

FINAL
ENVIRONMENTAL ASSESSMENT

Waterfowl Hunting Management Plan

Revised April 2007

U.S. Department of the Interior
Fish and Wildlife Service
Plum Tree Island National Wildlife Refuge
Poquoson, Virginia

Address Comments to:

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UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

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

Public Waterfowl Hunting on Plum Tree Island National Wildlife Refuge.

- ___ is a categorical exclusion as provided by 516 DM 6 Appendix 1. No further documentation will be made (Categorical Exclusion B.5 and C.2).
- X is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.
- ___ is found to have special environmental conditions as described in the attached Environmental Assessment. The attached Finding of No Significant Impact will not be final nor any actions taken pending a 30-day period for public review (40 CFR 1501.4(e)(2)).
- ___ is found to have significant effects, and therefore further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an Environmental Impact Statement.
- ___ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations or procedures.
- ___ is an emergency situation within the context of 40 CFR 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents (list):

Final EA (April 2007), FONSI (April 2007), Revised Hunt Plan (March 2007)

(1) Joseph F. Lee-Caulley 4/23/07
Initiator Date

(2) M. E. G. U. 4/25/07
Regional Environmental Coordinator Date

(3) Acting J. M. [Signature] 4-27-07
Regional Chief NWRS Date

(4) Acting [Signature] 4-27-07
Regional Director Date

**FINDING OF NO SIGNIFICANT IMPACT
PLUM TREE ISLAND NATIONAL WILDLIFE REFUGE
WATERFOWL HUNTING**

The U.S. Fish and Wildlife Service proposes to continue a public hunting program for waterfowl on the Plum Tree Island National Wildlife Refuge. We prepared a revised Environmental Assessment (EA) and released it for a 31-day public comment period ending on April 15, 2007. We considered all comments received during the public review period. We fully evaluated three alternatives in the EA. We evaluated the direct, indirect, and cumulative impacts of each alternative on the environment, and their potential contribution to the mission of the National Wildlife Refuge System, and the refuge's purposes and goals. We will continue to permit waterfowl hunting on the refuge's Cow Island tract in accordance with State and Federal laws and refuge-specific regulations.

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

Alternative 1 (Proposed Action): Open designated portions of Plum Tree Island National Wildlife Refuge to a federally managed waterfowl hunting program;

Alternative 2: (State Regulations): Open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting as regulated by the State of Virginia;

Alternative 3: (No Action): Do not open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting.

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

1. The proposed action offers the best solution for managing waterfowl populations and promotes a compatible, priority recreational use of the refuge.
2. The proposed action is compatible with Service policy regarding the establishment of hunting on National Wildlife Refuges.
3. The proposed action is compatible with the purpose for which Plum Tree Island NWR was established.
4. This proposal does not initiate widespread controversy.
5. There are no conflicts with local, state, regional, or federal plans or policies.

Implementation of the proposed action would be expected to result in the following environmental, social, and economic effects:

1. The refuge could better manage waterfowl populations, and thereby protect these species more effectively than taking no action.
2. The hunting public would have increased opportunity for wildlife-oriented recreation.
3. Recreational opportunities for the non-hunting public would be completely unaffected.
4. Local businesses would benefit from hunters visiting from outside the refuge area.
5. The refuge would be promoting a traditional and culturally-important local land use.

Copies of the Environmental Assessment are available by writing:

Refuge Manager
Plum Tree Island NWR
P.O. Box 1030
Warsaw, VA 22572

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

1. **Both beneficial and adverse effects have been considered and this action will not have a significant effect on the human environment (EA, pages 13-28)**
2. **The proposal will not significantly affect any unique characteristics of the geographic area such as proximity to historical or cultural resources or ecologically critical areas (EA, pages 13-28).**
3. **There will be no cumulative significant impacts on the environment. Cumulative impacts have been analyzed with consideration of other similar activities on adjacent lands, in past action, and in foreseeable future actions (EA, pages 18-28).**
4. **The actions are not likely to adversely affect endangered or threatened species, or their habitats (Intra-Service Section 7 Biological Evaluation Form prepared).**
5. **We have coordinated this proposal with State and local governmental authorities (EA, coordination with others, page 28).**

References: Revised Environmental Assessment of Waterfowl Hunting on the Plum Tree Island NWR (April 2007), Revised Hunt Plan (March 2007), Compatibility Determination, Letters of Concurrence, Refuge-specific Regulations, Intra-Service Section 7 Evaluation



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

Acting

4-27-07
Date

Table of Contents

List of Acronyms 1

I. Introduction.....2

II. Purpose and Need for the Proposed Action4

 A. Proposed Action.....4

 B. Purpose4

 C. Need for the Proposed Action.....5

III. Proposed Action and Alternatives5

 A. Summary of Alternatives5

 B. Description of the Alternatives6

 1. Regulations Common for Hunting Alternatives6

 2. Alternative 1 (Proposed Action): Open designated portions of Plum Tree Island National Wildlife Refuge to a federally-managed waterfowl hunting program.....6

 3. Alternative 2 (State Regulations): Open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting as regulated by the State of Virginia8

 4. Alternative 3 (No Action): Do not open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting9

IV. Affected Environment.....9

 A. Vegetation.....9

 1. Marsh9

 2. Low-lying Forested Ridges.....10

 B. Wildlife11

 1. Waterfowl11

 2. Threatened and Endangered Species11

 3. Other Wildlife11

 C. Local Economy12

V. Consequences of the Alternatives.....12

 A. Alternative 1 (Proposed Action): Open designated portions of Plum Tree Island National Wildlife Refuge to a federally-managed waterfowl hunting Program13

 1. Vegetation13

 2. Wildlife14

 3. Local Economy15

 4. Summary of Alternative 1 Impacts15

B.	Alternative 2 (State Regulations): Open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting as regulated by the State of Virginia.....	15
1.	Vegetation.....	15
2.	Wildlife.....	16
3.	Local Economy.....	16
4.	Summary of Alternative 2 Impacts.....	16
C.	Alternative 3 (No Action): Do not open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting.....	17
1.	Vegetation.....	17
2.	Wildlife.....	17
3.	Local Economy.....	18
4.	Summary of Alternative 3 Impacts.....	18
D.	Cumulative Impacts Assessment.....	18
1.	Anticipated Direct and Indirect Impacts of Proposed Waterfowl Hunt on Wildlife Species.....	18
A.	Alternative 1 – Proposed Action.....	18
B.	Alternative 2 – Open According to State Regulations.....	22
C.	Alternative 3 – No Action.....	22
2.	Anticipated Direct and Indirect Impacts of Proposed Waterfowl Hunt on Threatened and Endangered Species.....	22
A.	Alternative 1 – Proposed Action.....	22
B.	Alternative 2 – Open According to State Regulations.....	22
C.	Alternative 3 – No Action.....	23
3.	Anticipated Direct and Indirect Impacts of Proposed Waterfowl Hunt on Refuge Programs, Facilities, and Cultural Resources.....	23
	<u>Other Wildlife Dependent Recreation</u>	
A.	Alternative 1 – Proposed Action.....	23
B.	Alternative 2 – Open According to State Regulations.....	23
C.	Alternative 3 – No Action.....	23
	<u>Refuge Facilities</u>	
A.	Alternative 1 – Proposed Action.....	24
B.	Alternative 2 – Open According to State Regulations.....	24
C.	Alternative 3 – No Action.....	24
	<u>Cultural and Historic Resources</u>	
A.	Alternative 1 – Proposed Action.....	24
B.	Alternative 2 – Open According to State Regulations.....	24
C.	Alternative 3 – No Action.....	24
4.	Anticipated Direct and Indirect Impacts of Proposed Waterfowl Hunt on Refuge Environment and Community.....	25
A.	Alternative 1 – Proposed Action.....	25
B.	Alternative 2 – Open According to State Regulations.....	25
C.	Alternative 3 – No Action.....	26
5.	Other Past, Present, and Reasonably Foreseeable Hunts and Anticipated	

Impacts.....	26
A. Alternative 1 – Proposed Action.....	26
B. Alternative 2 – Open According to State Regulations.....	26
C. Alternative 3 – No Action.....	26
6. Cumulative Impacts Associated with Other Refuge Hunt Programs.....	26
A. Alternative 1 – Proposed Action.....	26
B. Alternative 2 – Open According to State Regulations.....	27
C. Alternative 3 – No Action.....	27
VI. Consultation and Coordination	28
VII. Regulatory Compliance	28
VIII. Literature Cited.....	33
Appendix A. Vascular Plant List.....	34
Appendix B. Bird List	36
Appendix C. Intra-service Section 7 Evaluation.....	37
Appendix D. Refuge Maps	42-45

List of Acronyms

Act	National Wildlife Refuge System Improvement Act of 1997
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
DGIF	Virginia Department of Game and Inland Fisheries
EVRNWRC	Eastern Virginia Rivers National Wildlife Refuge Complex
MEC	Munitions and Explosives of Concern
NWR	National Wildlife Refuge
Refuge	Plum Tree Island National Wildlife Refuge
Service	U.S. Fish and Wildlife Service

ENVIRONMENTAL ASSESSMENT
Plum Tree Island National Wildlife Refuge Waterfowl Hunting Plan

I. Introduction

Plum Tree Island National Wildlife Refuge (NWR) was opened for waterfowl hunting during the 1999-2000 hunting season. At that time, the refuge was administered as a satellite of Back Bay NWR in Virginia Beach, Virginia. Prior to the opening, Back Bay NWR prepared all the necessary documents required for opening a national wildlife refuge to hunting. They included: A hunt plan, compatibility determination, environmental assessment, decision document (finding of no significant impact), Endangered Species Act section 7 evaluation, letter of concurrence from the Commonwealth of Virginia, draft news release, and draft refuge-specific regulations. Back Bay NWR administered a hunting program at the refuge from 1999 through the 2002-2003 season.

In 2003, administrative responsibility for the refuge was transferred to the Eastern Virginia Rivers NWR Complex (EVRNWRC) headquartered in Warsaw, Virginia. We have administered the waterfowl hunting program from the headquarters and from our sub-office in Charles City, Virginia from 2003 to the present. Our experience in managing the hunt over the past three seasons indicates that some minor changes are needed to ensure that the original goals of offering safe, high quality hunting opportunities, while providing resting and feeding opportunities for wintering waterfowl, are met. The minor changes include limiting the number of potential hunting locations on Cow Island to six (6) and identifying them as required hunting locations, reducing the dates open for hunting to the last two segments of the State season with a maximum of 30 days open for hunting, changing the days of the week open for hunting from Tuesdays, Thursdays and Saturdays to Wednesdays and Saturdays, and offering full days of hunting rather than half days on the days we are open. None of these minor changes, either individually or cumulatively, will cause a significant change in the environmental impacts of our hunting program beyond what was predicted in 1998. The net effect of these changes will be to strengthen our management control over the procedures of the hunt, and to further reduce potential disturbance and impact to vegetation and wildlife. These minor changes are reflected in this revised assessment and in the accompanying revised hunt plan.

Also in 2003, the Fund for Animals filed a lawsuit against the U.S. Fish and Wildlife Service (Service), alleging non-compliance with the National Environmental Policy Act. As a result, the Service is required to amend environmental assessments that describe hunting programs at sixteen national wildlife refuges located in the Northeast Region. The amended environmental assessments will address the cumulative impacts of hunting at all refuges which were named in the lawsuit. This document provides a complete assessment of the waterfowl hunting program at Plum Tree Island NWR, including the minor changes reflected in the accompanying hunt plan, and the cumulative impacts of the program.

This document incorporates language from the 1998 environmental assessment and provides

additional detail where necessary. Cumulative impacts of the current hunting program at Plum Tree Island NWR will be addressed following a description of the alternatives that were first proposed in 1998.

The Service recognizes the importance of the Chesapeake Bay to migratory birds, and has established several national wildlife refuges within its watershed. Plum Tree Island NWR, is strategically located on the southwest corner of the Chesapeake Bay almost midpoint on the Atlantic Flyway. It provides an exceptional “rest stop” to migratory birds (see Figures 1 and 2 as Appendix D). On April 24, 1972, 3,276 acres were transferred from the U.S. Air Force to the Department of the Interior to establish Plum Tree Island NWR. The refuge was created under 16 U.S.C. Section 667b, *An Act Authorizing the Transfer of Certain Real Property for Wildlife, or other purposes*. The property had become excess to the needs of the Air Force, and was recognized to have “...particular value in carrying out the national migratory bird management program.” The Air Force had used the area since 1917 as a bombing range and emergency jettison zone. Due to the presence of unexploded ordnance on the area, the Service has been unable to expand management or to allow public access to the original 3,276 acres of the refuge.

After environmental review and public comment, the Service expanded the acquisition boundary for Plum Tree Island NWR in 1993 to include an additional 2,119 acres. Since the boundary was approved, Cow Island, approximately 211 acres, and two additional parcels totaling 15 acres, have been added to the refuge, bringing the total refuge ownership as of January 2007 to 3,502 acres. The purposes for expanding the refuge boundary were to:

- 1) preserve and protect important habitat for migratory bird species including shorebirds, wading birds, waterfowl, the federally threatened bald eagle, and several species that are rare within the State of Virginia;
- 2) limit habitat destruction that could occur through extensive harvesting of timber and filling of wetlands;
- 3) provide outdoor classroom facilities for area school children from Poquoson and other nearby communities; and,
- 4) provide for public enjoyment of the area’s resources, through providing wildlife-oriented recreational opportunities, that do not materially detract from the purposes of the refuge.

In 1997, Congress passed the “National Wildlife Refuge System Improvement Act of 1997” (the Act), which was designed to codify the mission and priorities of the National Wildlife Refuge System. The mission of the NWR 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 Act further states that it is U.S. policy “...that compatible wildlife-dependent recreation is a legitimate and appropriate general public use of the System,

directly related to the mission of the System and the purposes of many refuges, and which generally fosters refuge management, and through which the American public can develop an appreciation for fish and wildlife." The Act also defines six priority recreational uses of the NWR System: hunting, fishing, wildlife observation and photography, environmental education, and interpretation. Managers are directed to facilitate these priority uses on refuges when they are determined to be compatible with refuge purposes and the NWR System mission.

II. Purpose and Need for the Proposed Action

A. Proposed Action

The Service proposes to continue managing an annual public waterfowl hunting program on a portion of the Plum Tree Island NWR. Hunting on the refuge would be conducted within the framework of applicable state and federal regulations. A limited number of refuge-specific regulations would be enacted to ensure safety, practice sound management, comply with legal mandates, and ensure compatibility with the purposes for which the refuge was established. The waterfowl hunting program currently applies only to the 211-acre Cow Island tract. However, if additional suitable lands are acquired by the refuge, they may be added to the hunting program in the future. It is unlikely that any of the original 3,276 acres of the refuge would be open to public use. That determination will be made at the conclusion of studies being conducted by the U.S. Army Corps of Engineers as part of the Formerly Used Defense Site Program.

B. Purpose

The purpose of the proposed action is to encourage the use of refuge lands for wildlife-dependent public recreation as outlined in various laws, regulations, and Service guidance policies governing the National Wildlife Refuge System, while continuing to provide resting and feeding habitat for wintering waterfowl and other migratory birds. As outlined in the National Wildlife Refuge System Improvement Act of 1997, hunting is considered an acceptable and desirable form of wildlife-dependent recreation. Specifics of the hunt program are described in the accompanying Plum Tree Island National Wildlife Refuge Migratory Bird Hunting Management Plan.

The Act specifies that the Service should facilitate the development of hunting programs on National Wildlife Refuges when they are compatible with the refuge's legal purpose, biologically sound, affordable, properly coordinated with other refuge programs, and when they fit the Service description of a quality hunt. "Quality hunts" are defined as those which are planned, supervised, conducted, and evaluated to promote positive hunting values and ethics such as fair chase and sportsmanship. The Service strives to provide hunting opportunities on refuges which are superior to those available on other public or private lands, and to provide participants with reasonable harvest opportunities, uncrowded conditions, fewer conflicts among hunters, relatively undisturbed wildlife, and limited interference from, or dependence on, mechanized aspects of the sport (USFWS, 1986).

C. Need for the Proposed Action

The need for the proposed action is to provide public access to waterfowl hunting areas within the lower Chesapeake Bay region. There are no publicly-owned, traditional hunting areas in eastern Poquoson. Residents gain access to hunting sites as members of clubs, through receiving permission from individual landowners, by hunting in tidal areas, or by trespassing. Some property owners are powerless to stop trespass hunters and are considering posting their property in an attempt to limit use. Some property owners lease lands to individuals and clubs, thereby restricting access to a few who can afford the lease rates. Individuals who are not residents but live in nearby cities, or who have recently moved to the area, may be restricted from hunting by this system. Public hunting is not allowed in the original refuge area due to the presence of munitions and explosives of concern (MEC). Many area residents have expressed a desire for true public waterfowl hunting opportunities. Public access and use, including hunting, have been allowed and regulated by private landowners in the area for many years. From the public comments received on the proposed boundary expansion, one major theme that emerged was the need to maintain hunting and fishing access to the area included within the expanded boundary. Hunting is also one aspect of a broad education and recreation program to increase public awareness of wise stewardship that benefits wildlife. Hunting provides an opportunity to extend this message to an important segment of the public. This is particularly important on lands that have traditionally supported recreational hunting.

III. Proposed Action and Its Alternatives

A. Summary of the Alternatives

In 1998, the Service analyzed impacts of the proposed action and two alternatives for addressing the need for a hunting program at the refuge:

Alternative 1 (Proposed Action): Open designated portions of Plum Tree Island National Wildlife Refuge to a federally managed waterfowl hunting program;

Alternative 2: (State Regulations): Open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting as regulated by the State of Virginia;

Alternative 3: (No Action): Do not open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting.

These alternatives continue to reflect management approaches based upon existing wildlife populations, existing state and federal regulations, the refuge's purpose and objectives, endangered species concerns, Service policies and guidance, and safety considerations. In the Service's opinion, these three alternatives represent a reasonable range as required by the National Environmental Policy Act of 1969.

B. Description of the Alternatives

The Service has examined the proposed alternative plus two alternatives. Any proposal to allow hunting on lands included within the National Wildlife Refuge System must include compliance with specific regulations for the Refuge System. This section describes these regulations and the alternatives.

1. Regulations Common for Hunting Alternatives

Both alternatives under consideration for allowing hunting on the refuge would be contingent on specific regulations enacted by the Service for refuges in general, and Plum Tree Island NWR in particular. These are in addition to state regulations, and would take precedence where they are more restrictive than the state regulations. General stipulations for refuge hunting as contained in the Code of Federal Regulations (50 CFR Part 32) state that hunters must have a valid state license and valid Migratory Bird Hunting and Conservation Stamp (“Duck Stamp”) for waterfowl hunting, and must comply with all current federal hunting regulations including the migratory bird regulations (50 CFR Part 20), and must comply with all state hunting and safety regulations. In addition, hunters must comply with the terms and conditions established by the refuge for access to the refuge itself and for its hunting program. All state regulations will apply to hunting on the refuge, and all state licenses, tags, and stamps will be required.

2. Alternative 1 (Proposed Action): Open designated portions of Plum Tree Island National Wildlife Refuge to a federally-managed waterfowl hunting program

Under this alternative, designated portions of the refuge would be open to waterfowl hunting according to refuge-specific regulations that are designed to manage the waterfowl resource and provide for both a quality public hunting opportunity and public safety. The refuge will be closed to hunting, and the possession of firearms will be prohibited, except during the waterfowl season. Species that may be hunted on the refuge only include the following: migratory waterfowl currently identified in the regulation-setting process by the Service’s Office of Migratory Bird Management, gallinule, coot, merganser, snow goose, brant, and any special seasons established for resident Canada geese. A hunting information packet will be prepared each year which will include a map indicating the areas of Plum Tree Island NWR that are open to hunting and the areas that are closed. A Refuge Hunting Permit will be issued to each permitted hunter, and it must be in the possession of the hunter at all times when hunting on the refuge.

Initially, hunting on the refuge was permitted during three (3) half-days per week (Tuesday, Thursday, and Saturday) from opening hour until noon, and on opening days and federal holidays. No Sunday hunting was, or is, permitted on the refuge. In response to hunter concerns about access and safety during periods of low tide, we amended the refuge hunting plan to allow hunting from ½ hour before sunrise to sunset on each hunt day, according to State regulations. This would allow safe access to hunters on those days when low tide occurs in the morning by allowing them to hunt in the afternoon. In order to afford further protection for wildlife, we also

reduced the number of available hunt dates per week to two (2), Wednesdays and Saturdays, rather than the three (3) days previously allowed. We kept the provision to also allow hunting on opening days and Federal holidays.

As noted in the 1998 EA, the refuge instituted a lottery system for waterfowl hunting to maintain the resource, ensure hunter safety, and maintain conditions for a quality hunt. Initially we only required a reservation system for peak use days and we limited the number of hunting parties to five (5), with a maximum of three (3) hunters per party. Hunters were issued seasonal permits upon request. There were no restrictions on the number of parties that could hunt on non-peak days. We now require all hunters to participate in a lottery and have limited the maximum number of hunting parties to six (6) on any given date. We have kept the maximum number of hunters per party at three (3). We have instituted these requirements to better control hunter density and access for the protection of wildlife and to afford a quality hunting experience. Any system instituted to further regulate hunter numbers will be described in the annually revised Plum Tree Island NWR Hunting Regulations leaflet. The general restrictions described in the foregoing paragraph will be applicable to all waterfowl hunting on the refuge.

Hunting on the refuge will be contingent on the following additional stipulations:

- 1) Each hunter must have in his/her possession a signed copy of the current Plum Tree Island NWR Hunting Permit while participating in a refuge hunt. The Refuge Hunting Permit will be available to licensed hunters either free of charge, or for a nominal fee. Hunters may apply for a permit through the Virginia Department of Game and Inland Fisheries (DGIF) Quota Hunt application system or by other means advertised in advance. Applications are available in the annual DGIF hunting booklet or can be accessed over the internet. Hunters will be required to submit their name, address, telephone number, email address (optional), date of birth, and a valid Virginia hunting license number to obtain a permit. A registration fee will likely be imposed.
- 2) The refuge may temporarily or permanently close specific tracts to hunting based on public safety and other uses of specific tracts. The original portion of Plum Tree Island NWR that was obtained from the U.S. Air Force is expected to remain closed to all public access for safety reasons. Currently, only Cow Island is open for hunting; other tracts will be evaluated for inclusion in the hunting program as they are acquired. A map will be prepared each year delineating those portions of the refuge that are open and those that are closed. This map will be included in the Plum Tree Island NWR Hunting Regulations leaflet.
- 3) Participants selected in the lottery may hunt from any one of six (6) designated locations on the refuge. Previously, hunters could pick their spots and hunt from unimproved shore locations, from camouflaged boats (floating blinds) anchored to the shore, or from temporary blinds erected on the interior of the island. In order to exercise more quality control over the hunt, we will now designate no more than six (6) mandatory locations. These will be designated by a numbered stake or a permanent blind

established by the refuge. Hunters may use their own temporary blinds at one of the designated locations, but may not erect a permanent blind. Jump-shooting will not be permitted. Boat blinds used by refuge-permitted hunters have been determined to be out of compliance with State regulations, so hunting from a boat is no longer permitted for refuge hunters. We are in consultation with the DGIF on amending State regulations that would allow refuge hunters to tie up to a numbered stake at one of the six (6) refuge hunting locations and hunt from a camouflaged boat floating adjacent to the shore. If this regulation is created, we will likely adopt it for the refuge hunting program.

4) It shall be unlawful for any person to shoot or discharge any firearm within 500 feet of any dwelling, house, or occupied building.

5) Hunting parties will be limited to three individuals hunting at one location.

6) All accidents and injuries must be reported to the refuge office as soon as possible, but no later than 24 hours after they occur.

3. Alternative 2 (State Regulations): Open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting as regulated by the State of Virginia

Under this alternative, waterfowl hunting would be permitted on designated portions of Plum Tree Island NWR according to regulations promulgated by the state without further restrictions. Hunting would be allowed on all legal hunt days, with no provisions for restrictions on days, hours, or number of hunters. The refuge will be closed to hunting and firearms except during the waterfowl season. Species that may be hunted on the refuge include the following: migratory waterfowl currently identified in the regulation-setting process by the Service's Office of Migratory Bird Management, gallinule, coot, merganser, snow goose, brant, and any special seasons established for resident Canada geese. Hunters must apply for a permit as described in Alternative 1 and have in their possession a copy of the Plum Tree Island NWR Hunt Permit while on refuge property. A hunter information packet will be provided to each hunter containing a map delineating which areas of the refuge are open to hunting and which are closed. The original portion of the refuge, which was obtained from the U.S. Air Force, will likely remain closed to all public access for safety reasons. Currently, only Cow Island is proposed to be opened for hunting; other tracts will be evaluated for inclusion in the hunting program as they are obtained. We would conduct a lottery as described in Alternative 1, but would not establish mandatory locations. Participants could hunt from the location of their choice and could only hunt from unimproved shore locations or from temporary blinds erected on the interior of the island. Jump-shooting will not be permitted. No permanent structures will be provided or allowed.

4. Alternative 3 (No Action): Do not open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting

Under this alternative, Plum Tree Island NWR would remain closed to waterfowl hunting. All refuge boundaries would be posted with “no hunting” signs. Persons found in violation would be prosecuted for trespass and illegally hunting in a restricted area.

IV. Affected Environment

The physical environment of Plum Tree Island NWR has been fully described in several documents including: Final Environmental Assessment on the Proposed Boundary Expansion issued by the Service in 1993 (USFWS 1993), Final Environmental Assessment Plum Tree Island National Wildlife Refuge Tower (s) Removal (USACOE 2005), and Draft Site Inspection Report for the Plum Tree Island Range (USACOE 2006). These descriptions are incorporated by reference, with the affected resource areas summarized here. The scope of the analyses and discussion is limited to vegetation, wildlife populations, and the local economy, which were determined to be the resources impacted by a hunting program.

A. Vegetation

Plum Tree Island NWR is an important link in the chain of national wildlife refuges located strategically along the Atlantic Flyway. Plum Tree Island marsh is actually a portion of the larger Great Salt Marsh, which is the largest contiguous salt marsh ecosystem in the lower Chesapeake Bay. The area is classified as a combination of mixed brackish water marsh and tidal marsh. The original refuge includes 900 acres of salt meadow marsh that is irregularly flooded, and 1528 acres of regularly flooded salt marsh. Appendix A contains a list of plants commonly found on the refuge.

1. Marsh

The primary habitat type found within the refuge is marsh. Within this category are two primary marsh types, salt marsh cordgrass and brackish water mixed communities. As noted by Silberhorn (1981), these marshes "have the highest values in productivity and wildfowl and wildlife utility and are closely associated with fish spawning and nursery areas. They also have high values as erosion inhibitors, important to the shellfish industry, and valued as shoreline stabilizers." Interspersed throughout the marshes are numerous man-made ditches and naturally-occurring tidal guts, creeks, ponds and potholes.

The broad intertidal zones surrounding the more elevated interior sections of the marsh consist primarily of saltmarsh cordgrass (*Spartina alterniflora*) and black needlerush (*Juncus roemerianus*). This portion of the marsh is drained and flushed extensively by tides via small creeks and guts, thus providing the Chesapeake Bay, Poquoson River and Back River with large amounts of detritus.

The interior portion of the marsh is dominated almost exclusively by saltmeadow hay (*Spartina patens*) and salt grass (*Distichlis spicata*). Bomb craters in the interior support populations of glassworts (*Salicornia* spp.) and wigeon grass (*Ruppia maritima*) depending upon water levels.

Food for migrating and wintering waterfowl appears to be abundant with the wigeon grass and invertebrates associated with the saltmeadow hay interior. Abundant floating, or attached marine algae occurs along the marsh edge. In addition, large beds of eelgrass (*Zostera marina*), an important food of American brant, grow in the clear, shallow waters just offshore of the refuge.

2. Low-lying Forested Ridges

Pine hammocks on relict beach ridges comprise about 98 acres of the existing refuge. Brush/scrub accounts for about 750 acres. Some of the ridges and higher portions of the marsh were farmed and grazed from the colonial period until 1917 when the military converted the area to a bombing range.

Due to the flat topography and predominantly low elevations in the area, there is little transition between marshes and upland ridges. There are two primary, parallel ridges that run northeast to southwest through the center of the subject area. One is located just west of the existing refuge boundary and adjacent to the former National Aeronautics Space Administration Test Site Facility. The other includes all of Black Walnut Ridge. These ridges are dominated by loblolly pine (*Pinus taeda*) and fringed with saltbushes (marsh elder [*Iva frutescens*] and groundsel [*Baccharis halimifolia*]). Understory is comprised primarily of greenbrier (*Smilax* sp.), poison ivy (*Rhus radicans*), myrtle (*Myrica* sp.), and blackberry (*Rubus* sp.). Other forested upland segments can be found west of North Lawson Road, east of Poquoson Avenue, and south of Church Street. The composition of these forested areas is much the same as described above.

The location of these uplands, adjacent to marshes and open water, creates a "critical-edge habitat" valuable to a wide diversity of wildlife. The uplands serve as a natural filter, protecting the water quality and integrity of the adjacent wetlands. The edge provides food, cover, breeding habitat, and travel corridors for both resident and migratory wildlife. Species diversity and abundance within the edge habitat is usually greater than other locations.

B. Wildlife

Marshes and adjacent uplands described above are most valuable as breeding, resting, and feeding habitats for migratory birds. Over 80 species of birds (Appendix B) have been recorded from the refuge and surrounding environs.

1. Waterfowl

Bird surveys conducted throughout the year and hunter bag checks, have regularly documented numerous black ducks, mergansers and mallards on the marsh, and scaup, scoter and brant

feeding on the eelgrass beds offshore from January through April. Through the summer months, numbers decrease with a few black ducks remaining and occasionally small numbers of Canada geese. From October through December, large numbers of dabbling ducks arrive. Thousands of diving ducks arrive in November. Waterfowl species include the ring-necked duck, hooded merganser, red-breasted merganser, green-winged teal, blue-winged teal, tundra swan, black duck, mallard, American wigeon, bufflehead, white-winged scoter, surf scoter, black scoter, old squaw, and Atlantic brant. Rafts of diving ducks have been sighted in refuge guts, coves, and offshore.

2. Threatened and Endangered Species

Several threatened and endangered species have been documented on or near the refuge. Several endangered or threatened sea turtles are known to use the waters of the nearby Chesapeake Bay for feeding during the summer months. The threatened loggerhead sea turtle has been sighted in the shallow waters of the area by refuge employees. No sea turtle nesting has been recorded. Bald eagles and peregrine falcons (now de-listed) have been sighted using Plum Tree Island NWR, and several local residents have sighted bald eagles in the Black Walnut Ridge area. The threatened piping plover nests at the nearby Grandview Beach Preserve, and may use area mudflats for feeding and resting before and after the breeding season. Northeastern Beach Tiger Beetles were first observed on the exposed sand beach at the southernmost tip of the original refuge area in 2005, and were confirmed again using the same area during the summer of 2006.

3. Other Wildlife

The area is of particular importance to water-dependent birds such as marsh and water birds, wading birds, and waterfowl. Throughout the year, great blue herons can be seen in refuge marshes. By March, egrets and the smaller herons, whimbrels, willets and yellowlegs begin to show, peaking in June and July. Numbers diminish quickly with the first cold snaps in November. Willets have been observed nesting on the marsh, and clapper rails are expected to be nesting. It is suspected, but as yet undocumented, that herons and/or egrets have a rookery in the upland forest. Aerial and boat surveys have revealed extensive use of the marsh fringe by shorebirds and allied species. Those observed on the marsh fringe and mudflats include dunlins, American oystercatcher, black skimmers, sanderlings, black-bellied plovers and various sandpipers. Gulls and terns populate the shorelines of numerous coves and inlets. Observed species include great black-backed gulls, herring gulls, ring-billed gulls, sandwich terns, Forster's terns, royal terns, least terns, and common terns. Some tern and shorebird nesting may occur on the refuge, but none has yet been documented. Raptor species using or flying over the refuge include, osprey, northern harriers, red-tailed and red-shouldered hawks, and great horned owls. Use by other raptor species is likely during their migration, but not yet observed.

In addition to the wide variety of migratory birds found in the subject area, several native, resident wildlife species are also present. These include: white-tailed deer, raccoon, muskrat, red fox and other mammals. Diamond-backed terrapin have been observed during the nesting

season, and numerous reptiles and amphibians probably inhabit the area, although no surveys have been done to document their presence.

C. Local Economy

The lands within the expansion boundary that could be included in the refuge's hunting program if acquired by the refuge, are relatively open and rural with adjacent residential development. Poquoson is primarily residential in nature, with many individuals commuting to nearby cities or government facilities for employment. U.S. Census data for 1990 indicate that Poquoson had a population of 11,005 people, with the most recent estimate being 11,600 as of 2004 (Weldon Cooper Center, University of Virginia). A large percentage of employed persons over 16 years of age were involved in white collar work. Of 5,359 workers, 35 percent worked in executive, administrative, managerial or a professional specialty occupation. 67 percent of the workers were employed in private industry, and 26 percent in government jobs. Included within the 7 percent self-employed workers are those employed in farming, fishing and forestry operations. The median household income in Poquoson was \$43,236 in 1990, with per capita income of \$16,903. Of the total number of housing units in the city, 59 percent were constructed after 1970, indicating significant population growth in the past twenty years. The population of the city is well-educated with the vast majority of residents over 25 completing high school (84.4%). Nearly 30 percent of the adult residents have earned a bachelor's degree.

Historically, a much larger percentage of the population of the city was involved in fishing and farming operations. More recently, this percentage has declined, as residential development in the western portion of the city has increased over the past twenty years. Many descendants of early Poquoson settlers living in the eastern part of the city still earn their living as bay watermen. These families have a rich heritage of hunting and fishing – both as a way of life, and as a means of recreation. Many other city residents engage in hunting and fishing as recreational pursuits due to the close proximity of the bay. Waterfowl hunting is the major hunting activity, due primarily to the large expanse of salt marshes and open bay areas which support a wide variety of migratory species. Waterfowl hunting occurs from boats and floating blinds, as well as from stationary blinds in the marsh. Access may be on foot or by boat. To a lesser extent, some residents and visitors engage in rail, raccoon, and deer hunting. Hunting has long been practiced by residents and visitors to the area.

V. Consequences of the Alternatives

Analysis for the environmental consequences is limited to those resources that could be affected by the proposed action and its alternatives, specifically, vegetation, wildlife, and the local economy. No construction or earthmoving activities would be involved in implementing a hunt program; therefore, no impacts to water quality, cultural, visual, or land use resources are anticipated. Since the area is traditionally hunted and the surrounding area is experiencing rapid growth, no impacts to traffic congestion or air quality that are attributable to hunting would result from implementing a hunting program. The impacts of transferring land from private to

government ownership has been described in the Final Environmental Assessment on the Proposed Expansion of the Boundary of Plum Tree Island NWR issued by the Service in 1993.

The cumulative impact of the hunting program is discussed at the end of Section V.

Summary Statement of the Environmental Consequences

We believe that none of the alternatives described herein will have a significant impact on the human environment. Of the three alternatives considered, the proposed action of establishing and managing a waterfowl hunting program on a portion (6%) of Plum Tree Island NWR will have less adverse impact than the other two alternatives on resident and migratory wildlife, threatened and endangered species, the overall environment, and the community. This is due to the fact that waterfowl hunting is a traditional, historic use of the refuge area, and occurs immediately adjacent to the refuge. By reducing the number of hunt days, limiting the season dates, restricting the number of hunting locations, and exercising our riparian rights, we will reduce the amount of hunting that has historically occurred in this area and provide local residents and visitors with a high quality public recreational opportunity that is in short supply. Following is a more detailed evaluation of the environmental consequences of all three alternatives.

A. Alternative 1 (Proposed Action): Open designated portions of Plum Tree Island National Wildlife Refuge to a federally-managed waterfowl hunting program

1. Vegetation

The physical effects of waterfowl hunting are expected to have minimal impacts to the vegetation of the refuge. The most destructive impacts would be from boat traffic or blind construction. The area under consideration for public hunting is only accessible by boat; therefore, boat traffic could cause some submerged aquatic vegetation loss from boat propellers.

As additional parcels are included under this proposal, access by land vehicle may become possible. However, all vehicles would be restricted to designated roadways to minimize damage to refuge vegetation. We do not anticipate providing public boat ramps on refuge property. Hunters wanting to access a site by boat, or hunt from their boat, would launch from one of the existing public boat ramps. Since the only permanent blinds that could be allowed under the proposed action would be established by refuge personnel, care would be taken to only remove the minimum amount of vegetation necessary. Trampling of vegetation by hunters on foot is not expected to have a serious effect since plants are generally dormant during the hunting seasons. With hunting only permitted two or three days per week, excessive foot traffic is not anticipated. Foot traffic is reduced further over that initially predicted in 1998 by requiring hunters to hunt from specified locations rather than any shore location.

Even though the original refuge area has been deemed unsafe for public access, all terrain vehicle (ATV) trespass by hunters and others is a problem. This problem results in part from lack of public access to the bay within the Poquoson area and in part from local tradition. As more parcels within the expansion boundary are added to the refuge and opened to public hunting, the effects of trespass by ATVs on the closed refuge marshes may decrease. It is possible that as the refuge grows in size, more areas will become publicly accessible. With refuge and State law enforcement staff monitoring the hunt program, the amount of trespass should decline. This decline will permit areas disturbed by trespass to return to their natural state.

2. Wildlife

Waterfowl are managed by “flyways,” which follow their major migratory routes. Waterfowl population trends are monitored by the Service through the collection of data including: band recoveries, hunter questionnaires and wing returns, breeding population and habitat surveys, and mid-winter waterfowl surveys (Cathamer and Dobovsky 1995). The migratory waterfowl of Plum Tree Island NWR are only part of the larger population of birds managed by the Service. The Service designs bag limits and season lengths to maintain healthy populations of these species. Therefore, opening portions of Plum Tree Island NWR to waterfowl hunting should not have an adverse effect on overall waterfowl population.

Opening portions of the refuge to waterfowl hunting may benefit local waterfowl populations by decreasing trespass into the original portion of the refuge. Unauthorized hunting in the closed area may be causing more disturbance than the waterfowl will tolerate, and therefore waterfowl may be avoiding an area that otherwise would provide excellent habitat for resting and feeding. With other areas open to public hunting, the pressure to hunt in the original refuge area may decrease. Reduced disturbance from trespass could result in the area supporting a larger waterfowl population.

Opening designated portions of Plum Tree Island NWR to waterfowl hunting is not expected to have an impact on any threatened or endangered species. Any piping plovers that could have nested in the area during the spring and summer would have migrated from the area before waterfowl season opens. Bald eagles have been sighted in the general refuge area, but nests or roosts have not been documented either on the refuge or within the boundary expansion area. Loggerhead sea turtles are present in the Chesapeake Bay during the summer months, but have not been documented nesting on the refuge. These turtles will have migrated to warmer waters prior to the onset of hunting seasons in the Chesapeake Bay region. The Northeastern beach tiger beetles have been documented using the southern tip of the original refuge area but adult beetles of this species are not present over the winter and are not expected to use the narrow beach areas of Cow Island at any time. No impact to any threatened or endangered species is anticipated from implementing a waterfowl hunt program. A revised Intra-Service Section 7 Consultation is included as Appendix C.

Only waterfowl (including sea ducks), gallinules, coots, mergansers, snow geese, brant, and resident Canada geese may be hunted on the refuge. The refuge would not be open to hunting for any other species. Disturbance from human intrusion is expected to be minimal. Therefore, no impacts to other wildlife species are anticipated.

3. Local Economy

The local economy could realize some benefits from this alternative. Hunters purchasing food, lodging, fuel, and miscellaneous supplies can be a substantial benefit to the local community. Waterfowl hunting is a very popular form of recreation throughout the Chesapeake Bay region. However, in the Poquoson area, there is little land available that is accessible to the general public. Most lands are in private ownership, and the landowners either lease their lands to particular individuals or allow only certain individuals to hunt on their property. As the Refuge acquires more land within the expanded boundary, and if additional public hunting is determined to be compatible and in accordance with this assessment, more waterfowl hunters could be attracted to the area.

4. Summary of Alternative 1 Impacts

We expect the proposed action of opening the refuge to waterfowl hunting will have minimal impact on vegetation due to the fact that we can regulate hunting locations, access will be primarily by boat, and the hunt will not be held during the growing season. Waterfowl should receive greater protection from the refuges' limited hunt that they received prior to establishment of a limited refuge hunting program. No federal listed threatened or endangered species will be impacted due to the time of year that hunts are held, and because no bald eagles nest or congregate on the refuge. The local economy should benefit due to additional public recreational opportunity.

B. Alternative 2 (State Regulations): Open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting as regulated by the State of Virginia

1. Vegetation

The physical effects of hunting under this alternative are anticipated to be more significant than those described above for the proposed action. The increased number of hunting days that the area would be open for should result in a correspondingly greater impact to submerged aquatic vegetation (SAVs) and shoreline vegetation in the vicinity of refuge hunting areas. Hunters would not be restricted to designated locations, but could hunt from any shoreline location, thereby potentially affecting much larger sections of shoreline than under Alternative 1. Increased boat traffic and hunter activities should show a correspondingly greater negative impact to refuge SAVs and shoreline vegetation. SAVs are critical to wintering ducks on the Chesapeake Bay either as a food source, or a medium to support the development of invertebrate animals that are consumed by waterfowl.

2. Wildlife

The effects of hunting on waterfowl use of the refuge under this alternative would be greater than those described above for the proposed action. Under this alternative, no restrictions would be placed on the number of days during the week that hunting could occur on the refuge, nor would any system be in place to limit hunters to specific locations. Through the lottery program, we would continue to limit the number of hunters that could potentially be on the refuge at any given time to 18 persons (a maximum of six permit holders, each of whom can bring two guests), although we would not identify specific locations. The increase in the number of hunt dates over that proposed in Alternative 1 could have a more significant adverse effect on waterfowl populations using the refuge. A study conducted at Back Bay National Wildlife Refuge showed that mallard subjected to hunting pressure may have developed a conditioned frequent flight response to humans during the hunting season (Laskowski et al. 1993). This behavior may be detrimental because additional flight can increase hunting mortality and energy expenditure. Waterfowl in poor condition from frequent flights that burn critical body fat experience higher natural mortality rates (Haramis et al. 1986, Hepp et al. 1986). Bartelt (1987) found that human disturbance of family groups of Canada geese resulted in their increased hunting mortality. Poor body condition and low lipid reserves (body fat) during winter and the spring migration can affect the reproductive success of waterfowl (Ankney and MacInnes 1978, Raveling 1979, Krapu 1981). Thus, the potential for negative impacts to the life cycles of migratory birds should be greater with frequent, sustained human disturbance that would occur under this alternative.

Effects of hunting under this alternative would be similar to those described above for the proposed action both for threatened and endangered species and other non-hunted species of wildlife. However, the potential for temporary disturbance to threatened and endangered species would be greater if there were no restrictions on hunter access into the refuge.

3. Local Economy

Effects of this alternative would be similar to those described above for the proposed action. However, as the area available to the general public increases through land acquisition, the benefits to the local economy could also increase. With no limits on public hunter access into the refuge, more hunters could use the designated hunting areas of Plum Tree Island NWR, than under the preferred alternative, thus potentially bringing more dollars to the local economy.

4. Summary of Alternative 2 Impacts

By opening the refuge according to state regulations, impacts to vegetation and wildlife would be greater than those expected under alternative 1 due to potentially more hunters, more hunting days, and increased boat traffic. Overall, impacts to vegetation would still be relatively minimal since plants are dormant and we can regulate hunting locations. The effects on waterfowl would be greater as well due to increased hunting pressure. However, in light of how hunting regulations are set, this alternative would still not impact waterfowl populations in the Flyway.

As with alternative 1, no federal listed threatened or endangered species will be impacted due to the time of year that hunts are held, and because no bald eagles nest or congregate on the refuge. The local economy should receive even greater benefits due to more public recreational opportunities than alternative 1 provides.

C. Alternative 3 (No Action): Do not open designated portions of Plum Tree Island National Wildlife Refuge to waterfowl hunting

1. Vegetation

Under this alternative, no areas of the present refuge or future acquisitions would be open to hunting. The vegetative resources of the refuge, then, would not be affected by new human disturbance. However, with little public lands for hunting in the Poquoson area, trespass will continue to be a problem. Current disturbance levels by hunters and other locals, who are illegally accessing marsh areas, will continue.

2. Wildlife

Under this alternative, waterfowl hunting would not be allowed on refuge property. Theoretically, there would be no impact on waterfowl resulting from this alternative; however, the ATV trespass and illegal hunting rates on the refuge would be expected to continue and possibly expand to newly acquired lands. Local traditions and perceptions would promote continued trespass. Service visibility as a deterrent to trespass will be less because refuge staff time at Plum Tree Island NWR would not be required to implement and monitor a new hunt program. Enforcement of the refuge closure would continue to be a problem at Plum Tree Island NWR. Resource benefits from better enforcement of refuge hunt regulations would not occur under this alternative.

In addition, actions of local hunters have changed since the refuge was opened in 1999. Because the refuge did not exercise its landowner riparian rights during the initial years of its hunting program by installing and licensing permanent blinds, other hunters have established permanent blinds in the tidal waters immediately adjacent to refuge lands. While this does not inhibit refuge hunters from hunting within 500 yards of a permanent blind, it does present safety, hunt quality, and potential wildlife disturbance issues that the refuge did not anticipate. By making minor adjustments to the refuge hunt program as described herein and in the Refuge Hunting Plan, such as establishing permanent blinds by refuge staff, we can now alleviate those issues. Non-refuge hunters would not be able to license permanent blinds within 500 yards of any refuge blind, thereby reducing the current level of disturbance, enhancing hunter safety, and providing a higher quality experience due to less crowded conditions. If Alternative 3 were to be selected, hunters would still be able to establish their own permanent blinds often within several feet of the refuge shoreline, and history suggests that they will do so. Thus Alternative 3 impacts would be similar to Alternative 2 and greater than those predicted by Alternative 1.

Threatened and endangered species and other species of non-hunted wildlife should not be adversely impacted by this alternative.

3. Local Economy

Under this alternative, the local economy would not realize benefits from dollars spent by new refuge hunters. Hunting in the area would continue to be controlled by local landowners, thus restricting access to select individuals. Additional monies that might be spent by new hunters with access to a public hunting area would not come into the community.

4. Summary of Alternative 3 Impacts

Vegetation would be least impacted by this alternative, although illegal trespass would continue to impact vegetation to some degree. Boat access would likely be greater than from alternative 1 and about the same as under alternative 2. Impacts to waterfowl and other wildlife would be similar to alternative 2 because we would not be able to regulate hunting in the immediate vicinity of refuge property. As in the other two alternatives, waterfowl populations at the Flyway level would not be impacted due to the hunting regulations framework procedures. No federal listed threatened or endangered species will be impacted due to the time of year that hunts are held, and because no bald eagles nest or congregate on the refuge. The local economy would receive no benefit from additional recreational opportunities from visitors or those who currently do not have access to hunting locations near the refuge.

D. Cumulative Impacts Assessment

1. Anticipated Direct and Indirect Impacts of Proposed Waterfowl Hunt on Wildlife Species

A. *Alternative 1 - Proposed Action*

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

Migratory game birds are those bird species so designated in conventions between the United

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

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

Because the Service is required to take abundance of migratory birds and other factors into consideration, the Service undertakes a number of surveys throughout the year in conjunction with the Canadian Wildlife Service, State and Provincial wildlife-management agencies, and others. To determine the appropriate frameworks for each species, we consider factors such as population size and trend, geographical distribution, annual breeding effort, the condition of breeding and wintering habitat, the number of hunters, and the anticipated harvest. After frameworks are established for season lengths, bag limits, and areas for migratory game bird hunting, migratory game bird management becomes a cooperative effort of State and Federal governments.

After Service establishment of final frameworks for hunting seasons, the States may select season dates, bag limits, and other regulatory options for the hunting seasons. States may always

be more conservative in their selections than the Federal frameworks but never more liberal. For example, in 2006-2007, Virginia limited the bag limit for ducks to five (5), whereas the Federal framework allowed six (6).

In Virginia, once the Federal framework is established, decisions on waterfowl hunting seasons and bag limits are made by the Board of Game and Inland Fisheries. The sequence of the regulatory process is as follows:

- Staff presents frameworks as approved by the Service to the public;
- Staff evaluates framework and public comment;
- Staff makes recommendations on seasons to the board;
- Board reviews recommendations and public input;
- Board approves, amends or rejects staff recommendations.

Season dates and bag limits for National Wildlife Refuges open to hunting are never longer or larger than the State regulations, but may be more restrictive. At Plum Tree Island NWR, the season length and number of hunt days per week are both more restrictive for waterfowl than the State typically allows.

The western shore of the Chesapeake Bay, including the marshes of Plum Tree Island NWR, have long provided habitat for populations of migrating and wintering waterfowl. Mid-winter waterfowl surveys conducted in Virginia from 2002 – 2006 found an average of 1,165 birds of all waterfowl species in the flight segment that includes Plum Tree Island NWR (VA-02-020) (<http://www.fws.gov/birddata/databases/mwi/mwidb.html>). Numbers observed ranged from 573 in 2002 to 3,141 in 2004. Since these surveys occur over a short timeframe and are simply snapshots in time, the actual numbers are not as important as trends that can be evaluated over time as indices of populations. State population indices from the 2001-2005 mid-winter inventories averaged the following: 44,503 dabbling ducks; 66,696 diving ducks; 18,644 snow geese; 98,501 Canada geese; 16,454 Atlantic brant, and 7,363 Tundra swans, for a total of

252,161 birds from these categories. Atlantic Flyway five-year average population estimates are 1,186,438 ducks and 1,384,937 geese (Serie and Raftovich 2005).

The total current area open for migratory bird hunting on Plum Tree Island NWR is 211 acres, representing 6.03% of the total refuge area. This leaves 3,291 acres of tidal marsh, creeks, bays, and potholes undisturbed and available for use by waterfowl and other wildlife. Since the majority of the original 3,276 acres of the refuge contains munitions and explosives of concern, it is unlikely that any of this area will be deemed safe for public access and would therefore be permanently available as undisturbed habitat. The final determination on the safety aspects of opening these areas will be made in consultation with the Corps of Engineers subsequent to completion of their on-going studies. If additional areas were acquired in the future and added to the existing hunt program, we would ensure that the total area open for migratory bird hunting remains within the 40-percent limit prescribed by the Migratory Bird Conservation Act. Waterfowl harvests would continue to occur as they have historically in this area, but based on

the methodology used in setting harvest regulations, it is clear that the overall numbers would not adversely affect refuge purposes or State or Atlantic Flyway populations.

The average daily success rate for duck hunters is 12.3% success and for goose hunters is 13.0% success (USFWS 2006). Under the proposed action, the refuge will offer a maximum of 540 waterfowl hunter days (30 days x 6 locations x 3 hunters each = 540). This equates to an estimated additional 66 ducks and 70 geese harvested at the refuge each year, based on full participation and average success. It is unlikely that these numbers will ever be reached since our experience in administering the hunt since 2003 indicates that fewer hunters participate than are permitted. Between 2001 and 2004, duck harvest in Virginia averaged 148,575 birds and Canada goose, snow goose and brant harvest averaged a combined total of 68,850 over the same period. The high end estimate of the refuge harvest would therefore represent 0.0444% of Virginia's duck harvest, and 0.1016% of Virginia's goose and brant harvest. The potential refuge harvest is even less significant when compared to Atlantic Flyway annual harvests. Between 2001 and 2004, the average annual duck harvest in the Atlantic Flyway was 1,619,550 and the annual Canada goose, snow goose and brant harvest combined averaged 755,925. The anticipated maximum harvest at Plum Tree Island would represent 0.0041% of the Flyway duck harvest and 0.0093% of the combined goose and brant harvest. To further extrapolate to the national scale, the duck harvest in the United States from 2001-2004 averaged 12,687,975. The anticipated maximum harvest at Plum Tree Island would represent 0.0005% of the national harvest of ducks.

Migratory waterfowl hunting at the refuge will have little or no effect on non-hunted resident and migratory species. As noted, hunting will be restricted to Cow Island and potentially new areas that may be acquired in the future. Waterfowl hunters will currently be utilizing hunting blinds at a maximum of six locations around Cow Island. With the exception of bald eagles, no threatened or endangered species are active in the area of the refuge during the hunting season. There is little upland habitat on Cow Island, further reducing the impact to many resident species. Hunting season also does not overlap with the nesting season for any migratory birds and therefore, long-term future impacts are not likely.

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

Department of the Interior, MS MBSP-4107-ARLSQ, 1849 C Street, NWR, Washington, D.C. 20240.

B. *Alternative 2 – Open According to State Regulations*

Hunting under this alternative would still occur only on Cow Island for the foreseeable future. Hunting during the full State season could cause some additional impacts due to increased disturbance and potentially more harvest. There would also be potential increases in the distribution and use of various habitats by migratory birds. If hunting pressure were constant and widespread on adjacent public waters, it could affect the birds' activity budgets and reduce their foraging time. With the availability of over 94% of the original refuge not open to hunting, there should be ample habitat for birds to escape hunting pressure. Despite the additional hunting pressure, there will be no appreciable long-term impact on waterfowl populations using the Atlantic Flyway due to the biologically-based methodology of setting hunting regulations, as described above.

C. *Alternative 3 – No Action*

Despite the fact that hunting on Cow Island would not occur under this alternative, it would actually result in increased impacts similar to Alternative 2. This is because hunters could, as they have in the past, establish permanent hunting blinds in state waters immediately adjacent to Cow Island and hunt from them according to State regulations. By exercising our riparian rights, we can prohibit private hunting blinds from being established within 500 yards of any blind we license on Cow Island. By then restricting season dates and days per week available for hunting, we provide more undisturbed habitat for all wildlife in the area than by taking no action at all.

2. *Anticipated Direct and Indirect Impacts of Proposed Waterfowl Hunt on Threatened or Endangered Species*

A. *Alternative 1 - Proposed Action*

As noted previously, an Intra-Service Section 7 Evaluation was conducted on the proposed action and is attached. A total of four species were evaluated: Bald eagle, piping plover, loggerhead sea turtle, and northeastern beach tiger beetle. The evaluation indicates that the proposed action is unlikely to affect any threatened or endangered species.

B. *Alternative 2 – Open According to State Regulations*

With the possible exception of the bald eagle, Alternative 2 would create no additional disturbance to any threatened or endangered species. Since there are no known nests or concentration areas on the refuge, or within 1320 feet of Cow Island, there would be no conflict with the Bald Eagle Management Guidelines for Virginia under this alternative. There may be

some additional disturbance due to discharge of firearms or boat activity above what would occur under Alternative 1 due to additional hunting days available.

C. *Alternative 3 – No Action*

The effects under this alternative would be similar to Alternative 2 for reasons cited above.

3. Anticipated Direct and Indirect Impacts of Proposed Waterfowl Hunt on Refuge Programs, Facilities, and Cultural Resources

Other Refuge Wildlife-Dependent Recreation

A. *Alternative 1 - Proposed Action*

The public would be allowed to harvest a renewable resource, and the refuge would be promoting a wildlife-dependent recreational opportunity that is compatible with the purpose for which the refuge was established. The public would have an increased awareness of the refuge and the National Wildlife Refuge System, and public requests for hunting opportunities on land acquired within the expanded boundary would be met. The public would have the opportunity to engage in a traditional recreational pursuit, which is culturally important to the local community.

This alternative would also allow the public to enjoy hunting at no or little cost in a region where few public hunting opportunities are available.

There would be no conflicts with other priority recreational uses. The original refuge area is a former bombing range and therefore closed to all public entry and use. Cow Island is only open for waterfowl hunting. Since it is nearly all marsh, and is accessible only by boat, it does not lend itself to other priority uses.

B. *Alternative 2 – Open According to State Regulations*

Impacts would be similar to Alternative 1. While more opportunity would be available for hunters, we would likely sacrifice quality for quantity. We believe by offering hunting on fewer days, we increase the probability of success. By establishing a maximum of six (6) hunting locations, we also reduce the possibility of overcrowding in a particular area. Both of these are criteria for a high quality hunting program as described in the Refuge Manual (USFWS 1986).

C. *Alternative 3 – No Action*

The public would not have the opportunity to hunt on public lands, but would have to compete for the few available locations through the State blind licensing regulations. While potentially 540 individuals could take advantage of public opportunities described under the proposed action, only those who received blind permits could hunt within 500 yards of each other. The refuge would not then be achieving one of its stated goals to provide wildlife-dependent recreation that is compatible with the purposes for which the refuge was established. Visitors

would not have an increased awareness of the refuge and the National Wildlife Refuge System; nor would the Service be meeting public use demand. Public relations would not be enhanced with the local community. There would be no conflict between hunters and refuge users, as there would be no refuge users.

Refuge Facilities

A. *Alternative 1 - Proposed Action*

There are currently no facilities on the refuge. If we establish blinds for hunters using Cow Island, they will be temporary and removed at the end of each hunting season.

B. *Alternative 2 – Open According to State Regulations*

Under this alternative, we would not create any temporary blinds, so there would be no impact.

C. *Alternative 3 – No Action*

Same as Alternative 2; no facilities would be established and there would be no impact.

Cultural and Historic Resources

A. *Alternative 1 - Proposed Action*

There are two known prehistoric sites on Cow Island, as designated by the Virginia Department of Historic Resources. Hunting locations would be sited away from these locations and therefore no impact is expected. There is also one known historic site and one known archeological site on the original refuge area, formerly a bombing range. Added law enforcement patrols directed toward managing the waterfowl hunt would have the added benefit of protecting areas of the original refuge from trespass and thereby providing some additional protection for historic and cultural resources.

B. *Alternative 2 – Open According to State Regulations*

The potential impact is essentially the same as for Alternative 1, except that we will not identify specific hunting locations. While hunters could choose locations at or near the prehistoric sites, it is unlikely they would choose to do so, based on our experience to date.

C. *Alternative 3 – No Action*

Under this alternative, there would not be additional law enforcement patrols directed toward managing the waterfowl hunt, and therefore somewhat less protection for the known historic and cultural resources due to trespass. We would continue to monitor all refuge lands during routine law enforcement patrols.

4. Anticipated direct and Indirect Impacts of the Proposed Waterfowl Hunt on Refuge Environment and Community

In this section we address impacts to the refuge environment such as soils, vegetation, air quality, water quality, and solitude. We also look at the impacts on the community, such as the economic and recreational ramifications. Some of these, such as vegetation, economy, and recreation have already been discussed, and those discussions will not be repeated.

A. *Alternative 1 - Proposed Action*

The refuge expects no significant adverse impacts of the proposed action on the refuge environment. Some disturbance to surface soils would occur in areas selected for hunting, however impacts would be minimal and confined to only six discreet areas where hunting would occur. If impacts to soils or vegetation become a concern, we could adjust the six hunting locations to allow soils and vegetation in previous areas to recover.

Air and water quality can be impacted by use of two-stroke outboard boat motors. However, the impacts due exclusively to the proposed action are expected to be minimal and not significantly above what has occurred historically, or what would occur in the absence of the proposed action. Around Cow Island, the impacts from a restricted hunting season as proposed and implemented would be less than either of the other alternatives, due to the additional hunting and accompanying boat use that would be expected.

The refuge is closed to all other uses, so impacts to other visitors seeking solitude are not applicable. Additional impacts to neighbors' solitude are similarly negligible due to the remote location of Cow Island and the fact that waterfowl hunting occurs on private lands and State waters all around the refuge.

B. *Alternative 2 – Open According to State Regulations*

The impact to soils, vegetation, air quality, water quality and solitude would increase slightly due to the additional days that could be hunted on the refuge. Even with the increased use, it is unlikely that impacts would be significant to the human environment due to the seasonal nature of the activity when vegetation is dormant. The natural impact from high tides and storms in this dynamic system would likely have far more impact on the physical environment than temporary disturbances due to hunters. Increased boat use would have additional impacts to air and water quality, especially if two-stroke motors were in use. When compared to overall boating activity witnessed by staff throughout the year, the activity by refuge hunters is insignificant, both directly and cumulatively.

C. *Alternative 3 – No Action*

The impacts would be similar to Alternative 2, except no use would occur on the refuge, but

from floating or stationary blinds adjacent to Cow Island. Therefore the effects on solitude and water and air quality would be similar, but effects on soils and vegetation would not occur.

5. Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts

A. *Alternative 1 - Proposed Action*

The waterfowl hunting program is the only public use program of any kind that has ever been offered at the refuge. We do not anticipate any other hunting programs at this time. If additional lands are acquired, and if adding them into the current hunt program would have similar impacts to those discussed herein, they may be added. However, since the refuge boundary was expanded in 1993, only three tracts totaling 226 acres have been added to the refuge. The land acquisition budget for the Service has been stagnant or declining since 1998. Within the EVRNWRC, Plum Tree Island would likely be ranked the lowest in terms of priority for additional land acquisition funds among the four refuges in the Complex. There may be some areas within the original refuge area that are cleared for use sometime in the future, once the Corps completes its assessments. The area in the northeast section of the refuge is currently hunted by those who have licensed permanent blinds in state tidal waters adjacent to refuge lands. If these areas are determined to be safe from munitions and explosives of concern, we may incorporate them into the existing hunt program. In this case, including these areas into the restricted refuge hunt program as discussed herein would result in less impact than what is now occurring, similar to the situation described at Cow Island prior to the refuge exercising its riparian rights.

B. *Alternative 2 – Open According to State Regulations*

See discussion above under Alternative 1.

C. *Alternative 3 – No Action*

If no additional lands are acquired, or if we are never able to include existing areas of the original refuge into the restricted refuge program, impacts from the existing level of waterfowl hunting will continue and will be greater than if limited under a controlled refuge hunt.

6. Cumulative Impacts Associated with Other Refuge Hunt Programs

A. *Alternative 1 - Proposed Action*

The Service recognizes that all uses of refuge lands create some impact to refuge wildlife and their habitats. These uses, when taken together, have the potential to create accumulating impacts as the number of refuge uses, or the number of refuges that permit recreational uses, increases. Because of this potential, refuge uses are limited to those uses which have been formally determined to be compatible with the purposes for which the refuge was established

and with the Mission of the National Wildlife Refuge System. When these formal compatibility determinations are reviewed (every ten to fifteen years) possible accumulating impacts that may have occurred in succeeding years will be considered and will be addressed as necessary. Accumulated impacts are not expected to have significant impacts.

The primary reason for this in terms of waterfowl populations is the biologically-based methodology used for setting hunting regulations described above in Section V.D.1. We have acknowledged that at the local scale, there will likely be some negative impact to individuals of the species being hunted and possibly some non-target species. However, there is no evidence to suggest that hunting causes negative impacts to wildlife populations, especially for waterfowl, whose populations are examined by multiple agencies across the continent several times each year. The process allows for hunting pressure to be regulated annually in response to previous harvest, habitat condition, and other factors. Hunting for a particular species may even be curtailed until populations recover, as was done with the Atlantic Flyway Canada goose from 1995 to 1998. Canada goose pair counts dropped to an historic low of just over 29,000 in 1995 so the season was closed. By 1999, the population had rebounded to over 77,000 pairs, and in 2006 numbered over 160,000 pairs. This is a clear demonstration that the process works. We have shown that the estimated contributions of the refuge hunting program to the state, Flyway and U.S. duck harvest are miniscule. The same is likely true of any individual refuge hunt program. Any cumulative impacts to waterfowl from combined refuge hunts would be accounted for by the annual regulatory process.

B. *Alternative 2 – Open According to State Regulations*

The same analysis holds true for Alternative 2 as described under Alternative 1. While the local impact would be slightly greater, though still negligible, the cumulative impact on populations is absorbed into the overall management of waterfowl at the state, Flyway, national and continental scales. Waterfowl populations will continue to be managed for all the benefits they accrue to society, including providing a harvestable surplus.

C. *Alternative 3 – No Action*

For the reasons stated previously concerning the amount of hunting that occurs in State waters around the refuge, the impact of taking no action would be similar to Alternative 2 at the local scale. The rationale described under Alternative 1 for managing populations applies to Alternative 3 as well.

VI. Consultation and Coordination

Public comments on the proposed boundary expansion were the basis for the Service developing a proposal to allow hunting on the Plum Tree Island NWR. In these public meetings, local citizens expressed a desire to maintain traditional hunting and to develop public hunting opportunities in the Poquoson area. The Service has worked with staff of the Virginia Department of Game and Inland Fisheries in developing the proposed action and alternatives.

Input was sought from various local hunting groups regarding the views of the sporting community. City officials provided input on the Service's proposal. Refuge staff consulted with the Services' endangered species personnel in the Gloucester, Virginia office to assess potential effects of a hunting program on threatened and endangered species on or near the refuge.

VII. Regulatory Compliance

As noted in the Introduction section, Plum Tree Island National Wildlife Refuge (NWR) was opened for waterfowl hunting during the 1999-2000 hunting season. At that time, the refuge was administered as a satellite of Back Bay NWR in Virginia Beach, Virginia. Prior to the opening, Back Bay NWR prepared all the necessary documents required for opening a national wildlife refuge to hunting. They included: A hunt plan, compatibility determination, environmental assessment, decision document (finding of no significant impact), Endangered Species Act section 7 evaluation, letter of concurrence from the Commonwealth of Virginia, draft news release, and draft refuge-specific regulations. Back Bay NWR administered a hunting program at the refuge from 1999 through the 2002-2003 season.

In 2003, administrative responsibility for the refuge was transferred to the Eastern Virginia Rivers NWR Complex (EVRNWRC) headquartered in Warsaw, Virginia. We have administered the waterfowl hunting program from the headquarters and from our sub-office in Charles City, Virginia from 2003 to the present. Our experience in managing the hunt over the past three seasons indicates that some minor changes are needed to ensure that the original goals of offering safe, high quality hunting opportunities, while providing resting and feeding opportunities for wintering waterfowl, are met. The minor changes include limiting the number of potential hunting locations on Cow Island to six (6) and identifying them as required hunting locations, reducing the dates open for hunting to the last two segments of the State season with a maximum of 30 days open for hunting, changing the days of the week open for hunting from Tuesdays, Thursdays and Saturdays to Wednesdays and Saturdays, and offering full days of hunting rather than half days on the days we are open. None of these minor changes, either individually or cumulatively, will cause a significant change in the environmental impacts of our hunting program beyond what was predicted in 1998. The net effect of these changes will be to strengthen our management control over the procedures of the hunt, and to further reduce potential disturbance and impact to vegetation and wildlife. These minor changes are reflected in this revised assessment and in the accompanying revised hunt plan.

Also in 2003, the Fund for Animals filed a lawsuit against the U.S. Fish and Wildlife Service (Service), alleging non-compliance with the National Environmental Policy Act. As a result, the Service is required to amend environmental assessments that describe hunting programs at sixteen national wildlife refuges located in the Northeast Region. The amended environmental assessments will address the cumulative impacts of hunting at all refuges which were named in the lawsuit. This document provides a complete assessment of the waterfowl hunting program at Plum Tree Island NWR, including the minor changes reflected in the accompanying hunt plan, and the cumulative impacts of the program.

The original Draft EA was made available for public review and comment on July 17, 1998. A news release was sent to local newspapers notifying the public that copies of the EA were available from the Back Bay National Wildlife Refuge office, and also available for review at the Poquoson City Library and City Hall. The comment period closed August 28, 1998. The Final Environmental Assessment was completed in March 1999, and made available for public review during the summer of 1999.

Public response to the revised draft EA

This revised EA, and accompanying revised Waterfowl Hunting Plan, was released for a 31-day public review and comment period. News releases were sent to the Daily Press, Virginian Pilot, Yorktown Crier, and other media outlets. Copies of the draft revised EA were available for review at the Poquoson City Library and City Hall and at refuge offices in Warsaw, Virginia and Charles City, Virginia, and it was also posted on the refuge website: www.fws.gov/northeast/plumtreeisland.

We received a total of three written comments on the Draft EA. Of these, one was supportive of the Service's proposed action of continuing a public waterfowl hunting program, one was opposed and one cited concern about the length of the comment period. We replied directly to the individual concerned about the length of the comment period, and that issue is also addressed below in our response to comments made by the Humane Society of the United States (HSUS).

Safari Club International (SCI) wrote in support of waterfowl hunting on the refuge. Issues cited for their support included benefits to local waterfowl populations and the economic support provided by the hunting community toward conservation programs. SCI recommended highlighting reductions in Canada goose populations from waterfowl hunting, adding components to our cumulative impact analysis addressing the potential loss of revenue if refuges were closed to hunting, focus more on the beneficial cumulative impacts from hunting, and highlighting coordination with the State in cooperatively managing wildlife in Virginia.

Response: We note the comments and generally agree with them. In terms of Canada goose population reduction, the need to reduce Canada geese is limited to resident populations. The refuge is not open during the early resident season. We believe we have adequately assessed the cumulative impacts of the proposed action (see pages 18 to 28). We also note on pages 20 and 28 that we work closely with the Virginia Department of Game and Inland Fisheries in coordinating this hunt program.

The Humane Society of the United States (HSUS) provided 23 pages of comments, generally in opposition to the Service's proposed action. The majority of the comments are general in nature and do not specifically reference this EA. However, some of the general comments relate to the processes undertaken in this EA and waterfowl management in general. We provide the following responses to correspond to the headings found in the general HSUS comment letter:

Procedural objections - HSUS alleges inadequate notice and availability of the draft documents, and suggests that the Service provided itself with inadequate time to conduct a

thorough analysis of impacts. **Response:** We note the comment, but disagree with its findings. The original EA was released for public comment and review prior to opening to public waterfowl hunting for a 43-day period. The Final EA was also made available for public review. The draft and final rules were published in the Federal Register prior to opening in 1999. The revised EA provided approximately 10 pages of additional information concerning the cumulative impacts of the three alternatives we examined, and was available on the refuge website and other locations for 31 days.

FWS Legal Obligations – HSUS refers to several laws, among them the Refuge Recreation Act, National Wildlife Refuge System Administration Act, and the National Wildlife Refuge Improvement Act. HSUS cites requirements regarding available funding, compatibility standards, and monitoring, and alleges a failure by the Service to comply with these requirements. **Response:** We note the comments but disagree with its findings. Within the staffing and management capability funding provided for refuge operations, there is sufficient funding to conduct the proposed action. A compatibility determination was conducted by the refuge manager prior to opening the refuge to hunting in 1999. HSUS suggests hunting is incompatible because of the potential impact on other users. However, the refuge tract open to hunting is accessible only by water and does not lend itself to other uses. Boating to this tract during the summer months when boating is typically more popular would likely be incompatible due to the presence of nesting birds. This is not an issue in the fall when waterfowl hunting occurs. The remainder of the refuge is a former bombing range and is closed to the public for safety reasons. We use data from mid-winter waterfowl surveys conducted by the Virginia Department of Game and Inland Fisheries as an index of waterfowl populations on and around the refuge. We have also conducted our own aerial surveys for waterfowl, as well as ground based surveys for other wildlife and plants as noted in appendices A and B.

NEPA Compliance – HSUS alleges that the Service has failed to comply with the provisions of the National Environmental Policy Act. Specifically mentioned are prior litigation and cumulative impacts, a reasonable range of alternatives, and public participation. Regarding prior litigation and cumulative impacts, HSUS alleges that the Service has failed to comport with the requirements of the lawsuit that resulted in the issuance of this revised EA. HSUS also alleges the Service failed to evaluate a reasonable range of alternatives, including non-lethal methods of population control. Lastly, HSUS alleges the Service failed to meaningfully engage the public. **Response:** Regarding cumulative impacts, we issued this revised EA in order to better address the cumulative impacts of our proposed action and other alternatives. Pages 18-28 of this document address the cumulative impacts to waterfowl, threatened and endangered species, other wildlife-dependent recreation, refuge facilities, cultural and historic resources, and the refuge environment and community, including the economy. Regarding alternatives, we examined a reasonable range of alternatives, including the no action alternative. Since this is not a population control hunt, there was no reason to include a non-lethal alternative other than the no action alternative, which in this case would likely result in more hunting near the refuge than our proposed action. Regarding public involvement, we are always in communication with the public regarding hunting or any other management activity on the refuge. We have made minor modifications to our program in response to concerns from citizens. As noted above, we fully

complied with NEPA guidelines in soliciting public comments on the original and revised draft EAs. We posted the draft revised EA on our website, along with our revised hunt plan, to give interested parties from across the country an opportunity to comment. We received three written comments, which in our experience, is typical of what we have received in response to other EAs issued from this refuge.

ESA Compliance – HSUS alleges non-compliance with the Endangered Species Act regarding preparation of a Biological Assessment and Biological Opinion. **Response:** In addition to the in-depth analysis we conducted as part of this document, we also completed a Section 7 Intra-Service Evaluation. This evaluation determined that the proposed action is not likely to have an affect any of the federally-threatened species that may occur on the refuge, thereby negating the requirement for a Biological Assessment and Biological Opinion.

Role of Non-Consumptive Wildlife Recreation – HSUS discusses trends in wildlife recreation showing increases in non-consumptive use and decreases in hunting. They suggest that the Service has failed to capitalize on these trends in terms of potential economic gain for the refuge system. **Response:** See our comments above under “FWS Legal Obligations.” There is no non-consumptive use on this refuge due to its former use as a bombing range and the fact that areas not subject to bombing are accessible only by water and therefore not conducive to other uses.

Potential Hunts Proposed on National Wildlife Refuges – HSUS mentions several types of hunting in this section of their comment letter, but only one, waterfowl hunting, pertains to this EA. In their general comments, HSUS focuses primarily on the population status of four waterfowl species (black duck, pintail, greater and lesser scaup) and the king rail. They imply that these species should not be hunted because their populations have remained below objective levels for some time. **Response:** This issue is beyond the scope of this EA. HSUS states that the Court (see *The Fund for Animals v. Hall*, 448 F. Supp. 2nd. 127 (D.D.C. 2006) determined that the process for establishing frameworks for hunting migratory birds under the Migratory Bird Treaty Act is not the functional equivalent of NEPA’s environmental review process. However, this framework is the process by which hunting regulations are developed in the United States, and wherein legally hunted species are listed, along with respective bag limits. The proposed action in this EA is not separate and distinct from the regulatory framework, but is integrally tied to it. We must work within the framework and incorporate its processes into any waterfowl hunting proposal. Our proposed action will have considerably less impact on waterfowl than the other alternatives, including no action. We have demonstrated that the potential take of waterfowl through our proposed action is expected to be extremely minimal when compared to the total harvest in Virginia, the Atlantic Flyway, and the United States and therefore adds very little to the cumulative impact on waterfowl populations (see page 21). In addition, we note on page 27 how the regulatory framework has been used in the recent past to close the hunting season for a particular species (Atlantic Flyway population of Canada goose) in order to assist in rebuilding the population.

Summary of public comments

In summary, we received a total of three written comments, one in support from Safari Club International, one expressing concern over the length of the comment period, and one from the Humane Society of the United States generally opposing hunting but not specifically commenting on this document. All comments were considered. We believe we have provided sufficient and well-documented justification for a finding of no significant impact under the National Environmental Policy Act.

VII. Literature Cited

- Ankney, C. D. and C. D. MacInnes. 1978. Nutrient reserves and reproductive performance of female lesser snow geese. *The Auk*. 95:459-471.
- Bartelt, G. A. 1987. Effects of disturbance and hunting on the behavior of Canada goose family groups in East central Wisconsin. *J. Wildl. Manage.* 51:517-522.
- Cathamer, D.F. and J.A. Dobovsky. 1995. Waterfowl population status, 1995. U.S. Fish and Wildlife Service, Laurel, MD. 45pp.
- Haramis, G. M., J. D. Nichols, K. H. Pollock, and J. E. Hines. 1986. The relationship between body mass and survival of wintering canvasbacks. *The Auk*. 103:506-514.
- Hepp, G. R., R. J. Blohm, R. E. Reynolds, J. E. Hines, and J. D. Nichols. 1986. Physiological condition of autumn-banded mallards and its relationship to hunting vulnerability. *J. Wildl. Manage.* 50:177-183.
- Krapu, G. L. 1981. The role of nutrient reserves in mallard reproduction. *The Auk*. 98:29-38.
- Laskowski, H., T. Leger, J. Gallegos, and F. James. 1993. Behavior Response of Greater Yellowlegs, Snowy Egrets and Mallards to Human Disturbance at Back Bay National Wildlife Refuge, Virginia. U.S. Fish and Wildlife Service. RMS 51510-01-92.
- Raveling, D. G. 1979. The annual cycle of body composition of Canada geese with special reference to control of reproduction. *The Auk*. 96:234-252.
- Serie, J. and B. Raftovich. 2005. Atlantic Flyway Waterfowl Harvest and Population Survey Data. U.S. Fish and Wildlife Service Division of Migratory Bird Management, Laurel, MD.
- Silberhorn, G.M. 1981. York County and Town of Poquoson Tidal Marsh Inventory. Virginia Institute of Marine Science, Gloucester Point, VA. 67 pp.
- U.S. Army Corps of Engineers. 2005. Environmental Assessment. Plum Tree Island National Wildlife Refuge, Poquoson, Virginia, Tower Removal. U.S. Army Corps of Engineers, Norfolk District, Norfolk, VA.
- U.S. Army Corps of Engineers. 2006. Draft Site Inspection Report for the Plum Tree Island Range. U.S. Army Corps of Engineers, Norfolk District, Norfolk, VA.
- U.S. Fish and Wildlife Service. 1986. Refuge Manual: National Wildlife Refuge System. U.S. Fish and Wildlife Service, Washington, D.C.
- U.S. Fish and Wildlife Service. 1993. Final Environmental Assessment and Land Protection Plan. Proposed Expansion of the Boundary of Plum Tree Island National Wildlife Refuge. U.S. Department of the Interior, Fish and Wildlife Service, Northeast Region, Hadley, MA.

**Appendix A. Vascular Plant List
Plum Tree Island NWR**

The following list of vascular vegetation is divided into three parts: 1) beach ridge, 2) marsh, and 3) upland habitats. The individual species are listed by the most widely accepted common name followed, alphabetically, by the scientific name. The list was compiled with the help of numerous manuals and plant guides and the assistance of Joan Wright, a Back Bay NWR volunteer during 1989.

BEACH RIDGE

Common ragweed	<i>Ambrosia artemisiifolia</i>
American beach grass	<i>Ammophila breviligulata</i>
Orach	<i>Atriplex patula</i>
Groundsel bush	<i>Baccharis halimifolia</i>
Sea rocket	<i>Cakile edentula</i>
Hedge bindweed	<i>Convolvulus sepium</i>
Sedge	<i>Carex grayi</i>
Hackberry	<i>Celtis laevigata</i>
Sandspur	<i>Cenchrus tribuloides</i>
Mexican tea(goosefoot)	<i>Chenopodium ambrosioides</i>
Butterfly pea	<i>Clitoria mariana</i>
Leafless sedge	<i>Cyperus haspan</i>
Rough buttonweed	<i>Diodia teres</i>
Dog fennel	<i>Eupatorium capillifolium</i>
Eyebane	<i>Euphorbia maculata</i>
Prostate spurge	<i>Euphorbia supina</i>
Sweet everlasting	<i>Gnaphalium obtusifolium</i>
Swamp rose mallow	<i>Hibiscus moscheutos</i>
Marsh elder	<i>Iva frutescens</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Green carpet weed	<i>Mollugo verticillata</i>
Climbing hempweed	<i>Mikania scandens</i>
Wax myrtle	<i>Myrica cerifera</i>
Short dune grass	<i>Panicum amarum</i>
Common reed	<i>Phragmites australis</i>
Pokeweed	<i>Phytolacca americana</i>
Black (Wild) cherry	<i>Prunus serotina</i>
Winged sumac	<i>Rhus copallina</i>
Poison ivy	<i>Rhus radicans</i>
Dewberry	<i>Rubus hispidus</i>
Curley dock	<i>Rumex crispus</i>
Russian thistle(saltwort)	<i>Salsola kali</i>
Tiny-headed goldenrod	<i>Solidago microcephala</i>

Seaside goldenrod
Salt hay
Seablite
Common mullein
Cocklebur

Solidago sempervirens
Spartina patens
Suaeda linearis
Verbascum thapsus
Xanthium strumarium

MARSH

Orach
Groundsel bush
Sea rocket
Sedges
Saltgrass
Marsh fimbriatilis
Marsh elder
Black needlerush
Blackgrass
Seashore mallow
Sea lavender
Glasswort
Saltmarsh bulrush
Nightshade
Cordgrass
Salthay
Mint

Atriplex patula
Baccharis halimifolia
Cakile edentula
Cyperus spp.
Distichlis spicata
Fimbristylis castanea
Iva frutescens
Juncus roemerianus
Juncus gerardi
Kosteletzkya virginica
Limonium carolinianum
Salicornia europaea
Scirpus robustus
Solanum americanum
Spartina alterniflora
Spartina patens
Teuchrum canadense

UPLAND

Groundsel bush
Chinquapin
Red cedar
Wax myrtle
Loblolly pine
Southern red oak
Poison ivy
Blackberry
Woolgrass
Fringed greenbrier

Baccharis halimifolia
Castanea pumila
Juniperus virginiana
Myrica cerifera
Pinus taeda
Quercus falcata
Rhus radicans
Rubus argutus
Scirpus cyperinius
Smilax bona-nox

Appendix B. Bird List

Common Loon	Clapper Rail	Indigo Bunting
Brown Pelican	Black-necked Stilt	Sharp-tailed Sparrow
Double-crested	American Oystercatcher	Seaside Sparrow
Cormorant	Whimbrel	Song Sparrow
Tundra Swan	Willet	Eastern Meadowlark
Snow Goose	Greater Yellowlegs	Red-winged Blackbird
Canada Goose	Lesser Yellowlegs	Brown-headed Cowbird
Atlantic Brant	Short-billed Dowitcher	Boat-tailed Grackle
Mallard	Dunlin	American Goldfinch
American Black Duck	Semi-palmated Sandpiper	
American Wigeon	Sanderling	
Blue-winged Teal	Black-bellied Plover	
Green-winged Teal	Western Sandpiper	
Ring-necked Duck	Laughing Gull	
Canvasback	Ring-billed Gull	
Greater Scaup	Herring Gull	
Lesser Scaup	Great Black-backed Gull	
Common Goldeneye	Common Tern	
Bufflehead	Forster's tern	
White-winged Scoter	Least Tern	
Surf Scoter	Sandwich Tern	
Black Scoter	Royal Tern	
Oldsquaw	Black Skimmer	
Red-breasted Merganser	Mourning Dove	
Hooded Merganser	Kingfisher	
Vulture	Chimney Swift	
Red-shouldered Hawk	Eastern Kingbird	
Northern Harrier	Tree Swallow	
Bald Eagle	Purple Martin	
Osprey	Rough-winged Swallow	
Bobwhite	Barn Swallow	
Great Blue Heron	American Crow	
Great Egret	Fish Crow	
Snowy Egret	House Wren	
Tri-colored Heron	Marsh Wren	
Little Blue Heron	Sedge Wren	
Green Heron	Catbird	
Yellow-crowned Night	Starling	
Heron	Prairie Warbler	
American Bittern	Yellow Warbler	
Glossy Ibis	Common Yellowthroat	
Virginia Rail	Yellow-breasted Chat	

Appendix C. Intra-Service Section 7 Consultation

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Originating Person and Station Name: **Joseph F. McCauley, Eastern Virginia Rivers NWR Complex**

Telephone and Facsimile Numbers: **Telephone: 804-333-1470; Fax 804-333-3396**

Date: **February 23, 2007**

Project Title: **Waterfowl Hunting on the Cow Island tract of Plum Tree Island National Wildlife Refuge**

- I. Service Program: **National Wildlife Refuge System, Plum Tree Island National Wildlife Refuge, a satellite of Eastern Virginia River National Wildlife Refuge Complex**
- II. Geographic Area Including Name of County/City and State and Specific Project Location:

The 3,502-acre Plum Tree Island NWR is located in the north and eastern portions of the City of Poquoson, Virginia. The Cow Island tract is located at the northwestern edge of the refuge.

Latitude: 37° 10' Longitude: 76° 21'

- III. Proposed Activity:

The proposed activity is to continue the waterfowl hunt program on the Cow Island tract of the Plum Tree Island NWR. A Section 7 Biological Evaluation was previously completed for the Plum Tree Island NWR waterfowl hunt program in 1998. The 1998 consultation found that waterfowl hunting was not likely to adversely affect the bald eagle, piping plover, or peregrine falcon (then listed as endangered). We prepared this revised consultation to include the recently discovered Northeastern Beach Tiger Beetle, and to document the effects of minor modifications to the hunt plan.

Hunting will occur within the State waterfowl hunting framework, typically extending from October through January of each year. Our refuge hunting program typically has one hunt day in late October (Youth Waterfowl Hunting Day), then allows hunting on Wednesdays, Saturdays, Holidays, and Opening Days of the last two segments of the State season, typically occurring from mid-November

through the end of January. The number of refuge hunt days will not exceed 30 days during any given hunting season. Only the Cow Island tract, consisting of 211 acres, is currently open for hunting. A maximum of six (6) hunting parties, consisting of a maximum of three (3) hunters each, will be permitted to hunt on any given hunt day. Hunting will be permitted from ½ hour before sunrise to sunset on each hunt day. Non-toxic shot is required according to State and Federal regulations. Hunters will access the refuge by private boat and hunt from one of six (6) available shoreline or interior locations, marked by the refuge. Hunting may occur from boats on the shore, unimproved shore locations, temporary blinds, or permanent blinds.

IV. Pertinent Species and Habitat Within Action Area

A. Action area (includes **all areas to be affected directly or indirectly** by the proposed project and not merely the immediate area involved in the action).

The Refuge waterfowl hunt occurs only on the 211-acre Cow Island tract. There will be boating activity between Cow Island and nearby boat launch sites, with the most often used site being the Poquoson Marina. Disturbance will occur in the areas surrounding Cow Island due to discharge of firearms. However, private waterfowl hunting occurs adjacent to Cow Island at present, and the level of disturbance from boats and firearms is not expected to increase from what has occurred historically, or what would occur in the absence of a refuge hunt.

B. List of listed species/critical habitat, proposed species/critical habitat, and candidate species known to occur or potentially occurring within the action area. Include species/habitat occurrence on a map (preferably a U.S.G.S. quad.), when known, such that their relationship to the project location can be determined.

The following species are included in this consultation: Bald eagle, Piping plover, Loggerhead sea turtle, and Northeastern beach tiger beetle.

Bald eagles have been observed perching on and around Cow Island. There are no known nesting or concentration areas on the refuge.

Piping plovers have been known to nest at Grandview Beach which is located off the southern end of the original Plum Tree Island refuge area, approximately eight miles from Cow Island. Plovers may forage on the refuge, but are not normally present in the area during the period when waterfowl hunting would occur.

Loggerhead sea turtles use the waters of the Chesapeake Bay during summer months. No nesting has been confirmed at the refuge and sea turtles are not typically present in the Chesapeake Bay during the period when waterfowl hunting would occur.

Northeastern beach tiger beetles were confirmed using the relatively wide exposed sand beach at the southern tip of the original Plum Tree Island refuge area, approximately seven miles from Cow Island. Adult beetles are not present during the period when waterfowl hunting would occur, and it is not expected that the narrow exposed beaches of Cow Island would support this species.

No candidate species or proposed/designated critical habitat occur at Plum Tree Island NWR.

V. Determination of Effects

A. Explanation of the adverse and beneficial effects of the action on species and/or critical habitat listed above.

As a result of offering a public hunt on the Cow Island tract, occasional disturbance from participant hunters may occur to migrating piping plovers and bald eagles. However, any disturbance is expected to be minimal and temporary. There will likely be no significant additional disturbance beyond that which occurred historically or which would occur from private hunting in the vicinity.

There should be no impact to sea turtles or Northeastern beach tiger beetles since there is no record of them being present on Cow Island. In addition, adult beetles and adult or juvenile sea turtles are not present during the period when waterfowl hunting occurs.

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

Potential disturbance to bald eagles is minimized by limiting the number of hunt days and the number of hunters that are permitted. The refuge hunt program adheres to the Bald Eagle Management Guidelines jointly prepared by the Service, the Virginia Department of Game and Inland Fisheries, and the Center for Conservation Biology at the College of William and Mary.

VI. Effect Determination and ES Response Requested

A. Listed species/designated critical habitat:

Field Station Determination	Species Name(s)	Ecological Services Response Requested (check one)
No effect		<input type="checkbox"/> None Needed
<u>Is not likely to adversely affect</u>	Bald Eagle, Piping Plover, Northeastern Beach Tiger Beetle, Loggerhead sea turtle	<input checked="" type="checkbox"/> Concurrence
Is likely to adversely affect		<input type="checkbox"/> Formal Consultation

Field Station Determination	Critical Habitat For (list species)	Ecological Services Response Requested (check one)
No effect		<input type="checkbox"/> None Needed
Is not likely to destroy or adversely modify		<input type="checkbox"/> Concurrence
Is likely to destroy or adversely modify		<input type="checkbox"/> Formal Consultation

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

Field Station Determination	Species Name(s)	Ecological Services Response Requested (check one)
No effect		<input type="checkbox"/> None Needed
Is not likely to adversely affect		<input type="checkbox"/> Concurrence
Is likely to jeopardize		<input type="checkbox"/> Conference

Field Station Determination	Critical Habitat For (list species)	Ecological Services Response Requested (initial/check one)
No effect		<input type="checkbox"/> None Needed
Is not likely to adversely affect		<input type="checkbox"/> Concurrence
Is likely to destroy or adversely modify		<input type="checkbox"/> Conference

VII. Reviewing Ecological Services Field Office Evaluation

A. Concurrence X Nonconcurrency _____

B. Formal consultation required _____

C. Conference required _____

D. Informal conference required _____

E. Remarks:

 /s/ Karen Mayne
Supervisor, Virginia Field Office

 02/26/2007
Date