The first year will see the greatest need for staff time as the new hunt boundaries will need to be posted. After that, staff time will be needed for annual program administration, including planning, outreach, permitting, infrastructure maintenance for road, parking areas, signage, and law enforcement. Refuge costs associated with administration of the hunting program total an estimated $11,400 per year.

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Hunt Review and Guidance</td>
<td>$1,600</td>
</tr>
<tr>
<td>Public Outreach</td>
<td>$1,800</td>
</tr>
<tr>
<td>Hunt Administration (Lottery, Signs, Infrastructure, Maps)</td>
<td>$3,200</td>
</tr>
<tr>
<td>Law Enforcement</td>
<td>$4,800</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$11,400</strong></td>
</tr>
</tbody>
</table>

IV. CONDUCT OF THE HUNTING PROGRAM

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting must be conducted in accordance with State and Federal regulations, as supplemented by refuge-
specific regulations published by the refuge. Listed below are refuge-specific regulations that pertain to deer, turkey, and waterfowl hunting on Great Bay NWR. These regulations may be modified as conditions change.

A. Hunter Application, Registration and Selection Procedures

Two-Day Firearms Deer Hunt
All persons hunting on the refuge will be required to obtain a permit. All hunters must fill out an application form to be entered into the lottery. Two hunters are permitted per application. Forms will be available on the refuge’s website and at the Parker River NWR Headquarters. Applications can be emailed, mailed, or faxed to Parker River NWR between September 1 and September 30. Following State regulations, resident children under 16 years of age may hunt on the refuge when accompanied by a properly licensed adult, 18 years of age or older.

Forty permits will be issued, with 20 issued for Saturday and 20 for Sunday. Selected applicants will be notified by October 10 via email or letter. Non-selected applicants will also receive notification that they were not selected. The hunt permit fee is free for hunters aged 17 years or younger and hunters with disabilities, $10 for hunters aged 62 and older, and $20 for hunters aged 18 to 61. Hunters must purchase their permits by October 31. After payment is received, the hunter will be mailed their permit, along with a copy of the refuge hunting regulations and a refuge hunt map.

Fall Archery (Deer and Turkey) Season
All persons hunting on the refuge will be required to obtain a permit. All hunters must fill out an application form to be entered into the lottery. Two hunters are permitted per application. Forms will be available on the refuge’s website and at the Parker River NWR Headquarters. Applications can be emailed, mailed, or faxed to Parker River NWR between July 1 and July 31. Following State regulations, resident children under 16 years of age may hunt on the refuge when accompanied by a properly licensed adult, 18 years of age or older.

In the inaugural season, 25 permits will be awarded by lottery for the full archery season. This number may change after evaluation of the program and wildlife populations. Preference for up to half of the permits will be given to youth, hunters with disabilities, or apprentice hunters. Selected applicants will be notified by August 10 via email or letter. Non-selected applicants will also receive notification that they were not selected. The hunt permit fee is free for hunters aged 17 years or younger, and hunters with disabilities, $10 for hunters aged 62 and older, and $20 for hunters aged 18 to 61. Hunters must purchase their permits by August 31. After payment is received, the hunter will be mailed their permit, along with a copy of the refuge hunting regulations and a refuge hunt map.

Spring Turkey Hunts
All persons hunting on the refuge will be required to obtain a permit. All hunters must fill out an application form to be entered into the lottery. Two hunters are permitted per application. Forms will be available on the refuge’s website and at the Parker River NWR Headquarters. Applications can be emailed, mailed, or faxed to Parker River NWR between March 1 and March 31.
In the inaugural season, eight permits will be awarded by lottery for the spring turkey season. This number may change after evaluation of the program and wildlife populations. Preference for up to half of the permits will be given to youth, hunters with disabilities, or apprentice hunters. Selected applicants will be notified by April 10 via email or letter. Non-selected applicants will also receive notification that they were not selected. The hunt permit fee is free for hunters aged 17 years and younger and for hunters with disabilities, $10 for hunters aged 62 and older, and $20 for hunters aged 18 to 61. Hunters must purchase their permits by April 25. After payment is received, the hunter will be mailed their permit, along with a copy of the refuge hunting regulations and a refuge hunt map.

**Waterfowl Hunt**

No permits will be required for waterfowl hunting on the refuge. However, the refuge manager may, upon annual review of the hunting program, impose further restrictions on hunting, recommend that the refuge be closed to hunting, or further liberalize hunting regulations up to the limits of State regulations. The refuge manager will restrict waterfowl hunting if it becomes inconsistent with other, higher priority refuge programs or endangers refuge resources or public safety.

**B. Refuge-Specific Regulations**

- Fall archery, firearms deer, and spring turkey hunters must possess their refuge hunt permit at all times while scouting and hunting on the refuge.

  **Migratory Game Bird Hunting**

  - Access for waterfowl hunting is by boat launched from off-refuge sites only. We prohibit overland access through the refuge.
  - We allow the use of dogs for retrieving migratory game birds.

  **Fall Archery Hunt Only**

  - Discharging a bow and arrow within 15 feet of the traveled portion of, or across any refuge roads or trails is prohibited.
  - Shooting across refuge boundaries, and within or into administratively closed zones is prohibited.

  **Firearms Deer Hunt Only**

  - Hunters must check-in and out with refuge personnel prior to entering and exiting the refuge.
  - Hunters must wear in a visible manner on the head, chest, and back, a minimum of 400 square inches of solid-colored, blaze-orange clothing or material.
  - Harvested deer must be registered at the refuge check station.

  **Spring Turkey Hunt Only**

  - Hunting within 200 feet of any road or trail is prohibited.
  - Shooting across refuge boundaries, and within or into administratively closed zones is prohibited.
C. Other Rules and Regulations for Hunters

Hunters will access the refuge through the main entry gate at the end of Arboretum Drive. Archery and spring turkey hunter must park their vehicles in the main parking lot. Firearms deer hunters will be permitted to drive and park along parts of the refuge roads. From parking areas, hunter access will be by walking. Wheeled carts and sleds are permitted in all areas open for hunting, for hauling deer out. No ATVs, OHVs, or snowmobiles are permitted on the refuge at any time. Access for persons with disabilities will be by walking or by vehicle with pre-approved authorization. If funding becomes available, the refuge will construct a second parking lot at the McIntyre/Nottingham Road intersection for archery and spring turkey hunter use only. Parking permits will be issued to hunters for use in this lot. Access for waterfowl hunting is by boat launched from off-refuge sites only; overland access through the refuge is prohibited.

During the two-day firearms deer hunt on the refuge, the refuge is closed to all other recreational uses, including permit holders for archery hunting for deer and turkey.

Hunters must comply with Federal, State, and refuge-specific rules and regulations. A hunter wishing to apply as a person with a disability must have a verified statement of the disability by a licensed physician or must be participating in a program for hunters with disabilities sponsored by a nonprofit organization. Hunters with disabilities possessing a NHFG issued permit, exempting them from particular State regulations based upon their disability, will be eligible to apply for refuge-specific authorization to participate in accessible hunting opportunities on the refuge.

All hunters must register their deer or turkey according to State regulations. All hunters and their belongings must leave at the end of each day. Hunters on the refuge are expected to be ethical hunters and respectful of other hunters, non-consumptive users, wildlife species, and the environment while on refuge lands. We encourage the voluntary use of non-toxic shot while deer and turkey hunting.

V. PUBLIC ENGAGEMENT

A. Outreach Plan for Announcing and Publicizing the Hunt

Hunting opportunities are publicized through refuge pamphlets and website, NHFG’s annual “NH Hunting and Trapping Digest”, social media, and a press release sent out annually, prior to each hunt, to a multi-media market.

In addition, information will be posted at refuge parking lot kiosks, alerting visitors to the presence of hunters on the refuge. To prevent conflicts with non-hunting priority public uses, and for safety, the refuge enforces a series of refuge-specific hunting regulations. There are two designated hiking trails: Peverly Pond Trail and William Furber Ferry Way Trail. The northern portion of the refuge, where these trails are located, will be closed to hunting during the fall archery season and spring turkey seasons, allowing visitors to use these trails safely. For safety purposes, the entire refuge will be closed to everyone except permitted hunters during the two-day firearms hunt.
B. Anticipated Public Reaction to the Hunting Program

User conflicts between hunting and non-hunting visitors are likely to be minimal. The closure of the refuge for the two-day firearms deer hunt will affect the use of the refuge by non-hunting visitors. Mid-November, when the hunt occurs, tends to be a slower time of year for visitors, so adverse impacts to visitors is expected to be minimal.

Efforts have been made to minimize user conflicts and safety concerns by focusing the fall archery, spring turkey, and waterfowl hunting opportunities to areas away from the public hiking trails. These areas are closed to other public uses year-round. Non-hunting areas are still available for use by school groups, educational field trips, and interpretive programs. Conflicts may occur in the public parking lot, especially if a hunter is in possession of a harvested animal. Some members of the visiting public might feel uncomfortable or distraught being around hunters and/or harvested animals. To minimize potential conflicts between hunters and non-hunting visitors, the refuge will notify visitors, through the refuge website, Facebook page, and signage at kiosks, that they may encounter hunters.

Many residents in Newington have voiced displeasure with the number of deer in their community due to the damage they inflict to their landscape plantings. The majority of residents are supportive of the current hunt and an expanded deer hunt because of its potential to decrease the local deer population. Portsmouth International Airport at Pease, which is near the refuge, has been in favor of a turkey hunting on the refuge for numerous years. They believe that a hunt will help reduce the local turkey population, consequently decreasing the number of turkeys present on the airport and the potential for catastrophic collisions between turkeys and aircraft.

There may be a negative reaction to the refuge hunts by anti-hunter groups and individuals. Response to any demonstrations or protests will be coordinated through the Refuge System program in the Northeast Regional Office of the Service. If necessary, State and local law enforcement officials may be asked to assist.

The draft hunting plan, with an accompanying compatibility determination (CD) and environmental assessment (EA), was released to the public for a 30-day comment period on April 23, 2019. Public comments were accepted through May 24, and a public presentation was held in Newington on May 15. Three comment letters were received during the comment period, and five people attended the presentation. No substantive changes were made to the plan based on the comments.

C. How Hunters Will Be Informed of Relevant Rules and Regulations

Hunters will be able to obtain relevant information at the Parker River NWR Headquarters office, on the refuge website, and within the NHFG Hunting and Trapping Digest as mentioned earlier.

Once on the refuge, areas closed to hunting will be clearly marked with “No Hunting Zone” or “No Waterfowl Hunting Zone” signs, as appropriate. The boundaries of all lands owned by the Service are posted with refuge boundary signs. During the firearms hunt, refuge staff will be present to assist hunters as needed.
In the event of a planned, prescribed burn, hunters will be notified of prescribed burning plans in advance via signs, and e-mail and/or phone, and prescribed burn units will be temporarily closed to hunter access.

VI. COMPATIBILITY DETERMINATION

Hunting and all associated program activities proposed in this plan are found compatible with purposes of the refuge. Allowing deer, turkey, and waterfowl hunting on Great Bay NWR contributes to, and does not materially interfere with, or detract from, the mission of the Refuge System and the purposes for which the refuge was established. See Appendix A.

VII. LITERATURE CITED


Appendix A

Compatibility Determination
COMPATIBILITY DETERMINATION

USE: Hunting

REFUGE NAME: Great Bay National Wildlife Refuge

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

REFUGE PURPOSE(S):
Great Bay NWR was established to:

- Encourage the natural diversity of plant, fish, and wildlife species within the refuge, and to provide for their conservation and management.
- Protect species listed as endangered or threatened or identified as candidates pursuant to the Endangered Species Act of 1973.
- Preserve and enhance the water quality of aquatic habitat within the refuge.
- Fulfill the international treaty obligations of the United States relating to fish and wildlife.

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:
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. —National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57; 111 Stat. 1282)

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?
The use is fall archery deer and turkey hunting, firearm deer hunting, spring turkey hunting, and waterfowl hunting at Great Bay NWR. Hunting is a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. §668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57), when found to be compatible.

Refuge lands were open to firearms deer and waterfowl hunting in 1996. This compatibility determination (CD) amends and updates hunting areas, acreage, seasons, regulations, and species available for hunting, including the addition of archery hunting for deer and turkey, and the addition of a spring turkey season.

(b) Where would the use be conducted?
Firearms deer hunting will be allowed throughout the entire refuge excluding Fabyan Point, the enclosed area of the former Weapons Storage Area (WSA), and established safety zones (Figure 1). Archery deer hunting, fall archery turkey hunting, and spring
turkey hunting will occur on 683 acres of the refuge. Areas that will be closed to all types of hunting include Fabyan Point, the former WSA, the area between the road to Woodman Point and the WSA, and the northern portion of the refuge that contains the public roads and walking trails (Figure 2).

“No hunting zones” for the firearms hunt include, but may not be limited to, the fenced area of the former WSA, Fabyan Point, administrative areas, and wildlife sensitive areas. “No hunting zones” for fall archery and spring turkey include all the above in addition to the northern portion of the refuge. This includes all lands north of Nottingham Road on the east side of the WSA and anything north of the creek that runs between the WSA and Great Bay on the west side of the WSA (Figure 2).

Waterfowl hunting and retrieval will be permitted within 20 feet of the tidal shoreline, with the following prohibitions:

- Within 300 feet of the private home on Fabyan Point, as per state law.
- Within 2,700 feet of the north refuge boundary, to ensure the safety of William Furber Ferry Way Trail users.
- Within 1,640 feet of the Stubbs Pond dike, to prevent disturbance to resting waterfowl in Stubbs Pond.

Access for waterfowl hunting is by boat launched from off-refuge sites only; overland access through the refuge is prohibited.

(c) When would the use be conducted?
The firearms deer hunt will be conducted on the first weekend of the New Hampshire firearms season for Wildlife Management Unit M, which includes the refuge. Archery season will be concurrent with the State’s archery deer and turkey season, which generally runs mid-September through Mid-December. The spring turkey season will be concurrent with the State’s season, which generally occurs from the last weekend in April through the end of May. Waterfowl hunting will be conducted concurrent with the State’s seasons.

(d) How would the use be conducted?
Refuge staff will conduct the use according to State and Federal regulations. Federal regulations in 50 CFR Chapter 1 subchapter C, as well as refuge-specific regulations will apply. However, the refuge manager may, upon annual review of the hunting program, modify the program to ensure compatibility. We may restrict hunting if it becomes inconsistent with other refuge programs or endangers refuge resources or public safety.
Figure 1. Great Bay NWR Deer Firearms Hunting Map
Figure 2. Great Bay NWR Archery and Spring Turkey Hunting Map
Figure 3. Great Bay NWR Waterfowl Hunting Map

Waterfowl Hunt Area
Great Bay NWR

Legend
- Open to Waterfowl Hunting
- Closed to Waterfowl Hunting
- Refuge Boundary

Map Date Created: 01/22/2019
Projection: NAD83 UTM Zone 19

Sources: Esri, HERE, Garmin, Intermap, iMap, INCREMENT, F Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Leagiste, IGN, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), DeLorme. © OpenStreetMap contributors, and the GIS Us or Community.

Appendix A. Compatibility Determination
All persons participating in the refuge hunt must hold a valid State hunting license, and obtain a refuge hunting permit for hunting deer and turkey. No separate refuge permit is required for hunting waterfowl.

Hunters with permits for the firearms hunt may scout the appropriate areas open to hunting from the first Wednesday of November to the first Saturday of November. Permitted archery hunters can scout the week prior to the season opening. Permitted spring turkey hunters can scout the week prior to the youth weekend. All hunters must possess the appropriate permit while scouting.

Vehicle access will only be allowed as indicated on hunt maps during the two-day firearms deer hunt. During scouting, vehicles will park in the visitor parking lot and scout on foot. Vehicle access for archery and spring turkey hunting will be limited to public roads and designated parking lots.

Portable tree stands and ground blinds are permitted; however, they must be removed from the refuge by the end of each day. Permanent trees stands and ground blinds are prohibited. Hunters cannot use screw-in steps, nails, spikes, wires, or bolts as climbing or hanging devices to attach a stand to a tree. Damage of natural vegetation is not permitted in the placing of stands or blinds. Hunting locations may not be marked with non-natural materials (e.g. flagging, reflective dots, cat eyes, etc).

The unauthorized distribution of bait or salt, and the hunting over bait or salt, is prohibited. During the firearms deer and spring turkey hunts, these animals may be hunted with any method of take that is legal in the Town of Newington, during the applicable season.

Pre-season lotteries will be held for the fall archery, firearms deer, and spring turkey hunt permits. Preference will be given to youth, disabled, and apprentice hunters for up to half the permits in each hunt. Selected hunters will be required to submit the required fee prior to being issued the permit.

(e) Why is this use being proposed?
Hunting is one of the priority public uses outlined in the Refuge Improvement Act. The Service supports and encourages priority uses when they are compatible on national wildlife refuges. Hunting is an important wildlife management tool and a traditional form of wildlife-oriented recreation that is deeply rooted in American heritage. The refuge firearms deer hunt at the refuge has been ongoing since 1996 and has been very successful and popular.

Expansion of hunting (e.g., addition of archery deer and turkey hunting) opportunities identified in the refuge Comprehensive Conservation Plan (CCP) (USFWS 2012), and access to Great Bay NWR, addresses interests of the public and partners in engaging in one of the refuge’s priority public uses.

**AVAILABILITY OF RESOURCES:**
There are sufficient funds within the refuge’s annual operating budget to administer the hunting program. Staff at Parker River NWR manage all activities occurring at Great Bay NWR. Staff time is needed for annual program preparation and planning, outreach and public relations, permit administration, boundary signage maintenance, and enforcement. A small amount of road maintenance, mowing, and other upkeep will need to be performed, but are funded as part of regular refuge management activities. Refuge costs associated with administration of the hunting
program total an estimated $11,400 per year.

**Annual Hunt Review and Guidance**
- Refuge Manager and Wildlife Biologist = $1,600

**Public Outreach**
- Park Ranger/Outdoor Recreation Planner/Administrative Assistant = $1,800

**Hunt Lottery and Permit Administration (Lottery, Signs, Infrastructure, Maps)**
- Outdoor Recreation Planner/Office Assistant = $3,200

**Law Enforcement**
- Federal Wildlife Officer = $4,800

**Other Operating Costs**
- Signs, Leaflets, Equipment, and Vehicle fuel and Maintenance = $11,400

**Total**
= $11,400

**ANTICIPATED IMPACTS OF THE USE:**

**Soils and Vegetation**
Hunters traveling off-trail may trample vegetation and introduce invasive plant propagules. The short-term impacts of trampling vegetation include damage and killing of individual plants, whereas long-term impacts include soil compaction (Kuss 1986, Roovers et al. 2004). However, due to the low number of hunters anticipated annually and the dispersed nature of hunting, we predict that these impacts will be minor.

**Water Quality and Aquatic Resources**
The use of boats, particularly motorized boats, for waterfowl hunting may cause adverse impacts on water quality and aquatic resources. Potential impacts include direct impacts, such as aquatic species mortality from waves and propeller action, and indirect impacts, including increased stress levels, increased water turbidity, loss of food sources, and the dislodging of aquatic species eggs and larvae from their substrate (Lewin et al. 2006). Motorized boats can also disturb wildlife by creating loud noises, which may interfere with hearing, and release toxic inorganic and organic compounds into the water and air (Lewin et al. 2006). There is also the potential for hunters using boats to introduce aquatic invasive plants into the bay. Since so few individuals hunt on the refuge, we anticipate any impacts on water quality and aquatic resources to be negligible and short-term.

Deer and turkey hunting will have no impacts on water quality or aquatic resources, as these activities occur in upland habitats.

**Wildlife**
Hunting can have direct and indirect impacts on both target and non-target species. These impacts include direct mortality of individuals; changes in wildlife behavior; changes in wildlife population structure, dynamics, and distribution patterns; and disturbance from noise and hunters walking on- and off-trail (Cole and Knight 1990, Cole 1990, Bell and Austin 1985). In many cases, hunting removes a portion of the wildlife population that will otherwise naturally succumb to predation, disease, or competition (Bartmann et al. 1992). Typical changes in deer behavior in response to hunting, include avoidance of certain areas, becoming more wary, staying closer to cover, and shifting feeding times (e.g., feeding more at night) (King and Workman 1986). Waterfowl hunting may cause waterfowl species to become more skittish and prone to disturbance (Morton 1995),
reduce the amount of time that they spend feeding or resting, and may alter their habitat use (Raveling 1979, Thomas 1983, Owens 1977, White-Robinson 1982, Madsen 1985, Bartelt 1987).

According to the New Hampshire Fish and Game Department (NHFG), deer populations in the more urban Wildlife Management Unit M, exceed the established population target for this unit. Unit M is a total of 534 square miles, of which the refuge comprises less than one-half of one percent. NHFG’s objective for this unit is to reduce the deer population by 41 percent from the current adult buck annual harvest of 986 per year to 535 per year. The refuge’s hunt contributes towards NHFG’s objective of reducing the Unit M deer population. An average of 17 deer are harvested annually during the refuge’s two-day firearms hunt.

From the initial transplant of 25 turkeys from New York, the population of turkeys in New Hampshire had grown to approximately 40,000 by 2014 (reaching NHFG’s goal set forth in the 2004 game management plan). This current population equates to an average of 4.5 turkeys per square mile, with higher densities located in the southern portion of the state, where oaks are abundant and winters are less severe (NHFG 2015). Rockingham County supports a population of 6.38 turkeys per square mile. Although human population densities are high and farmland acreage is low in the county, both of which are detrimental for turkey survival, turkey populations continue to thrive. Great Bay NWR and the surrounding community of Newington provide ideal habitat for wild turkeys. Fields provide brood habitat while an abundance of oaks provide the ideal fall and winter food source.

In general, refuge visitors engaged in hunting will be walking off-trail in designated areas open to hunting. General disturbance from recreational activities, including hunting, vary with the wildlife species involved and the activity’s type, level, frequency, duration, and season it occurs. The responses of wildlife to human activities, such as hunting, include avoidance or departure from the site (Owen 1973, Burger 1981, Korschen et al. 1985, Klein 1993, Whittaker and Knight 1998), the use of suboptimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior or habituation to human disturbance (Burger 1981, Morton et al. 1989, Ward and Stehn 1989, Klein 1993, Whittaker and Knight 1998), attraction (Whittaker and Knight 1998), and an increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990).

Waterfowl are more sensitive to human disturbances during the hunting season. Waterfowl in open, coastal habitats regularly take escape flights when disturbed by shooting activity within 500 meters (1,640 feet) of their feeding and resting areas (Owens 1977, Madsen 1988). Fox and Madsen (1997) recommended a waterfowl sanctuary buffer zone of one escape flight distance (1,640 feet) for sanctuaries less than three escape flight distances wide. Waterfowl hunting will be prohibited on refuge lands within 1,640 feet of the Stubbs Pond dike to prevent hunting-associated disturbance to roosting waterfowl in this relatively small impoundment.

While some disturbance to non-target wildlife species is expected, we anticipate that impact to be minimal, because the proposed refuge hunting opportunities are controlled by the refuge and most of it occurs outside the breeding season (except for the spring turkey season). While spring turkey season occurs during spring migration, the number of permits that will be issued will be small, which would result in only limited disturbance in localized areas. Hunters engaging in all hunting types could disturb resident wildlife, but negative impacts are expected to be minimal.
The use of toxic shot for hunting can also cause mortality or injury to non-target wildlife. In order to prevent these impacts, we encourage the voluntary use on non-toxic shot while deer and turkey hunting.

**Threatened and Endangered Species**

The northern long-eared bat (*Myotis septentrionalis*) is listed as threatened under the Endangered Species Act of 1973, as amended. The species has been documented on the refuge using acoustics and mist-netting. The addition of archery deer and turkey, and spring turkey hunting will occur at times when northern long-eared bats can be present on the refuge. Spring turkey hunting occurs on the ground and hunters will not climb trees, so disturbance would be negligible. Fall archery hunters will hunt from tree stands, which may disturb roosting bats that are still present on the refuge in September and early October. By mid-October, most bats will have left the refuge for their hibernacula. An Endangered Species Act Section 7 evaluation was conducted for the northern long-eared bat (see Appendix C). The evaluation determines that expansion of the hunting program may affect but not likely to adversely affect the species – meaning effects would be negligible (e.g., not reach the level of ‘take’ of the species as defined under the Endangered Species Act).

Impacts to other State-listed species (besides bats) will be negligible due to the low degree of overlap between hunting areas and species’ distributions throughout the hunting seasons. Additionally, while State-listed species occur on the refuge, their abundances are very low – limiting potential hunter/species interactions.

**Other Public Uses**

During the two-day firearms hunt, the refuge is closed to other public uses, except permitted deer hunters. Based on past seasonal visitation, we estimate that less than 100 people would be displaced during the two-day hunt. Archery and turkey hunting will occur in the area of the refuge that is closed to other public uses, so there will be no impact to other visitors. Waterfowl hunting occurs along the Great Bay shoreline, which is inaccessible to other public uses. To avoid conflicts with visitors utilizing the William Furber Ferry Way Trail, waterfowl hunting along the adjacent shoreline will be prohibited.

**Cumulative Impacts**

Refuges, including Great Bay NWR, conduct hunting programs within the framework of State and Federal regulations. Population estimates of huntable species are developed at a regional, state, flyway, and continental scale. Hunting frameworks and take limits are set based upon these estimates. The refuge hunting program rules will be the same as, or more restrictive than, hunting regulations throughout the State. By maintaining hunting regulations that are the same as or more restrictive than the State, individual refuges ensure that they are maintaining seasons which are supportive of management on a more regional basis. Such an approach also provides consistency with large-scale population status and objectives. Implementation of the hunting program on the refuge will have minor impacts on wildlife species in the state, and will not rise to a significant cumulative impact in WMU M, regionally, or nationally.

Because the refuge uses an adaptive management approach for its hunting program, reviewing the program annually and revising annually (if necessary) will allow the Service to adjust the program to ensure that it does not contribute further to the negative cumulative impacts of population growth and development on deer and turkey.
PUBLIC REVIEW AND COMMENT:
This CD is part of the Great Bay NWR Hunting Plan and the accompanying Environmental Assessment (EA). Public notification and review of this CD included a 30-day comment period, from April 23 through May 24, 2019. We informed the public through a press release and posting at the refuge parking lot kiosk, refuge website, and Facebook page. A public presentation of the hunt plan (with CD and EA) was held in Newington on May 15. Three comment letters were received during the comment period, and five people attended the presentation. No substantive changes were made to the CD or the plan based on the comments.

DETERMINATION (CHECK ONE):

_____ Use is not compatible.

__X__ Use is compatible with the following stipulations.

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- A refuge permit will be required to hunt deer or wild turkey.
- Waterfowl hunting is restricted to a 20-foot wide strip along the shoreline of Great Bay except Herods Cove, Fabyan Point, and by the William Furber Ferry Way Trail and overlook.
- Discharging a bow and arrow within 15 feet of the traveled portion of, or across any refuge roads or trails is prohibited.
- Firearms deer hunters must wear in a visible manner on the head, chest, and back, a minimum of 400 square inches of solid-colored, blaze-orange clothing or material.
- During the spring turkey hunt, hunting within 200 feet of any road or trail is prohibited.
- Fall archery, firearms deer, and spring turkey hunters must possess their refuge hunt permit at all times while scouting and hunting on the refuge.

JUSTIFICATION:

Hunting is a popular form of wildlife recreation in New Hampshire, as well as a traditional activity on the refuge. While it satisfies a recreational need, hunting on national wildlife refuges is also an important, proactive management action that can prevent overpopulation and the deterioration of habitat. Disturbance to other species may occur, but this disturbance is generally short-term and low-impact.

Hunting is a wildlife-dependent priority public use with minimal impact on refuge resources. It is consistent with the purposes for which the refuge was established, the Service policy on hunting, the Refuge Improvement Act, and the broad management objectives of the refuge system.
We do not expect this use to materially interfere with or detract from the mission of the refuge system nor diminish the purposes for which the refuge was established. The use will not cause an undue administrative burden. We will manage the use in accordance with State and Federal regulations, as well as refuge-specific regulations and general operations to ensure that wildlife and habitat management goals are achieved, and that the use is providing a safe, high quality experience for participants. Annual adjustments can be made to the use or any of its components to ensure its continued compatibility, and to further the mission of the Refuge System by providing renewable resources, while conserving fish, wildlife, and plant resources for the benefit of present and future generations.

**Signature:** Refuge Manager [Signature and Date]

**ACTING**

**Concurrence:** Regional Chief [Signature and Date]

**Mandatory 15-year re-evaluation date:** 9/12/2034

**REFERENCES**


Roovers, P., K Verheyen, M. Hermy, and H. Gulinck. 2004. Experimental trampling and vegetation recovery in some forest and heathland communities. Applied Vegetation Science


Appendix B

Environmental Assessment
U.S. Fish and Wildlife Service
DRAFT Environmental Assessment for Hunting Expansion at
Great Bay National Wildlife Refuge

Date: March 14, 2019

This Environmental Assessment (EA) evaluates the impacts associated with this proposed action and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 CFR 1500-1509) and Department of the Interior (516 DM 8) and U.S. Fish and Wildlife Service (Service) (550 FW 3) policies.

Proposed Action

The Service is proposing to expand hunting opportunities for white-tailed deer and create opportunities for wild turkey hunting on the Great Bay National Wildlife Refuge (NWR, refuge) in accordance with the refuge’s Comprehensive Conservation Plan (CCP) (USFWS 2012). The 1,087-acre refuge is located in Rockingham County in southeastern New Hampshire. We propose to expand deer hunting to include the State archery season and open the refuge to turkey hunting during both the State fall (archery) and spring seasons.

Background

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (Refuge System), the purposes of an individual refuge, Service policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations (CFR) and Service Manual.

Great Bay NWR was established by Congress in 1992 when 1,054 acres of land were transferred from the Department of Defense to the Department of the Interior (Public Law 102-154, Section 319(d) Department of the Interior and Related Agencies Appropriations Bill, 1992). The transfer occurred because the Pease Air Force Base (AFB) was one of 89 U.S. military installations closed by the Base Closure and Realignment Act (Public Law 100-526). Although the refuge was dedicated in October 1992, it was not officially opened to public access until 1996.

The following purposes were established for this refuge:

1. Encourage the natural diversity of plant, fish and wildlife species within the refuge, and to provide for their conservation and management;
2. Protect species federally listed as endangered or threatened or identified as candidates pursuant to the Endangered Species Act of 1973 (16 U.S.C 1531 et seq.);
3. Preserve and enhance the water quality of aquatic habitat within the refuge; and
4. Fulfill the international treaty obligations of the U.S., relating to fish and wildlife.
Great Bay NWR is managed by the Service as part of the Refuge System (USFWS 2007). The mission of the 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.”

The Refuge System Administration Act mandates the Secretary of the Interior in administering the System to:

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System;
- Ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the Refuge System described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;
- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the Refuge System are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the Refuge System and the purposes of each refuge;
- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

**Purpose and Need for the Proposed Action**

Hunting is a healthy, traditional recreational use of renewable natural resources deeply rooted in America’s heritage, and it can be an important wildlife management tool. The Refuge System Administration Act of 1966, the Refuge System Improvement Act of 1997, other laws, and the Service’s policies permit hunting on a national wildlife refuge when it is compatible with the purposes for which the refuge was established and acquired.

Great Bay NWR’s CCP (2012) identified the goal to “provide opportunities for high-quality compatible, wildlife-dependent public use” with specific objectives to expand hunting opportunities on the refuge for white-tailed deer and wild turkey. However, the existing refuge hunt program has not been expanded since the CCP was published.

To address the needs stated above, the purpose of the proposed action will bring the refuge into compliance with management objectives detailed in the CCP. Furthermore, Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on national wildlife refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action will also promote one of the priority public uses of the Refuge System, and will promote stewardship of our natural resources and increase public appreciation and support for the refuge by providing opportunities for visitors to hunt.
This EA serves as the NEPA document, which analyzes the impacts on environmental, cultural, and historical resources of expanding hunting opportunities on the refuge.

Alternatives Considered

The No Action Alternative would continue to provide a two-day firearms deer hunt, and waterfowl hunting along the shoreline, on Great Bay NWR. No other hunts would be available for the public. Under this alternative, the refuge would not meet its management objectives to provide additional wildlife-dependent recreational opportunities. The Proposed Action Alternative is an expansion of the No Action Alternative, and was originally developed in close collaboration between refuge staff and the New Hampshire Fish and Game Department (NHFG) during the refuge’s 2012 CCP process. This alternative builds on an existing hunt program, including the addition of a fall archery season for deer and turkey and a spring turkey season. There are no unresolved conflicts about the proposed action with respect to the alternative uses of available resources. Table 1 describes the primary differences between the two evaluated alternatives.

Table 1. Primary differences between refuge hunt alternatives

<table>
<thead>
<tr>
<th></th>
<th>No Action Alternative</th>
<th>Proposed Action Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deer Hunting Area</td>
<td>943 acres</td>
<td>943 acres</td>
</tr>
<tr>
<td>Waterfowl Hunting Area (Shoreline)</td>
<td>5.5 miles</td>
<td>4.6 miles</td>
</tr>
<tr>
<td>Turkey Hunting Area</td>
<td>0 acres</td>
<td>683 acres</td>
</tr>
<tr>
<td>Number of deer hunting days*</td>
<td>2 days</td>
<td>92 days</td>
</tr>
<tr>
<td>Number of turkey hunting days*</td>
<td>0 days</td>
<td>121 days</td>
</tr>
<tr>
<td>Cost of program</td>
<td>$6,400</td>
<td>$11,400</td>
</tr>
<tr>
<td>Estimated funds to be received through Refuge permits</td>
<td>$670</td>
<td>$1,150</td>
</tr>
</tbody>
</table>

* Subject to change based on annual NHFG season setting

Proposed Action Alternative – Addition of Fall Archery Hunting for Deer and Turkey and Spring Turkey Hunting

The Service has prepared a hunting plan, which is presented with this document, and is summarized in this EA as the Proposed Action Alternative. Under this alternative, Great Bay NWR will continue to offer the two-day white-tailed deer (*Odocoileus virginianus*) firearms hunt, with the addition of both a fall archery season for deer and wild turkey, (*Meleagris gallopavo*) and a spring turkey hunt. Preference for the spring turkey hunt will be given to youth, hunters with disabilities, and apprentice hunters (as defined by the State of New Hampshire). Hunter numbers for each hunt (archery, 2-day firearms, spring turkey) will be limited through a permit system, with hunters selected by a lottery. The seasons, bag limits, and regulations will be
consistent with those set by the State, with the exception that archery hunting will not be permitted during the two-day firearms hunt.

Hunters will be required to comply with additional refuge-specific regulations, including but not limited to those contained in 50 CFR Chapter 1, Subchapter C, Part 32.48. Those proposed under this alternative include:

- We require hunters to possess a refuge hunt permit at all times while scouting and hunting on the refuge.
- Discharging a bow and arrow within 15 feet of the traveled portion of, or across any refuge roads or trails is prohibited.
- Discharging a firearm within 200 feet of the traveled portion of, or across any refuge roads or trails is prohibited.
- Hunters must wear in a visible manner on the head, chest, and back, a minimum of 400 square inches of solid-colored, blaze-orange clothing or material.

The refuge manager may, upon annual review of the hunting program, impose further restrictions on hunting activity, recommend that the refuge be closed to hunting, consider zoning for different uses, or further liberalize hunting regulations within the limits of State law. Restrictions would occur if hunting becomes inconsistent with other higher priority refuge programs, or endangers refuge resources or public safety.

Areas closed to hunting include Fabyan Point, the former Weapon’s Storage Area, the portion of the refuge between the road to Woodman Point and the Weapon’s Storage Area (WSA), and the northernmost portion of the refuge. This includes all lands north of the refuge road that leads to McIntyre Road on the east side of the WSA, and anything north of the creek that runs between the WSA and Great Bay on the west side of the WSA (Figure 2). This boundary will be posted with “No Hunting” signs. The remaining portions of the refuge will be open for both archery deer and turkey hunting.

Three sections of the 5.5 mile refuge shoreline along Great Bay would be closed to waterfowl hunting: Herods Cove near Stubbs Pond; Fabyan Point; and near William Furber Ferry Way Trail.

**Mitigation Measures and Conditions**

The refuge-specific regulations detailed above (and in 50 CFR) are measures under the Proposed Action Alternative that will reduce or avoid impacts. Refuge and State law enforcement officers will enforce hunting regulations. Providing hunting information through various forums will ensure the public is aware of applicable laws and policies.

To minimize conflicts between the hunting and non-hunting public, fall archery and spring turkey hunting will not be permitted in the northern portion of the refuge, which contains the public hiking trails. Hunting will only be permitted in areas that are closed to general public access. During the two-day firearm deer hunt, the entire refuge will be closed to the public, including archery permit holders. Additionally, notices will be posted at refuge parking lot kiosks, and on the refuge’s website and social media pages to inform visitors that the refuge is open to hunting.
Refuge management activities can be accomplished without conflict with hunting activities through administratively closed areas and methods of hunts. All public tours and programs will continue, as these generally occur along refuge trails and roads, which hunters are prohibited from hunting near. Any administrative activities will generally occur on weekdays, when hunter use is expected to be low. Hunters will be notified of prescribed burning plans in advance via e-mail and/or phone, and prescribed burn units will be temporarily closed to hunter access.

Affected Environment

Great Bay NWR consists of 1,087 acres in Newington, Rockingham County, New Hampshire. The proposed action (expansion of hunting opportunities) is located on 683 acres. Approximately 0.9 miles of the 5.5 mile shoreline will be closed to waterfowl hunting. Refuge lands include upland deciduous, coniferous, early successional habitat, and mixed forests, as well as open water, and freshwater and saltwater wetlands. Table 2 provides additional, brief descriptions of affected resources. For more detailed information regarding the affected environment, please see Chapter 3 of the CCP (USFWS 2012), available online at https://www.fws.gov/refuge/Great_Bay/what_we_do/conservation.html.

Environmental Impacts of the Action

This section analyzes the environmental consequences of the action on each affected resource, including direct and indirect impacts. This EA only includes the written analyses of the environmental consequences on a resource when the impacts on that resource could be more than negligible and therefore considered an “affected resource”. Any resources that will not be more than negligibly impacted by the action have been dismissed from further analyses. The refuge’s Compatibility Determination for public hunting also has a summary of potential impacts associated with hunting, and is available in Appendix A of the Hunting Plan.

Impact Types

Direct impacts are those which are caused by the action and occur at the same time and place.

Indirect impacts are those which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect impacts include ecological (such as the impacts on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Indirect impacts may also include those resulting from actions with both beneficial and detrimental impacts; even if on balance, the agency believes that the impact will be beneficial.

Beneficial impacts are those resulting from management actions that maintain or enhance the quality and/or quantity of identified refuge resources or recreational opportunities.

Adverse impacts are those resulting from management actions that degrade the quality and/or quantity of identified refuge resources or recreational opportunities.

Duration of Impacts
**Short-term impacts** affect identified refuge resources or recreational opportunities; they occur during implementation of the management action but last no longer.

**Medium-term impacts** affect identified refuge resources or recreational opportunities that occur during implementation of the management action; they are expected to persist for some time into the future though not throughout the life of the Hunting Management Plan.

**Long-term impacts** affect identified refuge resources or recreation opportunities; they occur during implementation of the management action and are expected to persist throughout the life of the Hunting Management Plan and possibly longer.

**Intensity of Impact**

*Negligible impacts* result from management actions that cannot be reasonably expected to affect identified refuge resources or recreational opportunities at the identified scale.

*Minor impacts* result from a specified management action that can be reasonably expected to have detectable though limited impact on identified refuge resources or recreation opportunities at the identified scale.

*Moderate impacts* result from a specified management action that can be reasonably expected to have apparent and detectable impacts on identified refuge resources or recreation opportunities at the identified scale.

*Major impacts* result from a specified management action that can be reasonably expected to have readily apparent and substantial impacts on identified refuge resources and recreation opportunities at the identified scale.

Table 2 provides:

1. A brief description of the affected resources in the proposed action area;
2. Impacts of the proposed action on those resources, including direct and indirect impacts.

### Table 2. Affected Environment and Impacts

<table>
<thead>
<tr>
<th>NATURAL RESOURCES</th>
<th>AFFECTED ENVIRONMENT</th>
<th>ANTICIPATED DIRECT AND INDIRECT IMPACTS</th>
</tr>
</thead>
</table>
| **Wild Turkey:**  | Wild turkeys are a resident wildlife species, whose population is managed by the State (NHFG 2017, NHFG 2015a, and NHFG 2015b). Wild turkeys were reintroduced to Rockingham County in the 1980s and they were present on Pease AFB at the time of refuge establishment. The refuge occurs in the State’s Wildlife Management Unit M, where turkey | **No Action:**  
No negative impacts to habitat or other wildlife are known to occur from current turkey densities. Remaining closed to wild turkey hunting is not expected to have biological consequences.  
**Proposed Action:**  
Opening 683 acres of refuge lands to turkey hunting will |
hunting has been permitted since 1980. The estimated 2014 wild turkey population of Wildlife Management Unit (WMU) M is 4,400, the third highest in the state (NHFG 2015b). Moderately decrease the local turkey population. The State’s turkey population is at an all-time high of approximately 40,000 birds with about 4,000 harvested Statewide annually (NHFG 2017). In WMU M, 578 were harvested in 2017, with only 7 taken from Newington (NHFG 2017). Currently, WMU M is below the State’s population objective, with 0.92 spring turkeys harvested per square mile of habitat, while the goal is 1.00 (NHFG 2017). The harvest will reduce the turkey population in the immediate vicinity of Pease Airport, helping to reduce the likelihood of turkey airstrikes.

Due to the small size of the area to be hunted on the refuge, harvest on the refuge would have a negligible impact on the overall WMU M population, which will be managed at a sustainable population level by the NH Fish and Game Department. Great Bay NWR will coordinate with NHFG if any unsustainable impacts to turkey populations on the refuge are observed.

Disturbance to turkeys in the area will occur during the hunting season, but the disturbance is considered negligible as flocks are prone to move regularly over large areas, and sections of the refuge will be closed to hunting, acting as refugia.

<table>
<thead>
<tr>
<th>White-tailed Deer:</th>
<th>No Action:</th>
</tr>
</thead>
<tbody>
<tr>
<td>White-tailed deer are a resident wildlife species, whose population is managed by the State (NHFG 2017, NHFG 2015a, and NHFG 2015c). The refuge occurs in the State’s Wildlife Management Unit M. The population has been increasing in WMU M since the 1980s.</td>
<td>Currently, hunters harvest an average of 17 deer per year during the 2-day firearms hunt on 943 acres of the refuge. Continuation of the current hunting plan would not be expected to impact the deer population negatively.</td>
</tr>
</tbody>
</table>

**Proposed Action:**

The addition of archery hunting on 683 acres will increase the opportunities for hunters to harvest deer on the refuge. The impact to the local deer population will be negligible, as the area open to hunting is small, with a small number of hunters permitted. Providing archery hunting on the refuge will assist the State in working toward the target population goal for the region, which is projected to be sustainable. Great Bay NWR will coordinate with NHFG if any unsustainable impacts to deer populations on the refuge are observed.

Disturbance to deer behavior in the area will occur during the hunting season, but the disturbance is considered negligible as deer are prone to move regularly over large areas, and sections of the refuge will be closed to hunting, functioning as refugia.
### Other Wildlife and Aquatic Species

Great Bay NWR supports a large diversity of wildlife species in southern New Hampshire, including game and nongame species. Some taxa that are found on the refuge include reptiles, amphibians, invertebrates, and a large variety of bird species that depend on the refuge for different life history requirements. The refuge provides breeding grounds for many species of songbird, raptor, and waterbird, and provides migratory habitat for shorebirds and waterfowl.

### No Action:
Great Bay NWR is open to public access for a variety of activities, including waterfowl hunting along the shoreline of Great Bay, and a two-day firearm deer hunt. Some minor, short-term negative impacts on small mammals, birds, and other wildlife due to disturbance associated with these public use activities occurs.

### Proposed Action:
The addition of fall archery and spring turkey hunting may negatively affect other wildlife due to disturbance; however, the impacts are anticipated to be minor and temporary due to the small number of permitted hunters. The area that will be open for hunting is typically closed to public use, except for the occasional guided tour by van or bicycle. Consequently, it is believed that this area tends to have less disturbance overall because of minimal human traffic. Turkey hunting occurs in May, which could result in an increase of disturbance to nesting and migratory birds. However, turkey hunting is largely a motion-limited activity and impacts are expected to be negligible.

Expansion of the hunting program will allow for the management of game species to be kept in balance with carrying capacity and maintenance of healthy habitat conditions for game and non-game wildlife species.

### Threatened and Endangered Species and Other Special Status Species

#### Federal:
The northern long-eared bat (*Myotis septentrionalis*; MYSE) is listed as threatened under the Endangered Species Act of 1973, as amended. MYSE have been documented on the refuge using acoustics and mist-netting.

#### New Hampshire:
The following wildlife species are confirmed to occur on the refuge and have been listed by the State as threatened or endangered: pied-billed grebe, common tern, upland sandpiper, bald eagle, northern harrier, peregrine falcon, common nighthawk, eastern small-footed bat, tricolored bat, and little brown bat. Multiple State-listed plant species occur on the refuge in small numbers, including: northern blazing star (*Liatris borealis*), large bur-reed (*Sparganium eurycarpum*), seaside mallow (*Hibiscus moscheutos*), Goodenough’s sedge (*Carex nigra*), blunt-leaved milkweed (*Asclepias amplexicaulis*), and golden heather (*Hudsonia ericoides* L.).

### No Action:
Current refuge hunting regulations have few, if any, negative implications for species of special management concern, due largely to the seasonality and short duration of current approved hunting opportunities. The current 2-day firearms hunt is in November, at a time when most special status species are not present or are dormant on the refuge.

### Proposed Action:
The addition of archery deer and turkey, and spring turkey hunting will occur at times when northern long-eared bats are present on the refuge. Spring turkey hunting occurs on the ground and hunters will not climb trees, so disturbance would be negligible. Fall archery hunters will hunt from tree stands, which may disturb roosting bats that are still present on the refuge in September and early October. By mid-October, most bats will have left the refuge for their hibernacula. An Endangered Species Act Section 7 evaluation was conducted for the northern long-eared bat (see Appendix D in Hunt Plan). The evaluation determined that the expansion of the hunting program may affect but are not likely to adversely affect the species – meaning effects would be negligible (e.g., not reach the level of ‘take’ of the species as defined under the Endangered Species Act).
Appendix B. Environmental Assessment

Impacts to other State-listed species (besides bats) will be negligible due to the low degree of overlap between hunting areas and species’ distributions throughout the hunting seasons. Additionally, while State-listed species occur on the refuge, their abundances are very low – limiting potential hunter/species interactions.

One small form of disturbance that may occur on the refuge would be the flushing of birds from their habitat. Turkey hunting in the spring might conflict with nesting upland sandpipers, as these will occur in the same area. Only one pair of sandpipers has been documented nesting on the refuge over the past decade, and the core of their nesting season on the refuge occurs in June. Consequently, this form of disturbance will likely be minor and temporary in nature.

State-listed plant species occur on the refuge; however, their populations are small, individuals are widely distributed, and these plants are largely dormant for the majority of archery season. Because of this, the potential for significant disturbance to the population by hunter activity would be unlikely.

Vegetation (including vegetation of special management concern)

There are many habitat types on Great Bay NWR, but the refuge is predominantly forested. Appalachian oak-hickory forest occurs across most of the uplands, with patches of conifer plantations, shrublands, and grasslands dispersed throughout. In addition to the drier forested areas, there are forested and scrub-shrub wetlands and vernal pools, dominated by red maple, black gum, and speckled alder. Five freshwater impoundments can be found on the refuge, including the three larger ponds along the Peverly Brook system. The shoreline of Great Bay is composed of rocky shoreline and salt marsh. Specific information can be obtained in the Great Bay NWR CCP (USFWS 2012).

No Action:

No adverse impacts on vegetation associated with the refuge’s current hunting program have been observed during the 23 years that it has been open to hunting. The current hunt is only two days in length, with 40 permitted hunters, reducing the amount of damage that can occur. Additionally, the hunt occurs in November, during the dormant season when vegetation is least vulnerable. Current refuge hunting regulations that help to minimize impacts to vegetation include: prohibiting the cutting of vegetation for blinds and tree stands, and prohibiting permanent tree stands.

The refuge’s current hunting program contributes towards reducing over-browsing of native vegetation by deer.

Proposed Action:

Opening the refuge’s hunting program to turkey hunting will introduce a spring season that could result in minor to negligible, short-term adverse impacts to native vegetation during the growing season. However, because the number of spring permits issued is limited, the impacts are expected to be minimal. Archery hunting will occur predominantly during the dormant season when vegetation is least vulnerable. The limited number of permits that will be issued will prevent permanent damage to the refuge vegetation. Minor trampling will have minor, temporary impacts. In addition, refuge hunting regulations minimize impacts to vegetation including: the prohibition of cutting vegetation for blinds and stands, and the authorization of temporary (versus
<table>
<thead>
<tr>
<th><strong>Geology and Soils</strong></th>
<th><strong>Environmental Consequences Common to All Alternatives:</strong> No influence expected.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Bay NWR lies within the Gulf of Maine watershed and is typified by gently rolling coastal hills. The refuge has a variety of soil types, largely composed of marine and glacial parent materials. The most common soil type is Boxford silt loam, and much of the refuge is sandy and silty loams.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Air Quality</strong></th>
<th><strong>Environmental Consequences Common to All Alternatives:</strong> No influence expected.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Bay NWR is located within the heavily developed New Hampshire Seacoast area, leading to decreased air quality. The Dover-Portsmouth-Rochester, New Hampshire, region is designated as “serious non-attainment zones”, meaning that the air quality is worse than the National Ambient Air Quality Standards set by the EPA. On average, the area experiences 3 to 5 days per year of very unhealthy ozone levels. Local sources of air pollution include industrial, commercial, and transportation.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Water Resources</strong></th>
<th><strong>Environmental Consequences Common to All Alternatives:</strong> No influence expected.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Bay NWR lies along the shoreline of Great Bay, a 6,000 acre, tidally influenced estuary connected to the Atlantic Ocean by the Piscataqua River. The freshwater Peverly Brook runs through the refuge and was dammed to form the three freshwater impoundments.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Wetlands</strong></th>
<th><strong>No Action:</strong> Hunters are permitted to walk on lands throughout the designated hunting area without restriction. Impacts to vegetation are negligible and short-term. Refuge staff have observed no impacts to any wetland habitats. <strong>Proposed Action:</strong> An increase in the number of days that hunters are in the field, and the number of hunters present, will have a negligible increase in impacts to the refuge’s wetlands. As the wetlands are small, and not ideal habitat for deer and turkey, they will see very little disturbance from hunters.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A variety of wetland communities on the refuge supports an array of habitats benefiting widely diverse species of animals and plants. The impoundments total 62 acres of freshwater wetlands, while 36 acres of salt marsh ring the shoreline of the refuge. Many forested and scrub-shrub wetlands can be found throughout the refuge, including red maple and black gum-red maple swamps, speckled alder basin/seepage shrub thicket, and the NH imperiled red maple-elm-lady fern silt forest.</td>
<td></td>
</tr>
</tbody>
</table>
## VISITOR USE AND EXPERIENCE

<table>
<thead>
<tr>
<th>AFFECTED ENVIRONMENT</th>
<th>ANTICIPATED DIRECT AND INDIRECT IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>As an unstaffed refuge, Great Bay NWR has had limited ability to conduct a visitor services program. Despite these limitations, the refuge is popular, especially for bird watchers and walkers. The refuge allows five of the six priority public uses (hunting, wildlife observation, wildlife photography, environmental education, and environmental interpretation). Fishing is prohibited due to fish consumption concerns in the Peverly Brook system, a legacy of previous activities that occurred when the site was part of Pease AFB and the result of ongoing leaching of contaminants from the landfill adjacent to Upper Peverly Pond. Visitors frequent the refuge to enjoy walks along the two public trails, the Peverly Pond and William Furber Ferry Way Trails. Snowshoeing and cross-country skiing is popular during the winter months. The annual visitation is approximately 30,000 visitors.</td>
<td><strong>No Action:</strong> During the two-day firearms hunt, the refuge is closed to everyone except those permitted to hunt. This prevents other public uses, as visitors are not able to enjoy the refuge during the hunt weekend. <strong>Proposed Action:</strong> The addition of archery and spring turkey hunting are unlikely to conflict with other public uses, as these will occur in the part of the refuge that is closed to other public uses. Hunting will not be permitted near the public trails, ensuring the safety and enjoyment of the refuge by the non-hunting public. Guided public tours will continue during the hunting seasons, as hunting will not be permitted near refuge roads and the tours do not leave the road.</td>
</tr>
</tbody>
</table>

## CULTURAL RESOURCES

<table>
<thead>
<tr>
<th>AFFECTED ENVIRONMENT</th>
<th>ANTICIPATED DIRECT AND INDIRECT IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>One pre-contact archaeological site has been identified on the refuge. However, in light of proximity to maritime resources of the bay, as well as freshwater and upland resources, other unrecorded sites of that period are very likely to be present. Fifteen Euro-American sites are recorded within the refuge. Those include the landing for a 17th century ferry to Durham, a 19th century brickyard, and a number of late 17th to 20th century farmsteads. Burials in four small cemeteries were exhumed and reburied off-refuge when the Pease AFB was constructed. It is possible that some unmarked graves were not discovered and removed. Most of the historic structures present on the refuge were removed in 2016. These included the Margeson Estate and its caretaker’s cottage, the Fabyan Point cabins, and most of the buildings within the Weapons Storage Area, including the water tower. All that remain are the 15 earth-covered concrete storage bunkers within the WSA.</td>
<td><strong>No Action:</strong> No adverse impacts would occur under this alterative. <strong>Proposed Action:</strong> When future funding becomes available, the refuge will construct a small parking lot at the McIntyre Road/Nottingham Road intersection for hunter use. Prior to construction, the refuge will consult the State Historic Preservation Office, affected tribes, and conduct a cultural resources survey. As this location has been heavily disturbed for the construction of both roads, there are no anticipated direct or indirect impacts to refuge cultural or historical resources from the construction of this parking lot.</td>
</tr>
</tbody>
</table>
## REFUGE MANAGEMENT AND OPERATIONS

### AFFECTED ENVIRONMENT

**Land Use**
Prior to the construction of the Pease AFB, the land within and around the refuge was used primarily as farmland. Currently, the area surrounding the refuge is highly developed with both commercial and residential developments. The refuge has several minimally maintained paved and dirt roads, remnants of its military past that are utilized by staff, guided tours, and hunters. One paved parking lot is located ¼ mile inside the front gates of the refuge. A public restroom facility is located at the parking lot.

<table>
<thead>
<tr>
<th>No Action:</th>
<th>Current levels of use of refuge infrastructure are short-term and have negligible impact.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Action:</td>
<td>While increased use of the refuge by hunters will occur with this alternative, impacts to local public and refuge roads are expected to be negligible.</td>
</tr>
</tbody>
</table>

### Administration
Great Bay NWR is managed by the 10 permanent staff at Parker River NWR. Hunt-related activities are performed by the refuge manager (annual program review), the biologist (program and resource review), the federal wildlife officer (law enforcement), the visitor services manager (online public communication), the outdoor recreation planner (public outreach, lottery and permit coordination), and an administrative assistant (public outreach, lottery and permit coordination). Two maintenance workers (assisted by volunteers) perform maintenance work (road, parking lot, trail, and gate maintenance).

<table>
<thead>
<tr>
<th>No Action:</th>
<th>Approximately $6,400 of the refuge’s budget is currently spent on the hunt program. Most of this is spent on staff time, but also includes the cost of supplies such as signs and the printing and mailing of permits and regulations. The refuge collects approximately $670 each year in permit fees.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Action:</td>
<td>The estimated cost to implement this alternative would be $11,400 per year, an increase of $5,000. This is largely due to the increased time spent on site by the Federal wildlife officer, along with additional time needed to administer the two extra lotteries (archery and spring turkey). The additional permits will increase the fees collected to an estimated $1,150 each year.</td>
</tr>
</tbody>
</table>

## SOCIOECONOMICS

### AFFECTED ENVIRONMENT

**Local and Regional Economies**
Great Bay NWR is located in the town of Newington, New Hampshire, in Rockingham County. It is less than five miles from the City of Portsmouth, NH. Rockingham County was the second most populated county in the state in 2010 with 295,223 residents (USDOC 2012). The population of Newington was 753 while the population of Portsmouth was 295,223. Both towns have increased residential development since 2010, leading to an increase in the population.

The predominant land uses near the refuge are

<table>
<thead>
<tr>
<th>No Action:</th>
<th>The current program has negligible impacts to the local economy. Most hunters travel to the refuge from within 50 miles, with many coming from neighboring communities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Action:</td>
<td>While hunting visitation will increase due to increased opportunities, the increase will be small, and most will travel less than 50 miles to reach the refuge. Therefore, additional economic impact is expected to be negligible under this action.</td>
</tr>
</tbody>
</table>
residential and commercial development. Retail and commerce are two of the largest economic contributors to the area. Portsmouth has the only ice-free deepwater port with a Foreign Trade Zone in the State, with many materials shipped into and out of this port. Tourism also plays a major role in the local economy, with the seacoast being the major attractant. Other outdoors activities, such as wildlife watching, kayaking, and fishing, are also popular in the area. In 2006, the combined total revenues from wildlife watching, fishing, and hunting in New Hampshire was $520 million (USFWS and USDOC 2007). The refuge averages 30,000 visitors per year.

**ENVIRONMENTAL JUSTICE**

<table>
<thead>
<tr>
<th>AFFECTED ENVIRONMENT</th>
<th>ANTICIPATED DIRECT AND INDIRECT IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all Federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. There are no known minority or low-income communities.</td>
<td>Environmental Consequences Common to All Alternatives: No influence expected.</td>
</tr>
</tbody>
</table>

**INDIAN TRUST RESOURCES**

<table>
<thead>
<tr>
<th>AFFECTED ENVIRONMENT</th>
<th>ANTICIPATED DIRECT AND INDIRECT IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOI Environmental Compliance Memorandum 97-2 requires that all agency environmental assessments must address explicitly whether there are or not any Indian Trust Resources that may be impacted by the action. There are no known Indian Trust Resources on Great Bay NWR or the nearby area.</td>
<td>Environmental Consequences Common to All Alternatives: No influence expected.</td>
</tr>
</tbody>
</table>
**Cumulative Impact Analysis**

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions”.

For more information on the national cumulative impacts of the Service’s hunting and fishing program on the National Wildlife Refuge System, see “U.S. Fish and Wildlife Service, Cumulative Impacts Report 2019-2020 National Wildlife Refuge and National Fish Hatchery Proposed Hunting and Sport Fishing Openings (2019)”.

<table>
<thead>
<tr>
<th>Past, Present, and Reasonably Foreseeable Activity in Area of Analysis</th>
<th>Descriptions of Anticipated Cumulative Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hunting/Fishing</strong>&lt;br&gt;Prior to Service ownership, deer hunting was permitted by the Pease AFB. When the refuge was established, the Service received public comments that public deer hunting should continue. A Hunting Plan was completed in 1993, an EA was completed in 1995, and the first refuge hunt was conducted in 1996. Hunting occurs on private lands adjacent to the refuge and on property owned by the Pease Airport that is located along Arboretum Drive. Game species are typically limited by habitat availability and suitability. Some game species’ populations can be controlled using hunting as a management tool. For example, habitat damage could occur if populations of deer were allowed to exceed carrying capacity. This habitat damage would affect populations of all resident wildlife (game and non-game). Refuges, including Great Bay NWR, conduct hunting programs within the framework of State and Federal regulations. Population estimates of huntable species are developed at a regional, state, flyway, and continental scale. Hunting frameworks and take limits are set based upon these estimates. The proposed refuge hunting program rules will be the same as, or more restrictive than, hunting regulations throughout the State. By maintaining hunting regulations that are the same as or more restrictive than the State, individual refuges ensure that they are maintaining seasons which are supportive of management on a more regional basis. Such an approach also provides consistency with large-scale population status and objectives. Great Bay NWR consistently coordinates with the State about the hunting program. On average, 17 deer are harvested from the refuge each year. During the 2017 hunt season, 2,385 deer were harvested from WMU M. The refuge only constitutes 1.7 mi² of the WMU M’s 690.2 mi². At the local level, the refuge adds minimally to the cumulative impacts on the resident wildlife, and a negligible amount to regional and statewide populations. Wildlife management of populations is important to ensure the health of the ecosystem, and the refuge’s hunt program provides minor, additional beneficial impacts to the cumulative impacts of wildlife management in the State. As a result, changes or additions to hunting on the refuge will have minor impacts on wildlife species in the state. Compared to the No Action alternative, the Proposed Action will increase hunting opportunities for deer and turkey and reduce hunting opportunities for waterfowl. While there are differences, it is predicted that these changes in hunter activity will not rise to a significant cumulative impact in WMU M, regionally, or nationally.</td>
<td></td>
</tr>
<tr>
<td><strong>Other wildlife-dependent recreation (i.e. road and trail development and use)</strong>&lt;br&gt;The refuge maintains two public hiking trails for non-consumptive uses by visitors. These trails are popular year-round for hiking, wildlife observation, To prevent conflict between hunters and non-consumptive visitors, the northern portion of the refuge, which contains the parking lot and hiking trails, will be closed to archery and spring turkey hunting. Hunting will only be allowed in the portion of the refuge that is closed to the public. The only conflict that will occur is when the refuge closes to all visitors except permitted hunters during the two-day firearms hunt. This is necessary for the safety of visitors, due to the</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B. Environmental Assessment

and wildlife photography. Most refuge visitors are there to use the trails. The refuge’s small size, and has not been a major issue in the past. Other than this two-day time period, the addition of archery and spring turkey hunting will not affect other wildlife-dependent recreation.

**Development and Population Increase**

The United States Census Bureau indicates that the human population in Rockingham County has been increasing over the last several decades. Estimates for 2017 place the county population at 306,363, an increase of 3.8 percent from the 2010 census (https://www.census.gov/). Development pressure continues in all surrounding towns, which are likely to reduce wildlife and available habitat. Because the refuge uses an adaptive management approach for its hunting program, reviewing the program annually and revising annually (if necessary) will allow the Service to adjust the program to ensure that it does not contribute further to the negative cumulative impacts of population growth and development on deer and turkey.

**PFA Contamination**

Per- and polyfluoralkyl substances (PFAs) are present in the Peverly Brook system and are very persistent in the environment. Under the proposed alternative, the refuge will collaborate with NH Fish and Game, the Town of Newington, Pease AFB and other involved parties to determine when there is a risk in consuming deer and turkey harvested from the refuge. This information will be disseminated to the public.

**Use of Lead Ammunition**

Lead ammunition is permitted in New Hampshire. Lead bullets are permitted during the firearms deer hunt; however, non-toxic shot is required for migratory bird hunting. Under the proposed alternative, spring turkey hunters and firearms deer hunters, the majority of whom will use shotguns, will be encouraged to voluntarily use non-toxic shot. This may help in reducing additional lead from being deposited on the landscape. The addition of archery hunting will have no impact on lead deposition on the refuge, as hunting arrow components are comprised of non-toxic materials.

**Climate Change**

Climate change is expected to affect a variety of natural processes and associated resources. However, the complexity of ecological systems means that there is a tremendous amount of uncertainty regarding the impacts of climate change at the local level. The most substantial concern at the refuge is sea level rise and the impacts on refuge salt marshes and adjoining forests. Marsh migration into the forests will cause forest mortality, decreasing the quantity and quality of habitat for deer and turkey. While the effects of climate change on ecological systems is not fully understood, deer and turkey abundances are predicted to increase because of greater survival and reproductive rates associated with warmer winters. However, there is also evidence that some infectious viral diseases and parasite (e.g., ticks) infestations could also increase in frequency and severity. Consequently, the full effects of climate change on deer and turkeys is not fully understood. Under the proposed alternative, the refuge would use an adaptive management approach for its hunt program, reviewing the hunt program annually and revising annually (if necessary) will allow the Service to mitigate, if possible, the cumulative impacts of climate change on deer and turkey.

**Summary of Findings**

This EA provides evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a Finding of No Significant Impact (FONSI). The term “significantly”, as used in NEPA, requires consideration of both the context of the action and the intensity of

Appendix B. Environmental Assessment
effects. This section summarizes the findings and conclusions of the analyses above so that we may determine the significance of the impacts.

<table>
<thead>
<tr>
<th>Affected Environment</th>
<th>No Action Alternative:</th>
<th>Proposed Action Alternative:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunted Species</td>
<td>Negligible, short-term adverse impacts to deer.</td>
<td>Negligible, short-term adverse impacts to deer and turkey.</td>
</tr>
<tr>
<td>Other Wildlife and Aquatic Species</td>
<td>Negligible, short-term adverse impacts (disturbance).</td>
<td>Minor, short-term adverse impacts (disturbance).</td>
</tr>
<tr>
<td>Water Resources</td>
<td>No impact.</td>
<td>No impact.</td>
</tr>
<tr>
<td>Wilderness</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>No adverse impacts.</td>
<td>No adverse impacts.</td>
</tr>
<tr>
<td>Socioeconomics</td>
<td>Negligible, long-term positive impacts (economic growth).</td>
<td>Negligible, long-term positive impacts (economic growth).</td>
</tr>
<tr>
<td>Refuge Management and Operations</td>
<td>Moderate, long-term positive (providing opportunities) and negative (funding) impacts.</td>
<td>Moderate, long-term positive (providing opportunities) and negative (funding) impacts.</td>
</tr>
<tr>
<td>Environmental Justice</td>
<td>No impact.</td>
<td>No impact.</td>
</tr>
<tr>
<td>Indian Trust Resources</td>
<td>No impact.</td>
<td>No impact.</td>
</tr>
</tbody>
</table>

**No Action Alternative**
There would be no additional cost to the refuge for maintaining the current hunt program in its current form. There would be no change to current public use and wildlife management programs on the refuge under this alternative. The refuge would not provide new hunting and access opportunities. This alternative has the least direct impacts on physical and biological resources; however, long-term impacts on habitat quality would be moderately adverse if the deer population continues to increase. In addition, it would not fulfill the Service’s mandate under the NWRSAA and Secretarial Order 3356.

**Proposed Action Alternative**
This alternative is the Service’s proposed action because it expands public hunting opportunities and minimally affects physical and biological resources, while meeting the Service’s mandates. The addition of turkey hunting and the expansion of deer hunting is predicted to have no detrimental effects to local and regional wildlife populations. To access the impacts of this program, populations will continue to be monitored in collaboration with State biologists. This monitoring will allow the refuge to adaptively manage through the hunting program, altering the
refuge’s permit numbers and season structure as needed. The reduction of shoreline open to waterfowl hunting is not predicted to significantly affect waterfowl populations either positively or negatively.

This alternative is preferred because it increases high quality public hunting opportunities, with minimal impacts on physical and biological resources, and meets Service mandates under the NWRSAA. The Service believes that expanding the hunting program on Great Bay NWR is not expected to have any significant impact to wildlife, other uses, or refuge administration.

Conclusion
The Service proposes to increase hunting and access opportunities on Great Bay NWR as analyzed above under the Proposed Action Alternative, which will not have any significant impacts on the human environment.

List of Sources, Agencies and Persons Consulted
New Hampshire Fish and Game: Daniel Bergeron

References


List of Preparers

U.S. Fish and Wildlife Service, Refuge Staff
Katlyn Hojnacki – Contractor
Bill Peterson – Refuge Manager
Matt Poole – Supervisory Park Ranger
Gareth Williams – Federal Wildlife Officer

U.S. Fish and Wildlife Service, Northeast Regional Office Staff
Thomas Bonetti – Senior Planner
Noah Kahn – Assistant Refuge Supervisor
Ava Smith – Assistant Planner
Austin Rizzo – Assistant Planner

State Coordination
The expansion of Great Bay NWR’s hunting program to include the changes as reflected in this EA and the associated Hunting Plan are identified as approved objectives and strategies in the 2012 Great Bay NWR CCP. State representatives were engaged in the development of these CCP strategies, and provided their review and recommendations of this hunting program expansion during their participation in the preparation of the CCP. New Hampshire Fish and Game staff assisted with drafting the Hunting Plan.

Public Outreach
Public notifications of the EA, Hunting Plan, and Compatibility Determination will be made available to the public for a 30-day comment period through local venues, refuge website, and social media notices, as well as notification in the Federal Register (as part of other expansions and openings on refuges).

Determination
This section will be filled out upon completion of any public comment period and at the time of finalization of the Environmental Assessment.

X The Service action will not result in a significant impact on the quality of the human environment. See the attached “Finding of No Significant Impact”.

☐ The Service action may significantly affect the quality of the human environment and the Service will prepare an Environmental Impact Statement.

Preparer Signature: Maria E. Parisi Date: 8/14/19

Name/Title/Organization: Maria E. Parisi, Acting Refuge Manager, Parker River NWR

Certifying Officer Signature: Date:

Name/Title: ________________________________

Appendix B. Environmental Assessment
FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT

For PUBLIC HUNTING EXPANSION

GREAT BAY NATIONAL WILDLIFE REFUGE

NEWINGTON, NEW HAMPSHIRE

The U.S. Fish and Wildlife Service (Service) is proposing to continue the 2-day firearm deer hunt, and expand hunting opportunities at Great Bay National Wildlife Refuge (NWR, refuge) in accordance with the refuge’s Hunting Plan and Comprehensive Conservation Plan (CCP). This expansion seeks to: (1) add a fall archery season for white-tailed deer and wild turkey; (2) add wild turkey hunting in the spring, with preference given to youth, disabled, and apprentice hunters; and (3) close 0.9 miles of shoreline to waterfowl hunting. An Environmental Assessment (EA) was prepared in compliance with the National Environmental Policy Act of 1969, as amended (NEPA) to provide the decision-making framework that: (1) explores a reasonable range of alternatives to meet project objectives; (2) evaluates potential issues and impacts to the refuge, resources and values; and (3) identifies mitigation measures to lessen the degree or extent of these impacts.

Selected Action

Proposed Action Alternative:

Under this alternative, in addition to existing hunts, the refuge would open to fall archery season for white-tailed deer and wild turkey, and spring turkey hunting (all legal weapons). New Hampshire hunting seasons and regulations would apply. Hunters must also comply with refuge-specific regulations, including but not limited to those contained in 50 CFR Chapter I Subchapter C, which are revised or updated annually as needed. Hunters must obtain a refuge permit for the fall deer/turkey and the spring turkey hunts, which will be issued through separate lotteries.

The proposed action is intended to provide the public with additional hunting opportunities on the refuge. There are no unresolved conflicts regarding the proposed action with respect to the alternative uses of available resources. Minor changes proposed by this action are not expected to significantly impact the ecological, aesthetic, historic, cultural, economic, social, or health aspects of the refuge and surrounding communities.

The preferred alternative was selected over the other alternatives because:

The hunting program, along with all other management programs, relates directly to the overall mission of the Service. Additionally, the National Wildlife Refuge System (Refuge System) Improvement Act of 1997 identifies six priority public uses that are appropriate on national wildlife refuges, including hunting, fishing, wildlife observation, wildlife photography, and environmental interpretation and education.
Great Bay NWR’s CCP (2012) identified the goal to “provide opportunities for high-quality compatible, wildlife-dependent public use” with specific objectives to expand hunting opportunities on the refuge for white-tailed deer and wild turkey. However, the existing refuge hunt program has not been expanded since the CCP was published. The proposed action best meets the purpose and need identified in the EA, and further compliance with management objectives detailed in the CCP. Development and enhancement of a quality and biologically sound hunting program will provide the public with a high-quality recreational experience on refuge lands and increase opportunities and access for hunters, and better align with refuge habitat management objectives.

Other Alternatives Considered and Analyzed

No Action Alternative:

There would be no additional cost to the refuge for maintaining the hunt program in its current form. There would be no change to current public use and wildlife management programs on the refuge under this alternative. The refuge would not provide new hunting and access opportunities. This alternative has the least direct impacts of physical and biological resources; however, long-term impacts on habitat quality would be moderately adverse if the deer population continues to increase. In addition, it would reduce the Service’s fulfillment of its mandates under the Refuge System Administration Act and Secretarial Order 3356.

Summary of Impacts

Implementation of the No Action alternative and the Proposed Action is expected to result in the following environmental, social, and economic impacts:

<table>
<thead>
<tr>
<th>Affected Environment</th>
<th>No Action Alternative:</th>
<th>Proposed Action Alternative:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunted Species</td>
<td>Negligible, short-term adverse impacts to deer.</td>
<td>Negligible, short-term adverse impacts to deer and turkey.</td>
</tr>
<tr>
<td>Other Wildlife and Aquatic Species</td>
<td>Negligible, short-term adverse impacts (disturbance).</td>
<td>Minor, short-term adverse impacts (disturbance).</td>
</tr>
<tr>
<td>Water Resources</td>
<td>No impact.</td>
<td>No impact.</td>
</tr>
<tr>
<td>Wilderness</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>No adverse impacts.</td>
<td>No adverse impacts.</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------------------------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Socioeconomics</td>
<td>Negligible, long-term positive impacts (economic growth).</td>
<td>Negligible, long-term positive impacts (economic growth).</td>
</tr>
<tr>
<td>Refuge Management and Operations</td>
<td>Moderate, long-term positive (providing opportunities) and negative (funding) impacts.</td>
<td>Moderate, long-term positive (providing opportunities) and negative (funding) impacts.</td>
</tr>
<tr>
<td>Environmental Justice</td>
<td>No impact.</td>
<td>No impact.</td>
</tr>
<tr>
<td>Indian Trust Resources</td>
<td>No impact.</td>
<td>No impact.</td>
</tr>
</tbody>
</table>

Measures to mitigate and/or minimize adverse effects have been incorporated into the proposal. These measures include:

- Refuge and State law enforcement officers will enforce hunting regulations. Providing hunting information through various forums will ensure the public is aware of applicable laws and policies.
- To minimize conflicts between the hunting and non-hunting public, fall archery and spring turkey hunting will not be permitted in the northern portion of the refuge, which contains the public hiking trails. Hunting will only be permitted in areas that are closed to general public access. During the 2-day firearm deer hunt, the entire refuge will be closed to the public, including archery permit holders.
- Notices will be posted at refuge parking lot kiosks, and on the refuge's website and social media pages to inform visitors that the refuge is open to hunting.
- All public tours and programs will continue, as these generally occur along refuge trails and roads, which hunters are prohibited from hunting near. Any administrative activities will generally occur on weekdays, when hunter use is expected to be low. Hunters will be notified of prescribed burning plans in advance via e-mail and/or phone, and prescribed burn units will be temporarily closed to hunter access.
- We require hunters to possess a refuge hunt permit at all times while scouting and hunting on the refuge.
- Discharging a bow and arrow within 15 feet of the traveled portion of, or across any refuge roads or trails is prohibited. Discharging a firearm within 200 feet of the traveled portion of, or across any refuge roads or trails is prohibited.
- Hunters must wear in a visible manner on the head, chest, and back, a minimum of 400 square inches of solid-colored, blaze-orange clothing or material.

While refuges, by their nature, are unique areas protected for conservation of fish, wildlife and habitat, the proposed action will not have a significant impact on refuge resources and uses for several reasons:

- The Service works closely with the State to ensure healthy populations of the species for present and future generations of Americans.
- The action will result in beneficial impacts to the human environment, including the biodiversity and ecological integrity of the refuge, as well as the wildlife-dependent recreational opportunities and socioeconomics of the local economy, with only negligible adverse impacts to the human environment as discussed above.
• The adverse direct and indirect effects of the proposed action on air, water, soil, habitat, wildlife, aesthetic/visual resources, and wilderness values are expected to be minor and short-term. The benefits to long-term ecosystem health that these efforts will accomplish far outweigh any of the short-term adverse impacts discussed in this document.
• Refuge staff will monitor for impacts related to hunting.
• The action, along with proposed mitigation measures, will ensure that there is low danger to the health and safety of refuge staff, visitors, and the hunters themselves.
• The action is not in an ecologically sensitive area.
• The action will not impact any threatened or endangered species; or any federally designated critical habitat.
• The action will not impact any cultural or historical resources.
• The action will not impact any wilderness areas.
• There is no scientific controversy over the impacts of this action and the impacts of the proposed action are relatively certain.
• The proposal is not expected to have any significant adverse effects on wetlands and floodplains, pursuant to Executive Orders 11990 and 11988 because hunters must use established access points that will not be located near sensitive habitats.

The proposal is compatible with the purposes of the refuge and the mission of the Refuge System, and consistent with applicable laws and policies regarding the establishment of hunting on national wildlife refuges (see the Compatibility Determination (CD) (Appendix A of the Hunting Plan). Refuge-specific regulations promulgated in conjunction with this action will be finalized through the standard of the Federal Register, and published in Title 50 of the Code of Federal Regulations (50 CFR §32.40).

The refuge manager may, upon annual review of the hunting program, impose further restrictions on hunting activity, recommend that the refuge be closed to hunting, consider zoning for different uses, or further liberalize hunting regulations within the limits of State law. Restrictions would occur if hunting becomes inconsistent with other higher priority refuge programs, or endangers refuge resources or public safety.

Public Review

The expansion of Great Bay NWR’s hunting program to include the changes as reflected in the EA and associated Hunting Plan are identified as approved objectives and strategies in the 2012 Great Bay NWR CCP. State representatives were engaged in the development of CCP strategies, and provided their review and recommendations of the hunting program expansion during their participation in the preparation of the CCP.

The proposal was coordinated with all interested and/or affected parties, including the New Hampshire Fish and Game staff. The public was notified of the availability of the Great Bay NWR Hunting Plan, EA, and CD on April 23, 2019, with a 30-day review and comment period. We informed the public through local venues, the refuge website, and social media. A public presentation was also held in Newington on May 15. Three comment letters were received during the comment period, and five people attended the presentation. While the comments received were generally supportive, one comment letter recommended that we reduce the hunt time of the spring turkey season and fall archery season, and remove the shoreline waterfowl

Appendix B. Environmental Assessment
hunting. The letter further suggested that the impact of human disturbances within the refuge to wildlife populations would increase with the proposed hunts. We have determined that the potential adverse impacts to habitat and wildlife would be minor or negligible, and short-term. No substantive changes were made to the plan based on the comments.

**Determination**

Based upon a review and evaluation of the information contained in the EA, as well as other documents and actions of record affiliated with this proposal, the Service has determined that the proposal to implement Public Hunting Expansion on Great Bay NWR does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102(2)(c) of NEPA. As such, an Environmental Impact Statement is not required. An EA has been prepared in support of this finding and is available upon request to Great Bay NWR.

[Signature]

Acting Regional Chief
National Wildlife Refuge System

9/12/19

Date
Appendix C

Section 7 Biological Evaluation
INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person: Maria Parisi
Acting Refuge Manager
Parker River NWR

Telephone Number: (978) 465-5753 x 201
Date: August 7, 2019

I. Region: Northeast, Region 5

II. Service Activity (Program): NWRS, Great Bay NWR

III. Pertinent Species and Habitat:

   A. List species and/or their critical habitat within the action area:
      Northern long-eared bat (*Myotis septentrionalis*)

   B. Proposed species and/or proposed critical habitat within the action area:
      None

   C. Candidate species within the action area:
      None

IV. Geographic area of station name and action:
Expanding white-tailed deer and wild turkey hunting opportunities at Great Bay National Wildlife Refuge

V. Location:
   A. Ecoregion Number and Name:
      Eastern Broadleaf Forest (Oceanic) Province; 212 (R.G. Bailey, Ecoregions of the United States, 1995)
   B. County and State:
      Rockingham County, New Hampshire
   C. Section, township, and range (or latitude and longitude):
      43.088780, -70.844058
   D. Distance (miles) and direction to nearest town:
      The refuge is within the town of Newington.
   E. Species/habitat occurrence:
      Northern long-eared bats have been documented on the refuge through the use of acoustic detectors, mist-netting, and radio telemetry. See Figure 1 for detection locations.
VI. Description of Proposed Action
Great Bay National Wildlife Refuge (refuge) proposes to expand the existing hunting program. The refuge is adding a fall archery season for white-tailed deer and wild turkey, and a spring turkey season. Hunting will occur in the southern two-thirds of the refuge (683 acres), in forest, shrubland, and grassland habitats. Archery season will occur from September 15 to December 15, and spring turkey season will occur from the last weekend in April until May 31.

Single individuals or hunters in small groups will traverse areas open to hunting, generally to walk to a hunting spot in which they remain for multiple hours. Hunters will be permitted to use temporary tree stands and ground blinds, which must be removed from the refuge at the end of each day. No damage to vegetation is permitted, including cutting limbs and using screw-in tree steps. Only 25 hunters will be issued permits for the archery season, while only 8 hunters will be issued permits for the spring turkey season. New hunting regulations are anticipated to begin with the 2019/2020 season.

When funding becomes available, the refuge will construct a small parking lot at the McIntyre/Nottingham Road intersection (Figure 2). Part of the parking lot will be on the paved portion of the road. Some land will need to be cleared. This land includes a mix of grass clumps, small shrubs, and patches of bare, sandy soil. No mature trees will be cut in the construction of this parking lot.

VII. Determination of Effects
A. Explanation of effects of the action on species and critical habitats in items III. A, B, and C:
   The hunt area contains habitat that could be used by the northern long-eared bat. Early in the archery season, bats may still be present on the refuge, but the majority of the season occurs after the bats have already left the refuge for their hibernacula. Hunters could erect a stand against a tree that is used as a roost site, which may cause disturbance to the bat.

   No bat habitat would be disturbed during the construction of the parking lot.

B. Explanation of actions to be implemented to reduce adverse effects:
   Northern long-eared bats may occur, but no actions will be taken to reduce effects. Due to the small number of permitted hunters, the small number of northern long-eared bats on the refuge, and the short duration that the two will overlap each year, disturbance is likely to occur on a very rare basis.
### VIII. Effect determination and response requested:

#### A. Listed species/designated critical habitat:

<table>
<thead>
<tr>
<th>Determination</th>
<th>Response Requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>No effect/no adverse modification</td>
<td><em>Concurrence</em></td>
</tr>
<tr>
<td>(species: _______________________)</td>
<td></td>
</tr>
<tr>
<td>May affect, but is not likely to adversely affect species/adversely modify critical habitat</td>
<td><em>Concurrence</em></td>
</tr>
<tr>
<td>(species: Northern long-eared bat)</td>
<td></td>
</tr>
<tr>
<td>May affect, and is likely to adversely affect species/adversely modify critical habitat</td>
<td><em>Formal Consultation</em></td>
</tr>
<tr>
<td>(species: _______________________)</td>
<td></td>
</tr>
</tbody>
</table>

#### B. Proposed species/proposed critical habitat:

<table>
<thead>
<tr>
<th>Determination</th>
<th>Response Requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>No effect/no adverse modification</td>
<td><em>Concurrence</em></td>
</tr>
<tr>
<td>(species: _______________________)</td>
<td></td>
</tr>
<tr>
<td>Is likely to jeopardize proposed species/Adversely modify proposed critical habitat</td>
<td><em>Conference</em></td>
</tr>
<tr>
<td>(species: _______________________)</td>
<td></td>
</tr>
</tbody>
</table>

#### C. Candidate species:

<table>
<thead>
<tr>
<th>Determination</th>
<th>Response Requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>No effect</td>
<td><em>Concurrence</em></td>
</tr>
<tr>
<td>(species: _______________________)</td>
<td></td>
</tr>
<tr>
<td>Is likely to jeopardize</td>
<td><em>Conference</em></td>
</tr>
<tr>
<td>(species: _______________________)</td>
<td></td>
</tr>
</tbody>
</table>

Refuge Manager, Parker River National Wildlife Refuge

Concur- any resulting incidental take is not prohibited by the Northern long-eared bat 4(d) rule. _Signatures_

_Appendix C. Section 7 Evaluation_
IX. Reviewing Ecological Services Office Evaluation:

A. Concurrence _______________ Non-concurrence _______________

B. Formal consultation required _______________

C. Conference required _______________

D. Informal conference required _______________

E. Remarks (attach additional pages as needed) _______________

[Signature]
Supervisor, New England Field Office

[Date: 04 Sept 2019]
X. Maps

Figure 1. Northern long-eared bat (MYSE) detections at Great Bay National Wildlife Refuge.

At least one MYSE was caught per year while mist-netting in 2009 to 2011, 2014, and 2015. Acoustic surveys were conducted at nine locations in both 2012 and 2015. Radio-telemetry tracking was conducted between June 11 and July 25, 2012, with point locations obtained through triangulation.
Figure 2. Proposed parking lot for hunter-only use at Great Bay NWR.