

Chesapeake Marshlands National Wildlife Refuge Complex

Hunting and Fishing Plan – Draft

May 2022



NATIONAL
WILDLIFE
REFUGE SYSTEM



Appendix A - Compatibility Determinations for Hunting
Appendix B - Compatibility Determinations for Fishing and Crabbing
Appendix C - Environmental Assessment

Chesapeake Marshlands National Wildlife Refuge Complex Hunting and Fishing Plan

U.S. Fish and Wildlife Service

**Blackwater National Wildlife Refuge
Cambridge, MD 21613**

**Eastern Neck National Wildlife Refuge
Rock Hall, MD 21661**

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Table of Contents

| | |
|---|----|
| I. Introduction | 1 |
| II. Statement of Objectives | 4 |
| III. Description of Hunting and Fishing Program | 5 |
| A. Areas to be Opened to Hunting and Fishing | 5 |
| B. Species to be Taken, Hunting and Fishing Periods and Access | 5 |
| C. Hunter and Angler Permit Requirements (if applicable) | 7 |
| D. Consultation and Coordination with the State | 7 |
| E. Law Enforcement | 8 |
| F. Funding and Staffing Requirements | 8 |
| IV. Conduct of the Hunting and Fishing Program | 9 |
| A. Hunter Permit Application, Selection, and/or Registration Procedures (if applicable) | 9 |
| B. Refuge-Specific Hunting and Fishing Regulations | 10 |
| C. Relevant State Regulations | 12 |
| D. Other Refuge Rules and Regulations for Hunting | 13 |
| V. Public Engagement | 13 |
| A. Outreach for Announcing and Publicizing the Hunting and Fishing Program | 13 |
| B. Anticipated Public Reaction to the Hunting and Fishing Program | 13 |
| C. How Hunters and Anglers Will Be Informed of Relevant Rules and Regulations | 13 |
| VI. Compatibility Determination | 14 |
| VII. Literature Cited | 14 |

List of Tables

| | |
|---|----|
| 1. <u>Table 1. Proposed Units Open for Hunting</u> | 15 |
| 2. <u>Table 2. Annual Funding and Staffing Requirements</u> | 16 |

Appendices

| | |
|---|-----|
| <u>Appendix A - Compatibility Determinations for Hunting</u> | A-1 |
| <u>Appendix B - Compatibility Determinations for Fishing and Crabbing</u> | B-1 |
| <u>Appendix C - Environmental Assessment</u> | C-1 |

CHESAPEAKE MARSHLANDS NATIONAL WILDLIFE REFUGE COMPLEX HUNTING AND FISHING PLAN

I. Introduction

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

Chesapeake Marshlands National Wildlife Refuge Complex (CMNWRC, Complex) is made up of four refuges: Blackwater National Wildlife Refuge (NWR, refuge), Eastern Neck NWR, Martin NWR, and Susquehanna NWR. Of those refuges, this document will serve as a management plan for hunting and fishing activities on Blackwater NWR and Eastern Neck NWR. The remaining refuges of the Complex will not be addressed in this plan.

Blackwater NWR was established by the Migratory Bird Conservation Act (MBCA) (16 U.S.C. 715-715d, 715e, 715f-715r); the Federal Property and Administrative Service Act of 1949 (40 U.S.C. 471-535), as amended; Fish and Wildlife Coordination Act of 1934 (16 U.S.C. 661-666c), as amended; Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j Stat. 1119), as amended; the Act of May 19, 1948, Public Law 80-537 (16 U.S.C. 667b-667d; 62 Stat. 240), as amended; and the National Wildlife Refuge System Administration Act (NWRSA) of 1966 (16 U.S.C. 668dd-668ee), as amended.

The Migratory Bird Conservation Commission originally authorized the establishment of Blackwater NWR on December 3, 1931, as Blackwater Migratory Bird Refuge, the first and largest of the CMNWRC units. Blackwater NWR is currently over 30,000 acres and is a showplace for the Refuge System. The refuge's extensive marshes, moist-soil impoundments, and variety of croplands form the favorable trio of habitats most essential to thousands of migrating and wintering waterfowl. Its forests provide important habitat for a variety of migratory birds, including bald eagles, and other forest dependent wildlife, such as the Delmarva Peninsula fox squirrel.

In order to meet specific refuge and other broader Service directives, the following purposes were established for Blackwater NWR:

- “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds....” 16 U.S.C. § 7J5d (Migratory Bird Conservation Act of 1929).
- “to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants...” 16 U.S.C. § 1534 (Endangered Species Act of 1973).
- “for incidental fish and wildlife-oriented recreation; the protection of natural resources; and the conservation of endangered species or threatened species...” 16 U.S.C. § 460K-1

(Refuge Recreation Act of 1962).

- “to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America...” 16 U.S.C. § 4401–413. (North American Wetlands Conservation Act)
- “to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife.” 16 U.S.C. § 668ddb (Refuge Administration Act of 1966).

Eastern Neck NWR was established by Executive Order on December 27, 1962. The primary purpose for Eastern Neck NWR is “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds... “16 U.S.C. § 7J5d (Migratory Bird Conservation Act of 1929).

The mission of the Refuge System, as outlined by the NWRSA, as amended by the Refuge System Improvement Act (16 U.S.C. 668dd et seq.), 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 NWRSA mandates the Secretary of the Interior in administering the Refuge System to (16 U.S.C. 668dd(a)(4):

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

- Ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

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

Blackwater NWR is located in Dorchester and Wicomico Counties in Maryland and receives approximately 180,000 visitors annually. The majority of this visitation is focused on the refuge's visitor center, wildlife drive, and public hiking and water trails. Most of the hunting units are closed to public access for much of the year and are open to the public only for hunting purposes. In Fiscal Year 2021, the refuge issued 4,732 permits for hunting sika and white-tailed deer and 141 for turkey hunting. The refuge also issued 220 permits for waterfowl hunting. In many cases, a hunter issued a permit may hunt the refuge multiple times or decide not to hunt the refuge at all. For waterfowl, up to four hunters can participate under one permit. While these permit numbers do not reflect the number of actual hunting occasions or participants, an estimated 13,200 hunt visits can be extrapolated. Approximately 24,000 fishing visits occurred in 2021.

Eastern Neck NWR is located in Kent County, Maryland and receives approximately 80,000 visitors each year. Visitors utilize the refuge for wildlife observation, photography, interpretation, hunting, fishing, and other uses. To ensure the safety of all participants, Eastern Neck NWR is closed to all other uses when hunting is permitted. There were approximately 598 hunt visits, and 10,000 fishing visits.

The Service proposes to adjust hunting and fishing opportunities at CMNWRC to better align with State programs where appropriate, while still meeting refuge wildlife and habitat objectives. In summary, we propose the following changes to the existing program:

- 1) Species Changes
 - a) Blackwater NWR: Open to incidental coyote during deer season
 - b) Eastern Neck NWR: Open to incidental coyote during deer season
- 2) Huntable Acreage Added
 - a) Blackwater NWR: 723 acres total (641 acres in Wicomico County and 82 acres in Dorchester County)
- 3) Method of Take Changes
 - a) Blackwater NWR: Open to rifle with use of straight-walled cartridges only
 - b) Eastern Neck NWR: Open to rifle with use of straight-walled cartridges only
- 4) Season Dates
 - a) Blackwater NWR: Add a primitive deer hunt in February
 - b) Blackwater NWR: Add early season teal (September)

- c) Blackwater NWR: Add youth, veteran and active duty military members waterfowl dates
 - d) Blackwater NWR: Align our youth deer hunt with State date(s)
 - e) Eastern Neck NWR: Add primitive deer hunt in February
- 5) Permits
- a) Blackwater NWR: Offer a Sportsman’s Pass through online portal that allows hunters to purchase one pass for all open deer hunt dates
- 6) Bag Limits
- a) Blackwater NWR: Align with State deer bag limits
 - b) Eastern Neck NWR: Align with State deer bag limits
- 7) Ammunition
- a) Blackwater NWR: Non-lead ammunition only for big game and coyote by 2026
 - b) Eastern Neck NWR: Non-lead ammunition only for big game and coyote by 2026
- 8) Fishing Tackle
- a) Blackwater NWR: Non-lead tackle only for fishing by 2026
 - b) Eastern Neck NWR: Non-lead tackle only for fishing by 2026
- 9) Fishable Areas
- a) Blackwater NWR: Add bank fishing from Key Wallace Drive causeway
 - b) Blackwater NWR: Add tract Howard (100m) and Tubman pond (100ai) freshwater ponds for youth and mentored fishing events

II. Statement of Objectives

The objectives of the hunting and fishing programs at CMNWRC are to:

1. Provide the public with a quality recreational experience on refuge lands and waters and increase opportunities and access for consumptive and non-consumptive users of the refuge. The Refuge System Improvement Act of 1997 identified hunting and fishing, where compatible, as two of the six priority public uses on refuges;
2. Design hunting and fishing programs that are administratively efficient and manageable with existing staffing levels and in alignment with Maryland Department of Natural Resources (MDDNR) regulations when possible;
3. Implement hunting and fishing programs that are safe and enjoyable for all refuge users; and
4. Design a hunting program that aligns with refuge habitat management objectives.

Meeting the above objectives will also benefit wildlife resources and habitat. High deer densities have been shown to alter the understory of forests (Cote et al. 2004, White 2012) and negatively affect breeding songbirds (Chollet and Martin 2013, Tymkiw et al. 2013). In addition,

agricultural crops that are vital to the refuge as a source of supplemental food for wintering waterfowl have been severely impacted in recent years due to deer depredation. Fishing for the exotic, invasive snakehead also helps remove individuals that outcompete native aquatic species.

Offering hunting and fishing opportunities at Blackwater and Eastern Neck NWRs also helps fulfill Objective 4.3.2 and Objective 4.3.3 of the Chesapeake Marshlands National Wildlife Refuge Complex Comprehensive Conservation Plan (CCP) (see USFWS 2006), which identify a need to provide expanded opportunities for high quality hunting and fishing experiences.

III. Description of Hunting and Fishing Program

A. Areas to be Opened or Changed to Hunting and Fishing

A total of 19,119 acres of Blackwater NWR are currently open to hunting for white-tailed deer, sika, wild turkey, and waterfowl. Under this proposed plan, 723 additional acres would be opened to hunting in Wicomico County for deer and turkey plus 7 miles of shoreline for waterfowl (Table 1).

At Blackwater, bank fishing will be expanded along Key Wallace Drive causeway where it crosses the Little Blackwater River. Additionally, a fishing pier may be developed if feasible to improve the fishing opportunity in the area as a result of increased interest. This is dependent on finding a location and design that addresses all of our needs. These include water depth, substrate, proximity to sufficient parking, not impeding the flow of traffic, conflict with other uses in the area, trash removal, restroom facilities, as well as lack of disturbance to nesting eagles or heron rookeries. Given the location of low bridges surrounding the refuge, it will be difficult for a contractor to enter the refuge by water. Therefore, a floating dock may be a better option, but these issues still need to be addressed as well as cost, materials, American with Disabilities Act of 1990 (ADA) accessibility and overall maintenance.

At Eastern Neck NWR, a total of 1,985 acres is currently open to hunting for white-tailed deer and wild turkey. Under this hunt/fish plan, we are not proposing changes to the area currently open for hunting.

B. Species to be Taken, Hunting and Fishing Periods and Access

Blackwater NWR

The refuge would continue to administer existing hunts for white-tailed deer, sika, wild turkey, goose, and duck. The refuge will allow incidental coyote hunting concurrent with established refuge deer hunts to mitigate conflicts with other user groups and to conserve refuge personnel resources. Additionally, the refuge will allow early season teal, and a youth, veteran, and active duty military waterfowl hunt will be added in alignment with the State. Primitive season deer hunt dates will be added in February and the youth deer hunt dates will be shifted to align with the State hunt dates.

The refuge will now allow rifle hunting using straight-walled cartridges only. Beginning in

the 2020-2021 season, MDDNR allowed the use of straight-walled cartridges in shotgun-only counties, the ballistics of which are similar to those of shotgun slugs yet are slower and have less range than typical rifle (bottleneck) cartridges. The main advantage to straight-wall cartridges over shotgun slugs is improved accuracy while still maintaining the approximate range of shotguns for safety.

Hunting would be conducted in 39 units with the addition of several new units (Figures 1-3 in Appendix A). Hours of access to the refuge for hunts can be found on the refuge website, which may vary based on the hunt type and State regulations. Legal shooting hours are in accordance with State regulations for respective species. During the spring turkey and deer archery seasons, hunters may walk in from existing designated parking areas, and all vehicle access will be prohibited. During the firearms seasons, vehicles will be restricted to designated roadways and existing parking areas. Waterfowl hunt units are accessible by boat only. There will be no off-road vehicles or all-terrain vehicle (ATV) use allowed during any hunting season, except for persons with permanent disabilities in designated areas. Boat access may be allowed for big game hunting, at the manager's discretion, where it does not conflict with areas closed for the protection of wintering waterfowl. Sections of Wildlife Drive and some refuge trails may be closed for designated periods of time during the muzzleloader and/or shotgun hunts to allow for the harvest of white-tailed deer and sika. There are specific areas of the refuge designated for hunters with permanent disabilities, currently Q2 and U1. Any changes to these unit locations will be reflected on the refuge website.

Fishing would be allowed daily from dawn to dusk (daylight hours only) April 1 to September 30 from the Key Wallace Drive soft launch, unless there is a conflict with a management activity or extenuating circumstance that would necessitate deviations from these procedures. The Route 335 soft launch is open year-round.

Eastern Neck NWR

Hunting would remain open for white-tailed deer and wild turkey. To minimize waterfowl impacts and for safety reasons, the refuge will be closed to non-hunters during the hunts, which will be limited to a maximum of 8 days from September to February. The refuge will allow incidental coyote hunting concurrent with established refuge deer hunts to mitigate conflicts with other user groups and to conserve refuge personnel resources. Hunt seasons are set annually by the MDDNR. Refuge hunting will occur during State seasons but may include additional restrictions on season dates and times. The hunt dates at Eastern Neck NWR often fall outside of the State hunt season in order to minimize any conflict with migrating waterfowl, and the State approves these dates annually. Primitive season deer hunt dates may be added in February.

Special mentored hunts for turkey are allowed during the spring season. A youth mentored hunt with the National Wild Turkey Federation (NWTf) has been held for 22 years over the course of 2 days per year. These will continue as well as other potential mentored hunt opportunities. Special hunts allow limited access and control and contribute to State recruitment, retention, and reactivation (R3) goals.

Fishing is permitted from dawn to dusk in areas open to fishing.

C. Hunter and Angler Permit Requirements

Deer Hunting: Hunters are required to obtain the necessary State licenses. Additionally, hunters on Blackwater and Eastern Neck NWRs need to purchase and possess a refuge hunting permit. Discounted permits are offered to permanently disabled hunters and senior citizens (62 years of age or older). Refer to “Hunter Permit Application, Selection, and/or Registration Procedures” below.

Hunting brochures, hunting application procedures, seasons, bag limits, methods of hunting, maps depicting areas open to hunting, and the terms and conditions under which we issue hunting permits are available on the refuge's website and www.recreation.gov.

Coyote Hunting: Hunters may harvest coyote as incidental species while deer hunting on Blackwater and Eastern Neck NWRs. Deer hunters need to purchase and possess a refuge hunting permit. Refer to “Deer Hunting” paragraph above.

Mentored Deer and Turkey Hunting: All persons participating in a mentored hunt on Blackwater and Eastern Neck NWRs are required to obtain the necessary State licenses. Mentored deer and turkey hunts will be administered by the refuge, MDDNR, and conservation partners at Blackwater NWR and no refuge-specific permit is required. Potential mentees must apply and be selected to participate. NWTf administers the youth turkey hunt at Eastern Neck and the youth hunters are required to use the standard refuge hunt permit (Big/Upland Game Hunt Application OMB control number 1018-0140).

Waterfowl Hunting: Waterfowl hunters are required to obtain the necessary Federal and State licenses and stamps. They are also required to purchase and possess a refuge hunting permit. Discounted permits are offered to permanently disabled hunters and senior citizens (62 years of age or older). Refer to “Hunter Permit Application, Selection, and/or Registration Procedures” below.

Administrative fees will be charged for the refuge-issued hunt permits. Fees will be utilized to administer the hunt, which includes, but is not limited to, maintaining roads, parking areas, gates, and signs.

Recreational Fishing: There is no refuge-specific permit for fishing, but anglers must have in their possession a valid fishing license as outlined by State regulations.

D. Consultation and Coordination with the State

Refuge staff meets at least annually with MDDNR representatives to discuss current issues, status of hunts, and any proposed changes to regulations. Hunting opportunities on the refuge are generally designed to comply with State regulations. In some instances, the refuge hunt may deviate from State seasons to meet refuge wildlife population, public use, and public safety goals, or in an attempt to increase harvest and reduce white-tailed deer and/or sika herd size. Any deviations from State regulations are developed in coordination with State partners.

Consultations with the MDDNR regarding hunt plans, opportunities, and management were conducted during the development of the refuge's CCP and Environmental Assessment finalized in 2006. All Compatibility Determinations are reviewed and renewed at their respective 10- or 15-year interval, depending on type of use. The refuge also participates in the MDDNR's biannual hunt regulations meetings as a stakeholder, participates in the 10-year deer management plan review as appropriate, and reviews current hunt programs annually with the appropriate State biologist.

E. Law Enforcement

Enforcement of refuge regulations normally associated with management of a NWR is the responsibility of commissioned Service law enforcement officers. Other refuge officers, special agents, and State game wardens may assist Federal wildlife officers (FWOs) in investigations of both Federal and State law occurring within the refuge.

The following methods are used to control and enforce hunting regulations:

- Boundaries will be clearly posted;
- The Service will provide an annual brochure outlining hunting rules and regulations as well as a map depicting areas open to the lawful take of game;
- FWOs will check hunters to ensure compliance with Federal and State laws, as well as refuge-specific hunting regulations, including compatibility stipulations;
- FWOs will coordinate with Maryland Natural Resources Police (MNRP) and other law enforcement agencies; and
- Information will be made available on the Blackwater NWR website and at www.recreation.gov.

Procedures for obtaining law enforcement assistance are based on legal jurisdiction, pending where the incident occurred. FWOs have developed good working relationships with other State, local and Federal law enforcement agencies to develop enforcement strategies and coordinate investigations and operations as appropriate.

F. Funding and Staffing Requirements

Annual hunt administration costs for CMNWRC, including salaries and vehicle maintenance, total approximately \$103,010 annually (Table 2). Funding for the hunt programs is not specifically allocated but will be taken from station base funds and refuge hunt permit fees on an annual basis. Funding is expected to continue to be sufficient to continue the hunting and fishing programs at CMNWRC in the future.

From fall 2020 to winter 2021, the deer hunts at Blackwater NWR generated \$99,043 in permit fees, with a 5-year average of \$80,944.60. In 2020-2021, 4,732 permits were sold, and

the 5-year average for permits is 4,765. The deer hunts at Eastern Neck NWR generated \$6,247 during the same timeframe with 627 permits sold. The 2021 spring turkey hunt at Blackwater generated \$1,429.

IV. Conduct of the Hunting Program

A. Hunter Permit Application, Selection, and/or Registration Procedures (if applicable)

All deer, waterfowl, and turkey hunt permits are available on www.recreation.gov. There is a \$6.00 non-refundable reservation service fee per permit that the vendor charges and retains. Permits can include groups of up to four individuals.

Blackwater NWR Deer:

Deer Hunt Permits typically become available to the public in early July and are available up to 10:00 AM on the day of the hunt, depending on availability. These permits are available on a first-come, first-serve basis.

Archery Hunt Permits cost \$20.00 per season and cover all dates when archery is available for hunting. Up to 1,500 archery permits are available for the season.

Both Limited Muzzleloader Permits and Limited Shotgun Permits are available for \$10.00 per single day. These hunts are limited because they only allow a certain number of hunters per unit. The calculation for the unit is one person per 20 acres. The hunters are distributed in this way to strategically maximize the area covered by hunters both for deer management and safety.

Muzzleloader Hunt Permits generally cost \$20.00 for 4-day clusters. They are open permits, in that they allow the permittee to hunt in any open hunt unit on the refuge.

Recreation fees are reduced by half for all Federal Senior Pass or Access Pass holders. Pass number must be provided when applying for your permit.

First Shot mentored hunt program:

Started in 2018 with the NWTF and MDDNR, First Shot is a mentored hunt program offered on Blackwater NWR and neighboring private lands that helps new adult hunters learn to hunt. Mentors volunteer their time, skills, and equipment to help their mentee with everything involved in hunting deer or turkey, ranging from scouting, tracking, setting stands, sighting in, harvesting, and even cooking. Since the first hunt in 2018, over 90 participants have been selected to take part in the deer and turkey hunts. Units that are normally not open to hunting are dedicated to these hunts to provide them with the most opportunity to learn and harvest an animal. Since these are so tightly controlled, the mentored hunts are an effective way to manage deer in areas otherwise not hunted, such as public trails or small units, while at the same time controlling access for safety.

Freedom Hunters mentored hunt partnership:

Freedom Hunters is a 501(c)3 military outreach program dedicated to honoring those who

protect our freedoms. Volunteers take active duty and combat veterans, families of fallen heroes, children of the deployed, as well as those wounded, on outdoor adventures with the help of partners such as Blackwater NWR. In 2018, Freedom Hunters partnered with Blackwater NWR to offer limited, special access hunts for deer to wounded warriors on the new Owen's Creek tract along the Nanticoke River. This is a very small tract at just over 100 acres, surrounded by a few concerned farmers. The area had previously been hunted by a club, and neighbors were concerned about trespassing and poaching now that the area was not occupied. By allowing Freedom Hunters access to this small tract, poaching and trespassing were discouraged, deer continued to be managed, and the immediate neighbors took pride in helping the veteran non-profit organization. Since then, they have hunted several days each year for deer and turkey with over 125 participants and will pilot a waterfowl hunt in 2021. The refuge may expand this partnership to access other small satellite parcels in the Nanticoke Division where all-access public hunting would likely cause conflicts with neighboring landowners and not be feasible to effectively patrol with law enforcement due to the distance from the main refuge. This also allows the deer population to be managed and to offer additional hunting opportunities.

Blackwater NWR Waterfowl: All hunt permits are available at www.recreation.gov. There is no refuge permit fee for waterfowl hunting. There is a \$6.00 service fee for each reservation. Reservations can be made beginning at 10:00 AM on the Monday of the week prior to the week of the hunt, and up to two units per week can be reserved by a participant. Each waterfowl permit allows up to four individuals to hunt in that unit.

Blackwater NWR Turkey: The Blackwater NWR Turkey Hunt is a lottery. There is a \$6.00 non-refundable service fee for each reservation that www.recreation.gov retains, as well as a \$10.00 Recreation Fee for the Turkey Hunt Permit if awarded. Recreation fees (not reservation fees) are reduced by half for all Federal Senior Pass and Access Pass holders. Pass number must be provided when applying for your permit.

There is one unit designated for use by disabled hunters and six other units available for turkey hunting. Hunters apply at www.recreation.gov with their preferred dates and if selected, they pay the \$10.00 recreation fee and the \$6.00 service fee. Any unclaimed lottery hunts are released after 10 days post-notification and are available to the public as first-come, first-served.

Eastern Neck NWR: All Deer Hunt Permits are available at www.recreation.gov. There is a \$6.00 non-refundable reservation service fee per permit. Permits can include groups of up to four individuals. Deer Hunt Permits typically become available to the public in early July and are available until 10:00 AM on the day of the hunt depending on availability. These permits are available on a first-come, first-served basis. Recreation fees are reduced by half for all Federal Senior Pass or Access Pass holders. Pass number must be provided when applying for your permit.

B. Refuge-Specific Hunting and Fishing Regulations

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting

and fishing must be conducted in accordance with State, Federal, and refuge-specific regulations. The refuge-specific regulations that pertain to hunting and fishing on Blackwater and Eastern Neck NWRs as of the date of this plan are summarized here. These regulations may be modified as conditions change or if refuge expansion continues or occurs.

Hunting:

- We require hunters to obtain a deer, turkey and waterfowl hunting permit generated by www.recreation.gov. Hunting brochures, hunting application procedures, seasons, bag limits, methods of hunting, maps depicting areas open to hunting, and the terms and conditions under which we issue hunting permits are available on the refuges' website and at www.recreation.gov.
- Hunters must possess on their person at all times while on refuge property: a valid Maryland hunting license and all required State and Federal stamps, a valid form of government-issued photo identification, and a printed valid hunting permit issued by www.recreation.gov.
- We only allow portable or temporary tree stands and blinds while hunting. All stands and blinds must be removed at the end of the hunt day with the exception of U1. We require hunters to mark the stand or blind in plain site with the hunter's DNR ID. We prohibit hunting from a permanently constructed tree stand or blind. We do not allow screw-in steps, spikes, or other objects that may damage trees. All marking devices such as flagging or bright eyes must be removed by the last day of their hunt. Stands, blinds, or any other personal property may not be left unattended or overnight (except in U1 where tagged with permit number and year), and any left in a hunt area will be seized and impounded (50 CFR 27.93).
- We prohibit organized deer drives, unless otherwise authorized by the refuge manager on designated hunt days.
- Hunters must notify and receive permission from a Service law enforcement officer, refuge manager, or designee if they need to enter a refuge closed area or another hunting area for which they do not possess a valid permit to retrieve game.
- We prohibit shooting a projectile from a firearm, muzzleloader, bow, or crossbow from, down, or across any refuge road. A refuge road is any road that is traveled by vehicular traffic.
- Hunters must make a reasonable effort to retrieve all wounded or killed game and include it in their daily bag limit. We prohibit leaving deer or turkey entrails or other waste within 50 feet (15.2 meters) of any road, parking area, trail, or structure on the refuge.
- Hunters must adhere to the State bag limits set forth annually and must be recorded and checked with the State. Deer harvested on the refuge must be checked pursuant to the refuge hunt in which they are taken, regardless of the weapon used or

corresponding State season.

- We prohibit the use of rimfire or centerfire rifles and all handguns including muzzleloading pistols for hunting. We allow rifle for hunting only with the use of straight-wall cartridges.
- Hunters are encouraged to voluntarily use non-lead ammunition when hunting big game. By 2026, we will eliminate all lead ammunition on Eastern Neck and Blackwater NWRs for deer and turkey hunting.

Fishing:

Blackwater NWR: We allow sport fishing and crabbing on designated areas of the refuge subject to the following conditions:

- We allow fishing and crabbing only from April 1 through September 30 from legal sunrise to legal sunset in refuge waters, unless otherwise authorized by the refuge manager.
- We allow fishing and crabbing by boat in the Big Blackwater and the Little Blackwater River.
- Anglers are encouraged to voluntarily use non-lead tackle when fishing. By 2026, we will eliminate use of all lead tackle on Blackwater NWR for fishing.

Eastern Neck NWR: We allow sport fishing and crabbing in designated areas of the refuge subject to the following conditions:

- We allow fishing and crabbing from designated shoreline areas located at the Ingleside Recreation Area from legal sunrise to legal sunset, April 1 through September 30.
- We allow fishing from designated shoreline areas located at the Chester River end of Boxes Point and Duck Inn Trails from legal sunrise to legal sunset.
- Anglers are encouraged to voluntarily use non-lead tackle when fishing. By 2026, we will eliminate use of all lead tackle on Eastern Neck NWR for fishing.

C. Relevant State Regulations

The refuge conducts its hunting and fishing programs within the framework of State and Federal regulations. Hunting and fishing at the refuges is at least as restrictive as the State of Maryland and, in some cases, more restrictive. Additionally, the refuge coordinates with the State as needed to maintain regulations and programs that are consistent with the State's management programs. Relevant refuge-specific regulations are annually listed in 50 CFR 32.39, and summarized above in Section IV, subsection B.

D. Other Refuge Rules and Regulations for Hunting

- Commercial guiding is not authorized as part of this plan.
- We allow the use of marking devices, including flagging or tape, but it must be removed by legal sunset of the date established annually by the refuge manager. We prohibit paint or any other permanent marker to mark trails.
- We prohibit the use of bicycles, airboats, boats, ATVs, motorized off-road vehicles, and amphibious vehicles or Argos to access the refuge except as authorized by the refuge manager, within certain hunt areas, on designated days, routes of travel, waterways, and launch sites.
- We prohibit parking in front of any gate. Parked vehicles may not impede any road traffic.

V. Public Engagement

A. Outreach for Announcing and Publicizing the Hunting and Fishing Programs

The refuge maintains a mailing list of local newspapers, social media, podcasts, radio, and websites for news release purposes. Special announcements and articles may be released in conjunction with hunting seasons. Additionally, information about the hunt will be available on the refuge's website and social media accounts.

B. Anticipated Public Reaction to the Hunting and Fishing Programs

Hunting and fishing are two of the six priority public uses required by the Refuge Improvement Act to receive enhanced consideration on refuges. These are popular and traditional activities in the area. Hunting and fishing provide means to increase public participation on the refuge and hunting serves as a management tool to help maintain healthy, sustainable wildlife populations. Hunting on public lands has become more popular as private lands have become less available for hunting. Fishing has increased in popularity at Blackwater NWR because of the increased desire to fish the invasive snakeheads.

Based on the comments received during the CCP (see USFWS 2006 and USFWS 2010) and since deer hunting has occurred on Eastern Neck and Blackwater NWRs for decades, little negative public reaction is expected in regards to continuing hunting and fishing programs on the Complex. However, it is anticipated that there will be some adverse public reaction to the change to non-lead ammunition and tackle for big game hunting and fishing.

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

General information regarding hunting, fishing, and other wildlife-dependent public uses, dates, forms, hunting unit directions, maps, and information will also be available at the refuge websites:

<https://www.fws.gov/refuge/Blackwater/> and https://www.fws.gov/refuge/eastern_neck/, and

at the refuge hunt permit websites:

Blackwater Deer Hunt: <https://www.recreation.gov/permits/5121212>

Blackwater Waterfowl Hunt: <https://www.recreation.gov/permits/5151515>

Blackwater Turkey Hunt: <https://www.recreation.gov/permits/5141414>

Eastern Neck Deer Hunt: <https://www.recreation.gov/permits/5131313>

VI. Compatibility Determination

Hunting and all associated program activities proposed in this plan are compatible with the purposes of the refuges. See attached Hunting Compatibility Determinations and Fishing Compatibility Determination.

VII. Literature Cited

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Tables

Table 1. Hunt units at Blackwater NWR.

X¹ - *Hunting permitted but total acreage not calculated.*

| Unit | Acres | Deer | Waterfowl | Turkey |
|--------------------------|---------------|---------------|------------------|---------------|
| A | 804 | 804 | 0 | 0 |
| B1 | 367 | 367 | 0 | 367 |
| B2 | 81 | 81 | 0 | 0 |
| B3 | 321 | 321 | 0 | 0 |
| Barren Island North | 0 | 0 | X ¹ | 0 |
| Barren Island South | 0 | 0 | X ¹ | 0 |
| Beaverdam Creek East | 0 | 0 | X ¹ | 0 |
| Beaverdam Creek West | 0 | 0 | X ¹ | 0 |
| Bishop's Head East | 0 | 0 | X ¹ | 0 |
| Bishop's Head West | 0 | 0 | X ¹ | 0 |
| Blackwater River Central | 0 | 0 | X ¹ | 0 |
| Blackwater River East | 0 | 0 | X ¹ | 0 |
| Blackwater River West | 0 | 0 | X ¹ | 0 |
| D1 | 72 | 72 | 0 | 0 |
| D2 | 295 | 295 | 0 | 0 |
| D3 | 194 | 194 | 0 | 0 |
| D4 | 107 | 107 | 0 | 0 |
| E | 1,890 | 1,890 | 0 | 0 |
| Goose Dam Creek North | 0 | 0 | X ¹ | 0 |
| Goose Dam Creek South | 0 | 0 | X ¹ | 0 |
| M1 | 1,063 | 1,063 | 0 | 1,063 |
| M2 | 1,911 | 1,911 | 0 | 1,911 |
| Mentored Hunt Area | 966 | 966 | 0 | 966 |
| N | 698 | 698 | 0 | 698 |
| Nanticoke | 1,147 | 0 | 1,147 | 0 |
| Owens Creek | 212 | 212 | 212 | 212 |
| Q1 | 665 | 665 | 0 | 0 |
| Q2 | 136 | 136 | 0 | 0 |
| R | 1,152 | 1,152 | 0 | 1,152 |
| S | 1,490 | 1,490 | 0 | 1,490 |
| Spring Island East | 0 | 0 | X ¹ | 0 |
| Spring Island West | 0 | 0 | X ¹ | 0 |
| T | 1,275 | 1,275 | 0 | 1,275 |
| U | 1,909 | 1,909 | 0 | 1,909 |
| U1 | 203 | 203 | 0 | 0 |
| W | 724 | 724 | 0 | 724 |
| X | 1,437 | 1,437 | 0 | 0 |
| TOTAL Acreage | 19,119 | 17,972 | 1,359 | 11,767 |

Table 2. Annual Funding and Staffing Requirements to Administer the Hunt Program at Blackwater and Eastern Neck National Wildlife Refuge

| Requirement | Cost |
|---|------------------|
| Salaries (online hunt programming) 100 hrs., \$45/hr. | \$4,500 |
| Mowing hunt roads | \$6,150 |
| Regular maintenance of 1-mile of road/year | \$6,000 |
| Road overhaul of 2.7 miles road/year | \$75,195 |
| Parking lots (replacing a 100X100 parking lot- 1/year) | \$4,435 |
| Replace three gates/year | \$1,200 |
| Maintain three disabled hunt blinds | \$1,030 |
| Replace three hunt signs/year | \$4,500 |
| Total annual cost of hunt program for Chesapeake Marshlands National Wildlife Refuge Complex | \$103,010 |

COMPATIBILITY DETERMINATION

USE: Hunting

REFUGE NAME: Blackwater National Wildlife Refuge

DATE ESTABLISHED: January 23, 1933

ESTABLISHING and ACQUISITION AUTHORITY(IES):

Blackwater National Wildlife Refuge (NWR) was established under the authority of the Migratory Bird Conservation Act of 1929, as amended, {16 U.S.C. 715d}. Additional lands have been added to the refuge under the authorities of the Endangered Species Act of 1973 {16 U.S.C. 1534}, Refuge Recreation Act of 1966, as amended, {16 U.S.C. 460k-1}, North American Wetlands Conservation Act {16 U.S.C. 4401-413}, and the Refuge Administration Act {16 U.S.C. 668ddb}.

REFUGE PURPOSE(S):

Blackwater NWR's purposes are:

- "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. § 715d (Migratory Bird Conservation Act);
- "...to conserve (A) fish or wildlife which are listed as endangered or threatened species...or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973);
- " for...incidental fish and wildlife-oriented recreational development...the protection of natural resources...the conservation of endangered species or threatened species..." 16 U.S.C. § 460k-1 (Refuge Recreation Act);
- "...to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife" 16 U.S.C. § 4401-413 (North American Wetlands Conservation Act), and;
- "...to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife." 16 U.S.C. § 668ddb (Refuge Administration Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

The mission of the National Wildlife Refuge System (Refuge System) is "to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (Refuge System Improvement Act of 1997, Public Law 105-57).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The use is public hunting of white-tailed deer, sika, wild turkey, and waterfowl on Blackwater NWR. We also allow the incidental take of coyote while deer hunting. Hunting was identified as one of six priority public uses of the Refuge System by the National Wildlife Refuge System Administration Act (NWRSA) of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), when found to be compatible.

(b) Where would the use be conducted?

The use will occur on 19,842 acres at Blackwater NWR (see Figures 1-3), which is approximately 62 percent of the total available refuge area. Areas that are not open to hunting are also indicated.

(c) When would the use be conducted?

Big game hunting on the refuge will generally take place within the season dates established by the State of Maryland. White-tailed deer and sika hunting is normally between September and late January. Hunters can access the refuge up 3 hours before legal sunrise and must exit within 3 hours after legal sunset (including parking lots). This change allows for the differences in length of day as well as accessing remote, difficult to hunt locations, including retrieving of deer shot at last legal hour. Shooting hours follow the State regulations of one half hour before sunrise and one half hour after sunset. Scout days will be published each year and will be from 7:00 AM to sunset on those dates. Hunting for wild turkeys (bearded birds only) will be during the State spring season, April through May, on designated hunt days, and will follow the State shooting hours. Specific regulations for each hunt will be published by the refuge in advance of the hunt seasons. Waterfowl hunting at Blackwater NWR will take place within the State framework and usually occurs between October and the end of January.

(d) How would the use be conducted?

Blackwater NWR hunters must use a website administered by a third-party vendor, www.recreation.gov. Hunting brochures, hunting application procedures, seasons, bag limits, methods of hunting, maps depicting areas open to hunting, and the terms and conditions under which we issue hunting permits are available at the refuge visitor center, administration office, and on the refuge's website. Waterfowl hunters are also required to have a permit to hunt at Blackwater NWR obtained through Recreation.gov.

Youth hunters are required to use the standard refuge hunt permit (Big/Upland Game Hunt Application OMB control number 1018-0140). Mentored deer and turkey hunts will be administered by application through the refuge, Maryland Department of Natural Resources (MDDNR) and conservation partners at Blackwater NWR and no refuge-specific permit is required.

Administrative fees will be charged for the permits. Fees will be utilized to administer the hunt which includes but is not limited to maintaining roads, parking areas, gates, and signs.

Hunters may walk in from existing designated parking areas, and all vehicle access will be

prohibited. During the firearms seasons, vehicles will be restricted to designated roadways and existing parking areas. Waterfowl hunt units are boat access only. There will be no off-road vehicles or all-terrain vehicle (ATV) use allowed during any hunting season, except for persons with disabilities in designated areas. Boat access may be allowed for big game hunting, at the manager's discretion, where it does not conflict with areas closed for the protection of wintering waterfowl. Sections of Wildlife Drive and some refuge trails may be closed for designated periods of time during the firearms hunts to allow for the harvest of white-tailed deer and sika. Certain units of the refuge are designated for hunters with permanent disabilities.

The refuge will now allow rifle hunting using straight-walled cartridges only. Beginning in the 2020-2021 season, MDDNR allowed the use of straight-walled cartridges in shotgun-only counties. The ballistics of straight-walled cartridges are similar to those of shotgun slugs yet are slower and have less range than typical rifle (bottleneck) cartridges. The main advantage to straight-walled cartridges over shotgun slugs is improved accuracy, while still maintaining the approximate range of shotguns for safety.

The use of non-lead ammunition for big game and incidental coyote hunting will initially be voluntary but will be required in the fall of 2026 after a 4-year phase-in period. This phase-in period will allow hunters time to adapt to the new regulations without diminishing hunting opportunities on the refuge. The refuge staff will provide information to assist in this transition that benefits wildlife.

The hunting program will be reviewed annually or as needed in consultation with MDDNR to assess its effectiveness and ensure wildlife populations and habitat quality are managed appropriately. In addition, refuge-specific regulations listed under "Stipulations Necessary to Ensure Compatibility" will apply.

(e) Why is the use being proposed?

Hunting is a healthy, traditional recreational use of renewable natural resources deeply rooted in America's heritage, and can be an important wildlife management tool. At Blackwater NWR, hunting serves as a useful habitat management tool and helps fulfill Objective 4.3.3 of the Chesapeake Marshlands Comprehensive Conservation Plan (CCP), which calls for expanded opportunities for hunting where appropriate (USFWS 2006).

Furthermore, Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on NWRs for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action promotes one of the priority public uses of the Refuge System and provides opportunities to promote stewardship of our natural resources and increase public appreciation and support for the refuge.

AVAILABILITY OF RESOURCES:

The combined hunt program at Blackwater and Eastern Neck NWRs is estimated to cost approximately \$103,010 annually to administer (Table 1). The refuge receives fees through the sale of hunt permits to help offset the cost of implementing the various hunts. From fall 2020 to winter 2021, the deer hunts at Blackwater NWR generated \$99,043 in permit fees, with a 5-year

average of \$80,944.60. In 2020-2021, 4,732 permits were sold, and the 5-year average for permits is 4,765. The 2021 spring turkey hunt at Blackwater generated \$1,429. Funds are needed for staff time for planning and annual program preparation, outreach and public relations, permit administration, enforcement, boundary and sign posting, and roads and parking lot maintenance. Furthermore, www.recreation.gov charges a \$6.00 service fee that the vendor retains for their services.

The Refuge Recreation Act requires that funds are available for the development, operation, and maintenance of the permitted forms of recreation. The recreation fee (\$10.00 to \$20.00) is the minimal amount needed to offset the cost of managing the hunting programs. This fee may increase in time if deemed necessary by the refuge manager to offset program costs.

Administrative fees collected through the hunts will continue to fund the annual development of regulations, maps, and leaflets. Any remaining revenue generated from the administrative process would be used to replace signs, post closed areas, and maintain parking areas and roads. There may be some costs to the refuge budget associated with these programs in the form of infrastructure maintenance and law enforcement. These costs should be minimal relative to total refuge operations. Maintenance costs would not diminish resources dedicated to other refuge management programs.

ANTICIPATED IMPACTS OF THE USE:

The overall impacts of this use are fully reviewed and discussed in the Blackwater and Eastern Neck NWRs Hunting and Fishing Environmental Assessment.

White-tailed Deer and Sika

White-tailed deer are common and widespread on Blackwater NWR. Sika, a non-native species of elk, is abundant on Blackwater NWR. Road-based surveys using distance sampling were completed on Blackwater NWR in 2017, 2018, and 2019 to estimate the density of white-tailed deer and sika on the refuge (Haus and Bowman 2018, Haus and Bowman 2019, Holland and Bowman 2020). Forward-looking infrared sensors (FLIR) were used to increase detections. Surveys were conducted in August and September each year. Density of deer (white-tailed deer and sika combined) averaged 52.2 deer per square mile over the 3-year period. Too few white-tailed deer were detected to develop reasonable density estimates for that species, but density of sika was estimated to be 42.1 per-square-mile. Though there was a fair amount of variation from year to year, all estimates are well above what would be considered ecologically sustainable for the area. The survey indicates deer populations are generally robust on Blackwater NWR.

Maryland's statewide pre-hunt white-tailed deer population was estimated at 240,000 in 2019, a 12 percent increase from the previous 5-year average of 212,000 (Eyler et al. 2020). Maryland annually monitors deer abundance using harvest estimates and age structure of the deer herd to inform management decisions.

Wild Turkey

The MDDNR conducts an annual observation survey during the months of July and August of wild turkey reproductive success (Long 2020). Overall, estimated production has declined in the

past 2 years with a reproductive index of 1.9 poults per hen in 2020 compared to 2.8 in 2019 and 2.7 on average over the last 15 years. On Blackwater NWR, wild turkeys are common and widespread throughout the refuge and surrounding area and are present in numbers sufficient to sustain optimum population levels for priority refuge objectives in addition to hunting.

Coyote

We will allow incidental coyote hunting concurrent with established refuge deer hunts. On the eastern coastal plain, the region that includes Blackwater NWR, 0.04 (SE 0.03) coyotes were observed per 100 hours during Maryland DNR's Archery Hunter Survey 2018-2019. We anticipate that very few hunters will encounter coyotes while hunting deer on the refuge; thus, we do not anticipate a large number of coyote will be harvested.

Waterfowl

Populations of waterfowl on the refuge are monitored through both aerial and ground-based surveys. Waterfowl on the refuge are present in numbers sufficient to allow hunting, while not compromising other refuge objectives. Service policy 605 FW2 states no more than 40 percent of the refuge may be open for hunting of migratory birds in most cases. Blackwater NWR will maintain over 23,000 acres of inviolate sanctuary. This will ensure waterfowl populations are not impacted as a result of hunting on the refuge.

Non-target species

Competition between target species and other wildlife is primarily associated with crop depredation by white-tailed deer and sika in moist soil impoundments and agricultural fields, both on the refuge, as well as adjacent private land. This depredation can drastically reduce the energetic carrying capacity provided by these habitat management actions for waterfowl. In addition, overbrowsing of forest understory can have a negative effect on nesting passerines (Chollet and Martin 2013, Tymkiw et al. 2013).

In general, the presence of humans will disturb most animals, which typically results in short-term adverse impacts without long-term effects on individuals and populations. Because of the low-density, dispersed nature of hunters on the refuge, chronic adverse impacts on wildlife populations from hunting-related disturbances would be negligible in most instances. Areas of known communal eagle roosts, waterfowl concentrations, or other sensitive areas are typically closed to most hunting activity.

The negative impacts of lead on wildlife are documented and clear (Golden et al. 2016). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead ammunition over a 4-year period to educate and work with hunters on the use of non-lead alternatives. The phased transition to non-lead ammunition for all big game hunting will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles, as well as other scavenging species. Eagles and other scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition.

There are no known levels of predation by target species on other wildlife that would be of concern on Blackwater NWR.

Habitat and Vegetation

The physical effects on vegetation from hunting are expected to be minimal the refuge, as hunters tend to travel on existing roads and game trails. Some off-trail hiking is anticipated, but it will generally be dispersed over large areas. Possible negative cumulative impacts of recreational hunting include temporary trampling of vegetation and light soil erosion. Spring turkey season could cause some trampling effects to growing plants, especially in wet areas; however, we do not expect these impacts to be substantial, because turkey hunter density is expected to be low and dispersed. Most hunting occurs during the fall, but hunters tend to disperse when in the woods; as a result, we do not anticipate substantial impacts to habitats. Some hunt seasons extend into winter when the ground is either frozen, covered in snow, and/or when plants are dormant. Hunters will have little impact on plants during this period. For these reasons, cumulative impacts to plant communities and soils are not likely to be significant during the fall, winter, or spring hunting seasons.

The impacts of the existing deer herd on vegetation on the refuge, particularly agricultural crops, are striking. Excessive white-tailed deer and sika herbivory has significant negative impacts on the refuge farm program, resulting in the total loss of crops in some fields. This directly impacts the ability of the refuge to meet the goals and objectives outlined in the CCP. Neighboring farmers in the Blackwater area are reporting an unacceptable level of crop depredation as well. The herd's impacts to forest resources are more subtle. Deer herbivory has been noted as the cause of failure on a number of tree planting projects at Blackwater NWR. The refuge is currently undertaking a small-scale study evaluating the potential impact of deer browse on forest regeneration.

Positive effects on vegetation may result from maintaining white-tailed deer and sika populations at levels commensurate with the carrying capacity of available habitat. The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well-documented (Tierson et al. 1966; Behrend et al. 1970; Tilghman 1989, Cote et al. 2004, White 2012). Disturbances that typically promote forest diversity, such as fire and small canopy gaps, may not have the desired benefits if browsers are overabundant (Nuttall et al. 2013). An overabundance of deer can suppress native vegetation, facilitating the success of invasive species in forested habitats (Knight et al. 2009). Lessening the impact of excessive deer herbivory is a key forest management strategy (White 2012, Nuttall et al. 2013) and will likely become even more important as the climate warms (Galatowitsch et al 2009). Well-managed hunting has the potential to effectively control deer populations (Brown et al. 2000, Oyer and Porter 2004). The net impact of deer hunting on vegetation should be positive, and result in better regeneration of forest canopy species and an increase in the diversity of the herbaceous understory.

Federal and State Endangered Species

The Northern long-eared bat (*Myotis septentrionalis*; see Federal Register 2015) and Eastern black rail (*Laterallus jamaicensis jamaicensis*; see Federal Register 2020) are both listed as federally threatened and occur on the Complex. Additionally, Eastern narrow-mouthed toad (*Gastrophryne carolinensis*), rare skipper (*Problema bulenta*), and catchfly cutgrass (*Leersia lenticularis*) are listed as threatened or endangered by the State (Maryland Natural Heritage Program 2016). Hunting is not likely to impact Federal or State listed species.

Northern long-eared bats use mines and caves in the winter to hibernate and use forests to forage and roost throughout the rest of the year. The species is most sensitive to disturbance during hibernation and when raising young, activities that are not known to occur on the refuge. Any incidental disturbance to non-breeding individuals would likely have a negligible impact on the species.

Hunters and anglers may potentially disturb black rails during their activities by traversing through their habitat, creating noise, or mildly disrupting plants in the rail's habitat; however, these disturbances are expected to be minimal and unlikely to adversely affect them, as they are able to fly away from disturbance. These disturbances would not result in take.

Waterfowl and deer hunting take place when the birds are absent in the winter or during the non-breeding season where an occasional disturbance would have negligible impacts on the species. Turkey hunting overlaps with the breeding season for black rail but takes place in upland habitats where the species does not occur. For these reasons there will be little to no impact on black rails on the refuge.

Visitor Uses and Experiences

Impacts on non-hunting public uses are minimal. Public use facilities are unaffected by the archery hunt. Sections of Wildlife Drive and some refuge trails may be closed for designated periods of time during the firearms hunts to allow for the harvest of white-tailed deer and sika in these areas. The timing of these closures is designed to maximize deer harvest and minimize impacts to the non-hunting public. The Visitor Center and approximately one third of Wildlife Drive would remain open and are unaffected by the temporary closures at Blackwater NWR.

Wetlands and Water Resources

Hydrology impacts from hunting would be minimal and only result from the use of roads and trails. Unsurfaced trails are susceptible to a variety of impacts including vegetation loss and compositional changes, soil compaction, erosion and muddiness, exposure of plant roots, trail widening, and the proliferation of visitor-created side trails (Marion and Leung 2001). However, these effects are considered minimal due to the fact that hunters are generally dispersed, which reduces repeated erosive actions on soils.

PUBLIC REVIEW AND COMMENT:

This Compatibility Determination (CD) is part of the Chesapeake Marshlands NWR Hunting and Fishing Plan and the accompanying NEPA compliance. The plan was coordinated with all interested and/or affected parties, including State partners. The public will be notified of the availability of the plan and accompanying CDs with no less than a 60-day review and comment period. We will inform the public through local venues, the refuge website, and social media.

DETERMINATION (CHECK ONE BELOW):

Use is not compatible

Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

To ensure compatibility with refuge purpose(s) and Refuge System mission, hunting can occur at Blackwater NWR in accordance with State and Federal regulations and special refuge-specific restrictions to ensure that wildlife and habitat management goals are achieved, and that the program is providing a safe, high quality hunting experience for participants. This hunting program will be monitored and potentially modified or eliminated if any of the program's components are found not compatible. The following stipulations are necessary to ensure compatibility:

- Hunters must notify and receive permission from a Service law enforcement officer, refuge manager, or designee if they need to enter a refuge closed area or another hunting area for which they do not possess a valid permit to retrieve game.
- The use of bicycles, airboats, boats, ATVs, motorized off-road vehicles, and amphibious vehicles or Argos to access the refuge is prohibited except as authorized by the refuge manager, within certain hunt areas, on designated days, routes of travel, waterways, and launch sites.
- Dogs may be used while waterfowl hunting but must be controlled while on refuge property when not actively retrieving.
- The distribution of or hunting over bait is not permitted.
- Non-lead ammunition will be required for big game and coyote hunting beginning in fall of 2026.

JUSTIFICATION:

Hunting is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife. Service policy is to provide expanded opportunities for wildlife-dependent uses when compatible and consistent with sound fish and wildlife management and ensure that they receive enhanced attention during planning and management. Hunting satisfies a recreational need but hunting on NWRs can be an important, proactive management action that can prevent overpopulation and the deterioration of habitat. Disturbance to other species would occur, but this disturbance is generally short-term. Suitable habitat exists on refuge lands to support hunting as proposed.

Additionally, hunting provides wildlife-dependent recreation to the public in a region where these opportunities are limited by private land ownership and development. The vast majority of

private lands are posted as “No Trespassing,” and this limits hunting opportunities for hunters without the agreement of private landowners. The refuge provides a low-cost, safe, and enjoyable option.

This activity would not conflict with any of the other priority public uses or adversely affect biological resources. Therefore, through this planning process, we have determined that hunting on Blackwater NWR, in accordance with the stipulations provided above, is a compatible use that will not materially interfere with, or detract from, the fulfillment of the Refuge System mission or the purpose(s) of the refuge.

SIGNATURE:

Refuge Manager

(Signature)

(Date)

CONCURRENCE:

Regional Chief

(Signature)

(Date)

MANDATORY 15 YEAR RE-EVALUATION DATE:

(Date)

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- Tilghman, N.G. 1989. Impacts of white-tailed deer on forest regeneration in northwestern Pennsylvania. *Journal of Wildlife Management* 53:524-532.
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- White, M.A. 2012. Long-term effects of deer browsing: composition, structure and productivity in a northeastern Minnesota old-growth forest. *Forest Ecology and Management* 269:222-228.

COMPATIBILITY DETERMINATION

USE: Hunting

REFUGE NAME: Eastern Neck National Wildlife Refuge.

DATE ESTABLISHED: December 27, 1962

ESTABLISHING and ACQUISITION AUTHORITY(IES):

Eastern Neck NWR was established under the Migratory Bird Conservation Act of 1929, as amended, {16 U.S.C. 715d}.

REFUGE PURPOSE(S):

Eastern Neck NWR's purpose is "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. § 715d (Migratory Bird Conservation Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

The mission of the National Wildlife Refuge System (Refuge System) is "to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (Refuge System Improvement Act of 1997, Public Law 105-57).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The use is public hunting of white-tailed deer and wild turkey on Eastern Neck NWR. We also allow the incidental take of coyote while deer hunting. Hunting was identified as one of six priority public uses of the Refuge System by the National Wildlife Refuge System Administration Act (NWRSA) of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), when found to be compatible.

(b) Where would the use be conducted?

The use will occur on 1,985 acres at Eastern Neck NWR (see Figure 4) which is approximately 87 percent of the total available refuge area. Areas that are not open to hunting are also indicated.

(c) When would the use be conducted?

Big game hunting on the refuge will generally take place within the season dates established by the State of Maryland. White-tailed deer hunting is normally between September and late January. Hunters can access the refuge up 3 hours before legal sunrise and must exit within 3 hours after legal sunset (including parking lots). This change allows for the differences in length of day as well as accessing remote, difficult to hunt locations, including retrieving of deer shot at

last legal hour. Shooting hours follow the State regulations of one half hour before sunrise and one half hour after sunset. Scout days will be published each year and will be from 7:00 AM to sunset on those dates. Hunting for wild turkeys (bearded birds only) will be during the State spring season, April through May, on designated hunt days and will follow the State shooting hours. Specific regulations for each hunt will be published by the refuge in advance of the hunt seasons.

(d) How would the use be conducted?

Eastern Neck NWR hunters must use a website administered by a third-party vendor, www.recreation.gov. Hunting brochures, hunting application procedures, seasons, bag limits, methods of hunting, maps depicting areas open to hunting, and the terms and conditions under which we issue hunting permits are available at the refuge visitor center, administration office, and on the refuge's website.

The youth mentored turkey hunt at Eastern Neck NWR is not administered through www.recreation.gov and applicants must email their application to be entered into a random drawing that is conducted in partnership with the National Wild Turkey Federation. Youth hunters are required to use the standard refuge hunt permit (Big/Upland Game Hunt Application OMB control number 1018-0140). Mentored deer and turkey hunts will be administered by application through the refuge, Maryland Department of Natural Resources (MDDNR) and conservation partners at Blackwater NWR and no refuge-specific permit is required.

Administrative fees will be charged for the permits. Fees will be utilized to administer the hunt which includes but is not limited to maintaining roads, parking areas, gates, and signs. Youth participating in the designated youth hunt days will not be required to pay a fee for Eastern Neck NWR.

Hunters may walk in from existing designated parking areas, and all vehicle access will be prohibited. During the firearms seasons, vehicles will be restricted to designated roadways and existing parking areas. There will be no off-road vehicles or all-terrain vehicle (ATV) use allowed during any hunting season except for persons with disabilities in designated areas. Certain units of the refuge are designated for hunters with permanent disabilities.

The refuge will now allow rifle hunting using straight-walled cartridges only. Beginning in the 2020-2021 season, MDDNR allowed the use of straight-walled cartridges in shotgun-only counties. The ballistics of straight-walled cartridges are similar to those of shotgun slugs yet are slower and have less range than typical rifle (bottleneck) cartridges. The main advantage to straight-walled cartridges over shotgun slugs is improved accuracy while still maintaining the approximate range of shotguns for safety.

The use of non-lead ammunition for big game will initially be voluntary and will be required in the fall of 2026 after a 4-year phase-in period. This phase-in period will allow hunters time to adapt to the new regulations without diminishing hunting opportunities on the refuge. The refuge staff will provide information to assist in this transition that benefits wildlife.

The hunting program will be reviewed annually or as needed in consultation with MDDNR to

assess its effectiveness and ensure wildlife populations and habitat quality are managed appropriately. In addition, refuge-specific regulations listed under “Stipulations Necessary to Ensure Compatibility” will apply.

(e) Why is the use being proposed?

Hunting is a healthy, traditional recreational use of renewable natural resources deeply rooted in America’s heritage and can be an important wildlife management tool. At Eastern Neck NWR, hunting serves as a useful habitat management tool and helps fulfill Objective 4.3.3 of the Chesapeake Marshlands Comprehensive Conservation Plan (CCP) which calls for expanded opportunities for hunting where appropriate (USFWS 2006).

Furthermore, Department of the Interior Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on NWRs for hunting, fishing, recreational shooting, and other forms of outdoor recreation. The proposed action promotes one of the priority public uses of the Refuge System and provides opportunities to promote stewardship of our natural resources and increase public appreciation and support for the refuge.

AVAILABILITY OF RESOURCES:

The combined hunt program at Blackwater and Eastern Neck NWRs is estimated to cost approximately \$103,010 annually to administer (Table 1). The refuge receives fees through the sale of hunt permits to help offset the cost of implementing the various hunts. In 2020-2021, the deer hunts at Eastern Neck NWR generated \$6,247 with 627 permits sold. Funds are needed for staff time for planning and annual program preparation, outreach and public relations, permit administration, enforcement, boundary and sign posting, and roads and parking lot maintenance. Furthermore, www.recreation.gov charges a \$6.00 service fee that the vendor retains for their services.

The Refuge Recreation Act requires that funds are available for the development, operation, and maintenance of the permitted forms of recreation. The recreation fee (\$10.00 to \$20.00) is the minimal amount needed to offset the cost of managing the hunting programs. This fee may increase in time if deemed necessary by the refuge manager to offset program costs.

Administrative fees collected through the hunts will continue to fund the annual development of regulations, maps, and leaflets. Any remaining revenue generated from the administrative process would be used to replace signs, post closed areas, and maintain parking areas and roads. There may be some costs to the refuge budget associated with these programs in the form of infrastructure maintenance and law enforcement. These costs should be minimal relative to total refuge operations. Maintenance costs would not diminish resources dedicated to other refuge management programs.

ANTICIPATED IMPACTS OF THE USE:

The overall impacts of this use are fully reviewed and discussed in the Blackwater and Eastern Neck NWR Hunting and Fishing Environmental Assessment.

White-tailed Deer

White-tailed deer are common and widespread on Eastern Neck NWR. Maryland's statewide pre-hunt white-tailed deer population was estimated at 240,000 in 2019, a 12 percent increase from the previous 5-year average of 212,000 (Eyler et al. 2020). Maryland annually monitors deer abundance using harvest estimates and age structure of the deer herd to inform management decisions.

Wild Turkey

The MDDNR conducts an annual observation survey during the months of July and August of wild turkey reproductive success (Long 2020). Overall, estimated production has declined in the past 2 years with a reproductive index of 1.9 poults per hen in 2020 compared to 2.8 in 2019, and 2.7 on average over the last 15 years. On Eastern Neck NWR, wild turkeys are common and widespread throughout the refuge and surrounding area and are present in numbers sufficient to sustain optimum population levels for priority refuge objectives in addition to hunting.

Coyote

We will allow incidental coyote hunting concurrent with established refuge deer hunts. On the eastern coastal plain, the region that includes Eastern Neck NWR, 0.04 (SE 0.03) coyotes were observed per 100 hours during Maryland DNR's Archery Hunter Survey 2018-19. We anticipate very few hunters will encounter coyotes while hunting deer on the refuge; thus, we do not anticipate a large number of coyotes will be harvested.

Waterfowl

Eastern Neck NWR does not allow any waterfowl hunting. This will ensure waterfowl populations are not impacted as a result of hunting on the refuge.

Non-target species

Competition between target species and other wildlife is primarily associated with crop depredation by white-tailed deer in moist soil impoundments and agricultural fields, both on the refuge, as well as adjacent private land. This depredation can drastically reduce the energetic carrying capacity provided by these habitat management actions for waterfowl. In addition, overbrowsing of forest understory can have a negative effect on nesting passerines (Chollet and Martin 2013, Tymkiw et al. 2013).

In general, the presence of humans will disturb most animals, which typically results in short-term adverse impacts without long-term effects on individuals and populations. Because of the low-density, dispersed nature of people hunting on the refuges, chronic adverse impacts on wildlife populations from hunting-related disturbances would be negligible in most instances. Areas of known communal eagle roosts, waterfowl concentrations, or other sensitive areas are typically closed to most hunting activity.

The negative impacts of lead on wildlife are documented and clear (Golden et al. 2016). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead ammunition over a 4-year period to educate and work with hunters on the use of non-lead alternatives. The phased transition to non-lead ammunition for all big game hunting will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to

bald and golden eagles and other scavenging species. Eagles and other scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition.

There are no known levels of predation by target species on other wildlife that would be of concern on Eastern Neck NWR.

Habitat and Vegetation

The physical effects on vegetation from hunting are expected to be minimal, as hunters tend to travel on existing roads and game trails. Some off-trail hiking is anticipated, but it will generally be dispersed over large areas. Possible negative cumulative impacts of recreational hunting include temporary trampling of vegetation and light soil erosion. Spring turkey season could cause some trampling effects to growing plants, especially in wet areas; however, we do not expect these impacts to be substantial, because turkey hunter density is expected to be low and dispersed. Most hunting occurs during the fall, but hunters tend to disperse when in the woods; as a result, we do not anticipate substantial impacts to habitats. Some hunt seasons extend into winter when the ground is either frozen, covered in snow, and/or when plants are dormant. Hunters will have little impact on plants during this period. For these reasons, cumulative impacts to plant communities and soils are not likely to be significant during the fall, winter, or spring hunting seasons.

The impacts of the existing deer herd on vegetation on the refuge, particularly agricultural crops, are striking. Excessive white-tailed deer herbivory has negative impacts on the refuge farm program. This directly impacts the ability of the refuge to meet the goals and objectives outlined in the CCP. The herd's impacts to forest resources are more subtle. Deer herbivory has been noted as the cause of failure on a number of tree planting projects at Eastern Neck NWR.

Positive effects on vegetation may result from maintaining white-tailed deer populations at levels commensurate with the carrying capacity of available habitat. The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well-documented (Tierson et al. 1966, Behrend et al. 1970, Tilghman 1989, Cote et al. 2004, White 2012). Disturbances that typically promote forest diversity, such as fire and small canopy gaps, may not have the desired benefits if browsers are overabundant (Nuttall et al. 2013). An overabundance of deer can suppress native vegetation, facilitating the success of invasive species in forested habitats (Knight et al. 2009). Lessening the impact of excessive deer herbivory is a key forest management strategy (White 2012, Nuttall et al. 2013) and will likely become even more important as the climate warms (Galatowitsch et al 2009). Well-managed hunting has the potential to effectively control deer populations (Brown et al. 2000, Oyer and Porter 2004). The net impact of deer hunting on vegetation should be positive, and result in better regeneration of forest canopy species and an increase in the diversity of the herbaceous understory.

Federal and State Endangered Species

The Eastern black rail (*Laterallus jamaicensis jamaicensis*; see Federal Register 2020) is listed as federally threatened and occur on the refuge. Additionally, rare skipper (*Problema bulenta*), is listed as threatened by the State (Maryland Natural Heritage Program 2016). Hunting is not

likely to impact Federal or State listed species.

Hunters and anglers may potentially disturb black rails during their activities by traversing through their habitat, creating noise, or mildly disrupting plants in the rail's habitat; however, these disturbances are expected to be minimal and unlikely to adversely affect them, as they are able to fly away from disturbance. These disturbances would not result in take.

Deer hunting take place when the birds are absent in the winter or during the non-breeding season where an occasional disturbance would have negligible impacts on the species. Turkey hunting overlaps with the breeding season for black rail but takes place in upland habitats where the species does not occur. For these reasons there will be little to no impact on black rails on the refuge.

Visitor Uses and Experiences

Impacts on non-hunting public uses are minimal. The Boxes Point Trail at Eastern Neck NWR is situated near a bald eagle nest and the trail being closed annually during the late winter/early spring to reduce disturbance during the nesting period.

Wetlands and Water Resources

Hydrology impacts from hunting would be minimal and only result from the use of roads and trails. Unsurfaced trails are susceptible to a variety of impacts including vegetation loss and compositional changes, soil compaction, erosion and muddiness, exposure of plant roots, trail widening, and the proliferation of visitor-created side trails (Marion and Leung 2001). However, these effects are considered minimal due to the fact that hunters are generally dispersed, which reduces repeated erosive actions on soils.

PUBLIC REVIEW AND COMMENT:

This Compatibility Determination (CD) is part of the Chesapeake Marshlands NWR Hunting and Fishing Plan and the accompanying NEPA compliance. The plan was coordinated with all interested and/or affected parties, including State partners. The public will be notified of the availability of the plan and accompanying CDs with no less than a 60-day review and comment period. We will inform the public through local venues, the refuge website, and social media.

DETERMINATION (CHECK ONE BELOW):

Use is not compatible

Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

To ensure compatibility with refuge purpose(s) and Refuge System mission, hunting can occur at Eastern Neck NWR in accordance with State and Federal regulations and special refuge-specific restrictions to ensure that wildlife and habitat management goals are achieved and that the program is providing a safe, high quality hunting experience for participants. This hunting

program will be monitored and potentially modified or eliminated if any of the program's components are found not compatible. The following stipulations are necessary to ensure compatibility:

- Hunters must notify and receive permission from a Service law enforcement officer, refuge manager, or designee if they need to enter a refuge closed area or another hunting area for which they do not possess a valid permit to retrieve game.
- The use of bicycles, airboats, boats, ATVs, motorized off-road vehicles, and amphibious vehicles or Argos to access the refuge is prohibited except as authorized by the refuge manager, within certain hunt areas, on designated days, routes of travel, waterways, and launch sites.
- The distribution of or hunting over bait is not permitted.
- Non-lead ammunition will be required for big game and coyote hunting beginning in fall of 2026.

JUSTIFICATION:

Hunting is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife. Service policy is to provide expanded opportunities for wildlife-dependent uses when compatible and consistent with sound fish and wildlife management and ensure that they receive enhanced attention during planning and management. Hunting satisfies a recreational need but hunting on NWRs can be an important, proactive management action that can prevent overpopulation and the deterioration of habitat. Disturbance to other species would occur, but this disturbance is generally short-term. Suitable habitat exists on refuge lands to support hunting as proposed.

Additionally, hunting provides wildlife-dependent recreation to the public in a region where these opportunities are limited by private land ownership and development. The vast majority of private lands are posted as "No Trespassing," and this limits hunting opportunities for hunters without the agreement of private landowners. The refuge provides a low-cost, safe, and enjoyable option.

This activity would not conflict with any of the other priority public uses or adversely affect biological resources. Therefore, through this planning process, we have determined that hunting on Eastern Neck NWR, in accordance with the stipulations provided above, is a compatible use that will not materially interfere with, or detract from, the fulfillment of the Refuge System mission or the purpose(s) of the refuge.

SIGNATURE:

Refuge Manager

(Signature)

(Date)

CONCURRENCE:

Regional Chief

(Signature)

(Date)

MANDATORY 15 YEAR RE-EVALUATION DATE:

(Date)

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- White, M.A. 2012. Long-term effects of deer browsing: composition, structure and productivity in a northeastern Minnesota old-growth forest. *Forest Ecology and Management* 269:222-228.

FIGURES

Figure A-1. Hunt map of Blackwater NWR – Main Unit

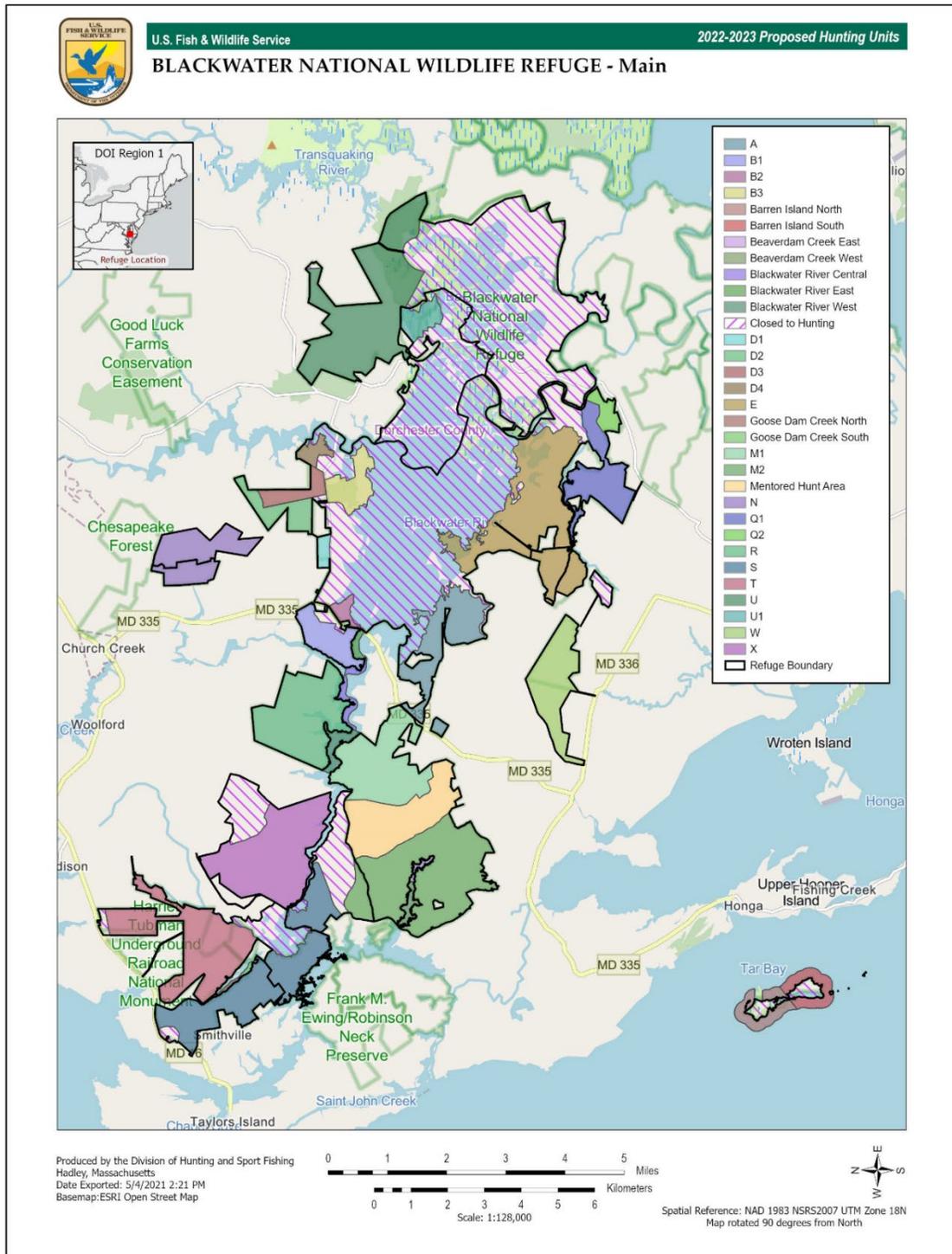


Figure A-2. Hunt map of Blackwater NWR – Nanticoke Unit

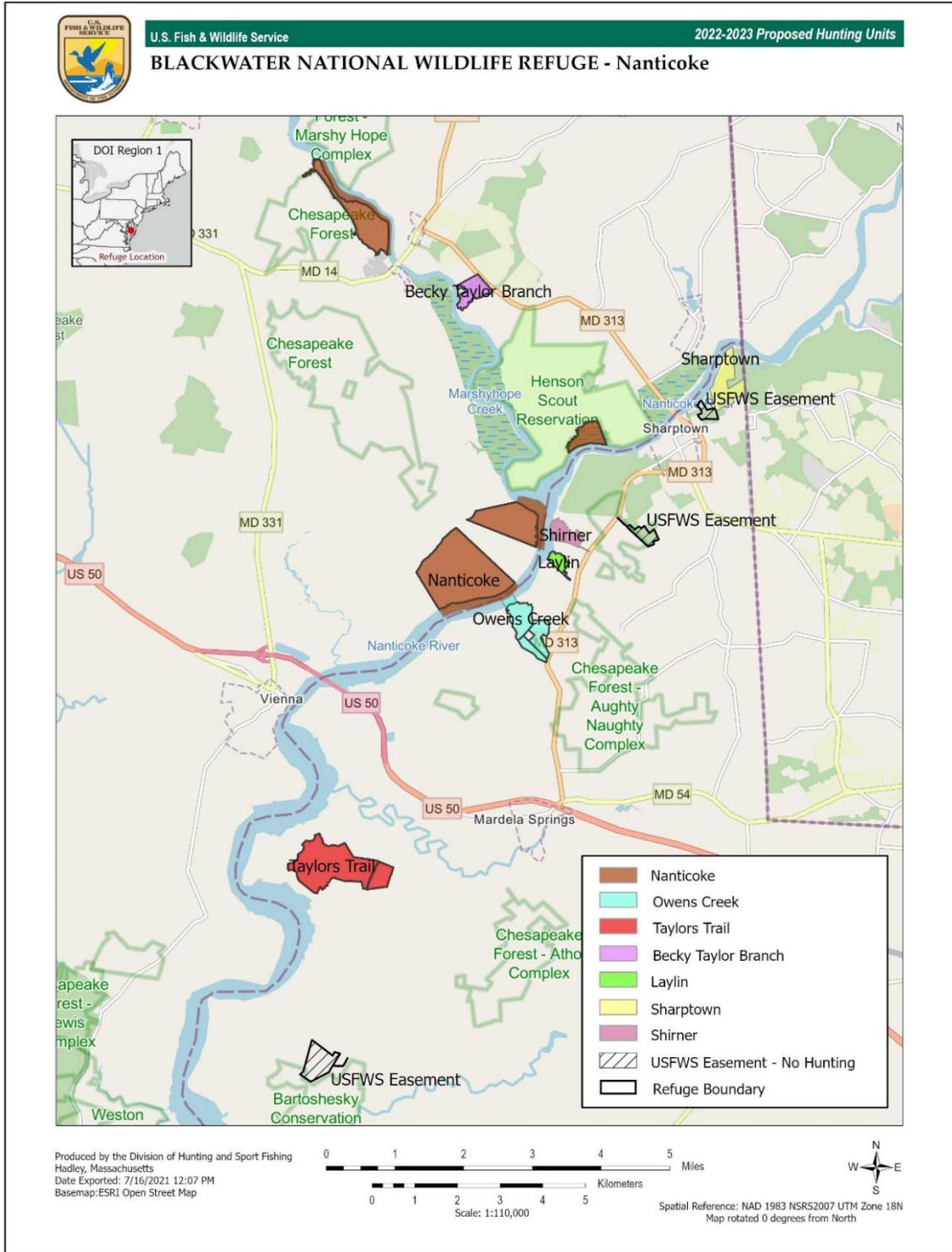


Figure A-3. Hunt map of Blackwater NWR – Southern units

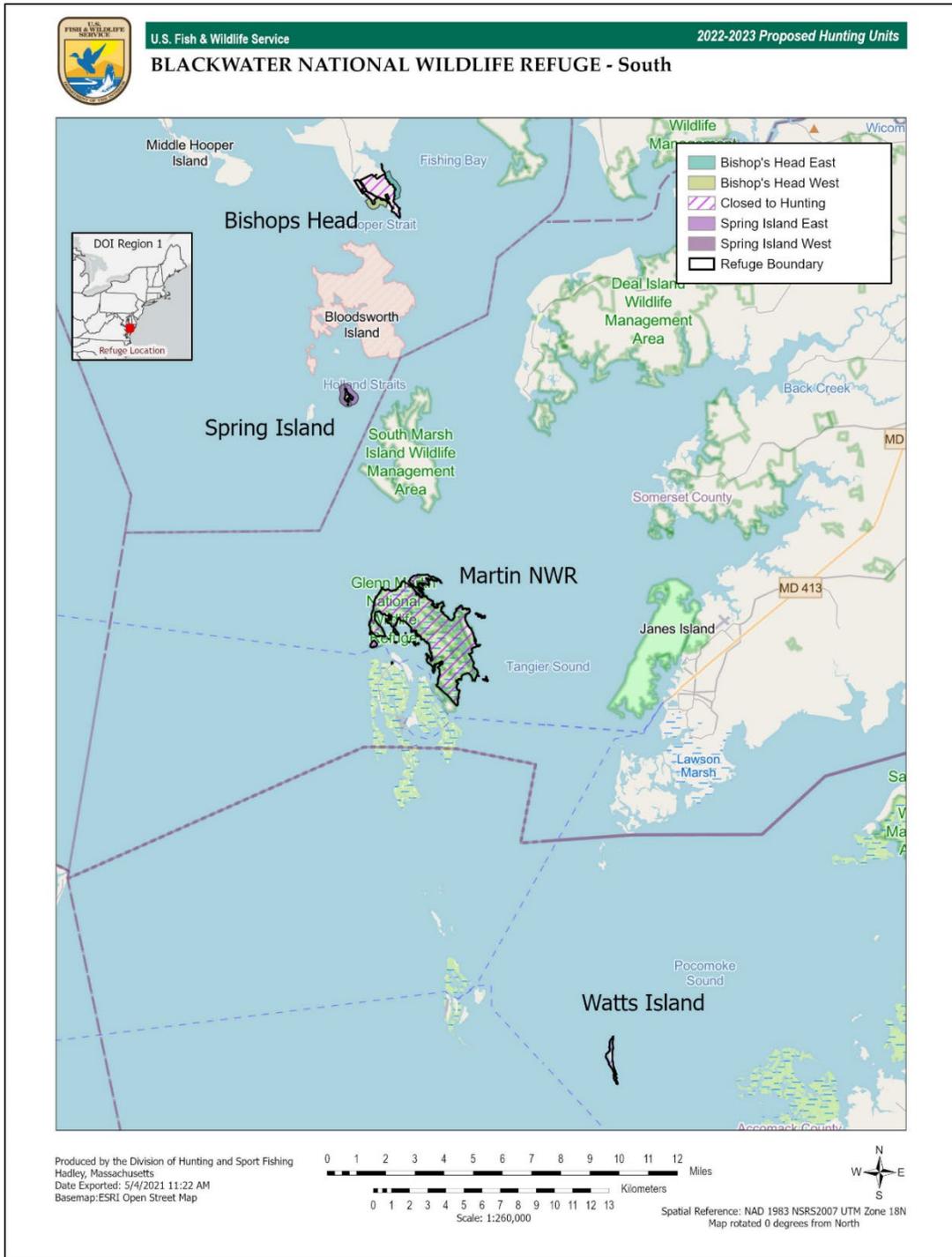
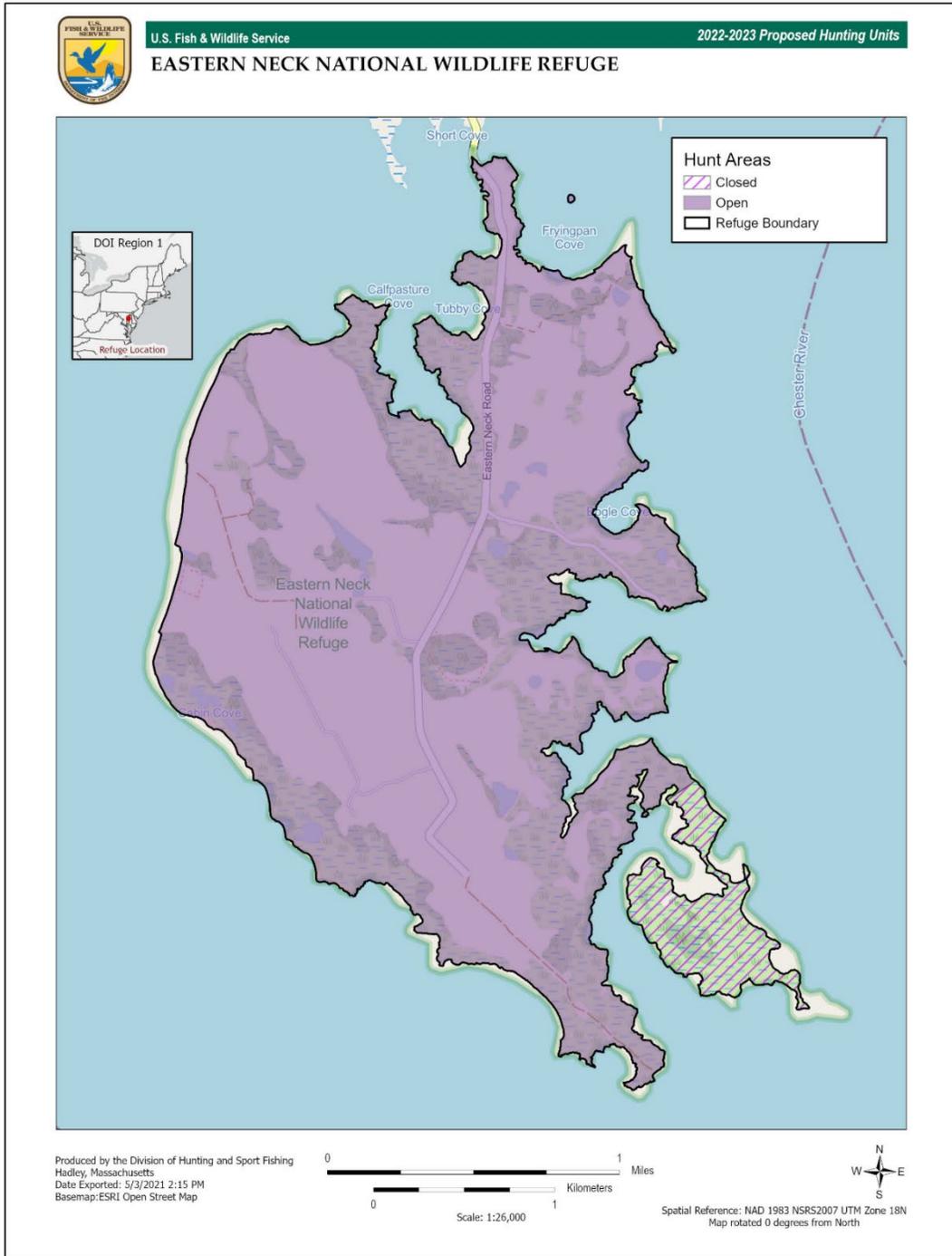


Figure A-4. Hunt map of Eastern Neck NWR



TABLES

Table A-1. Annual Funding and Staffing Requirements to Administer the Hunt Program at Blackwater and Eastern Neck NWR.

| Requirement | Costs |
|--|--------------|
| Salaries (online hunt programming; 100 hrs. \$45/hr.) | \$4,500 |
| Mowing hunt roads | \$6,150 |
| Regular maintenance of 1-mile of road/year | \$6,000 |
| Road overhaul (materials) of 2.7 miles road/year | \$75,195 |
| Parking lots (replacing a 100' X100' parking lot- 1/year) | \$4,435 |
| Replace three gates/year | \$1,200 |
| Maintain three disabled hunt blinds | \$1,030 |
| Replace three hunt Signs/year | \$4,500 |
| Total annual cost of Chesapeake Marshlands NWRC Hunt Program | \$103,010 |

COMPATIBILITY DETERMINATION

USE: Fishing and Crabbing

REFUGE NAME: Blackwater National Wildlife Refuge

DATE ESTABLISHED: January 23, 1933

ESTABLISHING and ACQUISITION AUTHORITY(IES):

Blackwater National Wildlife Refuge (NWR) was established under the authority of the Migratory Bird Conservation Act of 1929, as amended, {16 U.S.C. 715d}. Additional lands have been added to the refuge under the authorities of the Endangered Species Act of 1973 {16 U.S.C. 1534}, Refuge Recreation Act of 1966, as amended, {16 U.S.C. 460k-1}, North American Wetlands Conservation Act {16 U.S.C. 4401-413}, and the Refuge Administration Act {16 U.S.C. 668ddb}.

REFUGE PURPOSE(S):

Blackwater NWR's purposes are:

- "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. § 715d (Migratory Bird Conservation Act),
- "...to conserve (A) fish or wildlife which are listed as endangered or threatened species...or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973),
- " for...incidental fish and wildlife-oriented recreational development...the protection of natural resources...the conservation of endangered species or threatened species..." 16 U.S.C. § 460k-1 (Refuge Recreation Act),
- "...to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife" 16 U.S.C. § 4401-413 (North American Wetlands Conservation Act), and;
- "...to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife." 16 U.S.C. § 668ddb (Refuge Administration Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

The mission of the National Wildlife Refuge System (Refuge System) is "to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (Refuge System Improvement Act of 1997, Public Law 105-57).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The use is recreational/sport fishing and crabbing at Blackwater NWR. Fishing was identified as one of six priority public uses of the Refuge System by the National Wildlife Refuge System Administration Act (NWRSA) of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), when found to be compatible.

(b) Where would the use be conducted?

The refuge is not authorized to regulate fishing or other waterborne activities within the navigable waters of the State or within areas where water bottoms are State-owned. Therefore, the compatibility of recreational fishing will be evaluated only according to effects on the purpose(s) for which these tracts were acquired, and where refuge-owned land provides access to these waters. The construction of associated facilities, boat ramps, parking areas, and boardwalks/piers will be assessed in reference to their respective tracts.

The use would occur in navigable and non-navigable waterways of the Blackwater, Little Blackwater, and Nanticoke Rivers and tributaries, including the portion of the Little Blackwater River that is immediately adjacent to the Key Wallace Drive causeway (Figure 1). However, authorization to control recreational fishing within the boundary of Blackwater NWR (including the Nanticoke Unit) is applicable only to those waters which are defined as “non-navigable,” where title was vested in the United States in fee simple absolute, or where the State did not exert its claim during original acquisition. This means that the refuge has the authority to regulate fishing on tracts (14), (14a-i), (14a-I, II), (14a-III), (14e-I), (16,a), (18), (19), (24,a-c), and (29). Therefore, for the purpose of explanation and definition, non-navigable waters within Blackwater NWR include all refuge waters except: (1) the Blackwater River partially downstream of its confluence with the Little Blackwater River, (2) where the U.S. Fish and Wildlife Service (Service) owns only to the centerline of the Blackwater River above and below the Highway 335 bridge, and (3) where the government owns only to the centerline of the Little Blackwater River and Meekins Creek. Shoreline access from refuge lands to waters within the Service's jurisdiction and control will not be authorized except for limited roadside fishing along the Key Wallace Drive causeway (14a and 14a-III). In addition, four freshwater, landlocked ponds will be permitted to be used for controlled, limited access such as special refuge fishing events and environmental education programs on Tract 100u (Briggs Pond), Tract 100m (Hog Range), Tract 100ai (Tubman Pond) and Tract 37 (Key Wallace Pond).

Access to refuge-regulated waters will be limited to a soft launch on Key Wallace Drive, a soft launch on Route 335, and off-refuge public boat ramps at Bestpitch Ferry, Shorter's Wharf Bridge, and Smithville Bridge or from any other “off-refuge” locations. We also will allow roadside fishing on the Key Wallace Drive causeway to the bridge; fishing on the refuge will be further restricted by the very shallow tidal waterways that average less than 1.5 feet deep, except for the long meandering, unmarked Blackwater River channel which is approximately 3 feet in depth.

(c) When would the use be conducted?

The use would be allowed daily, from dawn to dusk (i.e., daylight hours only), April 1 to

September 30 from the Key Wallace Drive soft launch, unless there is a conflict with a management activity or extenuating circumstance that would necessitate deviations from these procedures. The Route 335 soft launch is open year-round. Fishing during this time period would be further restricted by weather and summer insect infestations. Fishing on the freshwater ponds would be further limited to annual events. Fishing in “navigable waters” would not be regulated by the Service, but by the State of Maryland, in the impacted Little Blackwater River along Key Wallace Drive and the Little Blackwater Bridge area. Fishing in the upper Blackwater River would also be regulated by the State.

(d) How would the use be conducted?

Fishing and crabbing will be authorized and regulated according to provisions in 50 CFR, Subchapter C, Part 33 and consistent with State regulations. Fishing and crabbing will be restricted to opportunities from the Key Wallace Drive causeway, with parking at the start of Wildlife Drive, or from boats which provide the only other access to refuge regulated waters of the Blackwater/Little Blackwater River systems. To fish the Key Wallace Drive causeway, vehicles must be parked at the beginning of Wildlife Drive or other designated parking lots to maintain safety and not impede vehicular traffic or farm machinery. This is in compliance with the county of Dorchester, and also will protect the extremely limited shoulder that is mostly marsh from eroding. Boat launching will not be permitted on the refuge except at the Route 335 soft launch and from April 1 to September 30 at the Key Wallace Drive soft launch. The uses described above will be regulated by distribution of refuge leaflets and State fishing and crabbing regulations at the Visitor Center. Law enforcement patrols and compliance checks by refuge officers will be used to enforce the provisions of 50 CFR, Subchapter C, Parts 26, 27, and 33, as applicable. Unmarked channels and depth of shallow water will limit the speed and distance traveled into the refuge by small motorboats. Based on the Refuge Annual Performance Plan (RAPP) data from 2020, approximately 24,000 people visited Blackwater NWR to fish.

The ponds are in otherwise closed areas and would be used for special events such as mentored or youth events where access can be controlled and limited.

A fishing pier or boardwalk may be constructed to access the Blackwater or Little Blackwater River if a suitable location can be found. Staff have been investigating potential locations, and have not found a suitable location yet due to the shallow water depth and deep substrate, which requires a crane and barge to drive the piles in. In addition, potential sufficient parking areas would need to be nearby and would need to avoid conflicts with nearby active rookeries and eagle nests. Fishing from the Wildlife Drive on Blackwater NWR would remain closed due to lack of sufficient parking and conflicts with eagle nesting, a great blue heron rookery, and other public user groups. If a suitable location can be located, we will provide an American with Disabilities Act of 1990 (ADA) accessible pier that will not distract from the other approved refuge uses or the wildlife that depends on the refuge. It would cause minimal impacts to the surrounding habitat.

The use of non-lead tackle for fishing will initially be voluntary and will be required in the fall of 2026 after a 4-year phase-in period. This phase-in period will allow anglers time to adapt to the new regulations without diminishing fishing opportunities on the refuge. The refuge staff will provide information to assist in this transition that benefits fish and wildlife.

Key species are largemouth bass (*Micropterus salmoides*), striped bass (*Morone saxatilis*), white perch (*Morone americana*), yellow perch (*Perca flavescens*), black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), common carp (*Cyprinus carpio*), blue crab (*Callinectes sapidus*), and Northern snakehead (*Channa argus*).

(e) Why is the use being proposed?

Fishing is one of the priority public uses defined by the NWRSA of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57). Department of the Interior Secretarial Order 3356 emphasized identifying opportunities to increase outdoor recreation opportunities for all Americans, including opportunities to hunt and fish. The use will promote one of the priority public uses of the Refuge System. Providing recreational fishing opportunities will promote stewardship of our natural resources and increase public appreciation and support for the refuge.

The waters outside of the refuge and in the seasonally closed areas at Blackwater NWR have State-owned water bottoms. The Service does not have jurisdiction over the water bottoms; therefore, we do not regulate fishing or other water-based activities within the navigable waters in these areas. However, we do provide access to these activities from refuge lands, and conduct enforcement of rules and regulations at six fishing/crabbing areas.

AVAILABILITY OF RESOURCES:

Resources involved in the administration and management of the use are primarily maintenance and visitor services staff and equipment. Refuge maintenance staff maintain fishing access sites through routine mowing and visitor services staff assist with angler-related signs and social media posts. Maintenance and Visitor Services also create and maintain the parking lots at 335 and Key Wallace and provide assistance and oversight at the Youth Fishing Derby at Eastern Neck NWR and family fishing and mentored events at Blackwater NWR. Law enforcement, assisted by the MDDNR, provide routine patrols. The proposed changes would not result in additional staff or funds needed to administer the fishing program.

ANTICIPATED IMPACTS OF THE USE:

The following is an updated summary of the environmental, socioeconomic, and cultural/historical impacts of these programs as more thoroughly described in the Environmental Assessment prepared for the Chesapeake Marshlands NWR Complex's CCP (USFWS 2006). Impacts from fishing are anticipated to be minimized by monitoring impacts.

Habitat and Vegetation

Small motorboats could potentially affect the submerged aquatic vegetation, could create limited shoreline erosion from their wakes, and could potentially increase turbidity if there were sufficient numbers of visits. Zieman stated, "In shallow waters the most common form of rhizome disturbance is from the propellers of motorboats" (1976). Most anglers remain close to the Blackwater River channel where depths are greater and scouring of the water bottom is less likely. Because of the higher salinity and constant wind-generated turbidity of the silt-laden

refuge waters, submerged aquatic vegetation (SAV) is almost nonexistent. In addition, fishing from kayaks has been increasingly popular in recent years, which has resulted in minimal impacts to habitat and aquatic vegetation.

People fishing or crabbing from the shore may also inadvertently damage plants (e.g., via trampling or equipment use) while fishing. Trampling, damage, and killing of vegetation from walking off-trail is also a possibility as a result of this use (Kuss 1986, Roovers et al. 2004).

Wildlife

Fishing and crabbing at Blackwater NWR, if authorized during the fall and winter, would have a negative impact on the migratory waterfowl and nesting bald eagles. Therefore, Blackwater NWR will continue to be closed to fishing and crabbing on refuge waters October 1 to March 31, except for roadside fishing only along the Key Wallace Drive causeway. The soft launch off Key Wallace Drive will also be closed from October 1 to March 31 to prevent disturbance to waterfowl from kayaks and boats.

Studies on boating disturbance to nesting waterfowl (Atkinson-Willes 1969, Bouffard 1982, Cook 1987, Coulter & Miller 1968) and migratory waterbirds (Erwin 1989) indicate that boating causes flushing of nesting birds and possible disturbance to nesting. However, Hartman found the wood duck, a prominent nesting waterfowl at Blackwater NWR, quietly swam away instead of flushing (1972). Speight determined that the effects of waterfowl disturbance depended more on frequency of human presence than number of people present at one time (1973).

Fishing can also potentially cause death or serious injury to migratory birds by using lead sinkers that can become ingested or by discarding hooks, monofilament line, or other litter that can trap or entangle birds and other wildlife. The negative impacts of lead on wildlife are documented and clear (Golden et al. 2016). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead tackle over a 4-year period to educate and work with anglers on the use of non-lead alternatives. The phased transition to non-lead tackle for fishing will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles, as well as other fish and wildlife.

The concern, therefore, is if these disturbances are sufficient to adversely affect the subject purposes for which the refuge was established. Since fishing and crabbing are seasonally limited when aggregations of migratory waterfowl are not present, and are further limited by access, weather, infestation of insects, and shallow water which limits watercraft size and type, it is not likely that fishing will negatively impact wildlife species on the refuge.

Federal and State Endangered Species

The Northern long-eared bat (*Myotis septentrionalis*; see Federal Register 2015) and Eastern black rail (*Laterallus jamaicensis jamaicensis*; see Federal Register 2020) are both listed as federally threatened and occur on the complex. Additionally, Eastern narrow-mouthed toad (*Gastrophryne carolinensis*), rare skipper (*Problema bulenta*), and catchfly cutgrass (*Leersia lenticularis*) are listed as threatened or endangered by the State (Maryland Natural Heritage Program 2016). Fishing has the potential of impacting black rails when either feeding or nesting but is not likely due to the overall small percentage of refuge that can be fished at Blackwater

NWR. Fishing is not likely to impact other Federal or State listed species.

Visitor Uses and Experiences

Interpretive signs, maps, and inflatable buoys to mark the paddling trails will be provided to increase safety and prevent physical impacts by allowing the fisherman/boater to follow the channel instead of getting lost in the unmarked shallow water at Blackwater NWR. The continued closure of boating October 1 to March 31 at Blackwater NWR would have a positive impact on the environment primarily by avoiding disturbance to waterfowl. Preventing parking along the Key Wallace causeway maintains a safe experience for more anglers while not impeding local traffic. A drop-off zone at the soft launch is marked to allow drop-off of kayaks and equipment at the far end of the causeway, which is approximately a quarter mile away. There would be no cultural or historical resource impacts expected.

PUBLIC REVIEW AND COMMENT:

This Compatibility Determination (CD) is part of the Chesapeake Marshlands NWR Hunting and Fishing Plan and the accompanying NEPA compliance. The plan was coordinated with all interested and/or affected parties, including State partners. The public will be notified of the availability of the plan and accompanying CDs with no less than a 60-day review and comment period. We will inform the public through local venues, the refuge website, and social media.

DETERMINATION (CHECK ONE BELOW):

Use is not compatible

Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

To ensure compatibility with refuge purpose(s) and Refuge System mission, fishing can occur at Blackwater NWR in accordance with State and Federal regulations, and special refuge-specific restrictions to ensure that wildlife and habitat management goals are achieved, and that the program is providing a safe, high-quality fishing experience for participants. This fishing program will be monitored and potentially modified or eliminated if any of the program's components are found not compatible.

The following stipulations are necessary to ensure compatibility:

- We allow fishing and crabbing from April 1 through September 30 during daylight hours only.
- We restrict fishing and crabbing to boats and the Key Wallace roadway across the Little Blackwater River.
- We prohibit boat launching from refuge lands except for the soft launch located near the Blackwater River Bridge on Route 335 and the soft launch on Key Wallace Drive, which

is open April 1 to September 30. Public boat ramps are available at Bestpitch Ferry, Shorter's Wharf, and Smithville Bridge.

- Anglers must not clean their catch or dispose of carcasses on refuge lands or in refuge waters and must carry all litter off the refuge.
- We prohibit the use of airboats on refuge waters.
- Non-lead tackle will be required for fishing beginning in fall of 2026.

JUSTIFICATION:

The Refuge System Improvement Act of 1997 identifies fishing as a priority public use. Priority public uses are to receive enhanced consideration when developing goals and objectives for refuges if they are determined to be compatible. Providing fishing opportunities will promote public appreciation and support for the refuge. This activity would not conflict with any of the other priority public uses or adversely affect biological resources. Therefore, through this planning process, we have determined that recreational fishing and crabbing at Blackwater NWR, in accordance with the stipulations provided above, is a compatible use that will not materially interfere with, or detract from, the fulfillment of the Refuge System mission or the purpose(s) of the refuge.

SIGNATURE:

Refuge Manager

(Signature)

(Date)

CONCURRENCE:

Regional Chief

(Signature)

(Date)

MANDATORY 15 YEAR RE-EVALUATION DATE:

(Date)

LITERATURE CITED:

Atkinson-Willes, G. 1969. Wildfowl and recreation: a balance of requirements. Br. Water Supply. 11: 5-15.

Bouffard, S.H. 1982. Wildlife values versus human recreation: Ruby Lake National Wildlife Refuge. Trans. N. Am. Wildlife National Resour. Conf. 47:553-558.

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COMPATIBILITY DETERMINATION

USE: Fishing and Crabbing

REFUGE NAME: Eastern Neck National Wildlife Refuge

DATE ESTABLISHED: December 27, 1962

ESTABLISHING and ACQUISITION AUTHORITY(IES):

Eastern Neck NWR was established under the Migratory Bird Conservation Act of 1929, as amended, {16 U.S.C. 715d}.

REFUGE PURPOSE(S):

Eastern Neck NWR's purpose is "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. § 715d (Migratory Bird Conservation Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

The mission of the National Wildlife Refuge System (Refuge System) is "to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (Refuge System Improvement Act of 1997, Public Law 105-57).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The use is recreational/sport fishing and crabbing at Eastern Neck NWR. Fishing was identified as one of six priority public uses of the Refuge System by the National Wildlife Refuge System Administration Act (NWRSA) of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), when found to be compatible.

(b) Where would the use be conducted?

The refuge is not authorized to regulate fishing or other waterborne activities within the navigable waters of the State or within areas where water bottoms are State-owned. Therefore, the compatibility of recreational fishing will be evaluated only according to effects on the purpose(s) for which these tracts were acquired, and where refuge owned land provides access to these waters. The construction of associated facilities, boat ramps, parking areas, and boardwalks/piers, will be assessed in reference to their respective tracts.

The use would occur at the entrance bridge, Tundra Swan Boardwalk, Duck Inn Trailhead at Chester River, Boxes Point Trailhead at Chester River, Ingleside Recreation Area soft launch, and Bogle's Wharf boat launch (Figure 2). Special event freshwater fishing would be at the

Headquarters' Pond only during the Youth Fishing Derby. No other access to refuge regulated waters will be allowed.

(c) When would the use be conducted?

The entrance bridge and Bogle's Wharf would be open during hours set by Maryland Department of Natural Resources (MDDNR). Fishing at Tundra Swan Boardwalk, Boxes Point Trail and Duck Inn Trail would be from dawn to dusk year-round. The use at Ingleside Recreation Area would be from April 1 through September 30 from dawn to dusk. Special Event freshwater fishing at the Headquarters' Pond would be conducted only during the Youth Fishing Derby, which is usually held in June. Species-specific regulations are regulated by the State.

(d) How would the use be conducted?

Fishing and crabbing would be conducted with no staff involvement except during the Youth Fishing Derby. During the Youth Fishing Derby, staff and volunteers would monitor the participants and provide a variety of partner-led activities. The Friends of Eastern Neck coordinates the fish stocking and provides refreshments and prizes for participants. Other staff involvement includes general maintenance of the fishing access sites and routine law enforcement patrols. Based on the Refuge Annual Performance Plan data from 2020, approximately 10,000 people used Eastern Neck NWR for fishing.

The use of non-lead tackle for fishing will initially be voluntary and will be required after a 4-year phase-in period beginning in fall 2026. This phase-in period will allow anglers time to adapt to the new regulations without diminishing fishing opportunities on the refuge. The refuge staff will provide information to assist in this transition that benefits fish and wildlife.

Key species are striped bass, white perch, yellow perch, spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), channel catfish, blue catfish (*Ictalurus furcatus*), and blue crab.

(e) Why is the use being proposed?

Fishing is one of the priority public uses defined by the NWRSAA of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57). Department of the Interior Secretarial Order 3356 (September 15, 2017) emphasized identifying opportunities to increase outdoor recreation opportunities for all Americans, including opportunities to hunt and fish. The use will promote one of the priority public uses of the Refuge System. Providing recreational fishing opportunities will promote stewardship of our natural resources and increase public appreciation and support for the refuge.

The waters surrounding Eastern Neck NWR have State-owned water bottoms. The Service does not have jurisdiction over the water bottoms; therefore, we do not regulate fishing or other water-based activities within the navigable waters in these areas. However, we do provide access to these activities from refuge lands and conduct enforcement of rules and regulations at six fishing/crabbing areas.

AVAILABILITY OF RESOURCES:

Resources involved in the administration and management of the use are primarily maintenance and visitor services staff and equipment. Refuge maintenance staff maintain fishing access sites through routine mowing and visitor services staff assist with angler-related signs and social media posts. Maintenance and Biology staff maintain water levels in the Eastern Neck NWR Headquarters' Pond for Youth Fishing Derby and provide assistance and oversight at the Youth Fishing Derby at Eastern Neck NWR and family fishing and mentored events at Blackwater NWR. Law enforcement, assisted by the Maryland DNR, provide routine patrols. Maryland DNR or a private company stock Headquarters' Pond at Eastern Neck NWR for the Youth Fishing Derby (Table 1). The proposed changes would not result in additional staff or funds needed to administer the fishing program.

ANTICIPATED IMPACTS OF THE USE:

The following is an updated summary of the environmental, socioeconomic, and cultural/historical impacts of these programs as more thoroughly described in the Environmental Assessment prepared for Eastern Neck National Wildlife Refuge's CCP (USFWS 2010). Impacts from fishing are anticipated to be minimized by monitoring impacts.

Habitat and Vegetation

Small motorboats could potentially affect the submerged aquatic vegetation, could create limited shoreline erosion from their wakes, and could potentially increase turbidity if there were sufficient numbers of visits. Zieman stated, "In shallow waters the most common form of rhizome disturbance is from the propellers of motorboats" (1976). Fishing from kayaks has been increasingly popular in recent years, which has likely reduced impacts to habitat and aquatic vegetation.

People fishing or crabbing from shore may also inadvertently damage plants (e.g., via trampling or equipment use) while fishing. Trampling, damage, and killing of vegetation from walking off-trail is also a possibility as a result of this use (Kuss 1986, Roovers et al. 2004).

Wildlife

Fishing and crabbing at Eastern Neck NWR, if authorized during the fall and winter, would have a negative impact on the migratory waterfowl and nesting bald eagles. At Eastern Neck NWR, Ingleside will continue to be closed to public use from October 1 to March 31.

Studies on boating disturbance to nesting waterfowl and migratory waterbirds indicate that boating causes flushing of nesting birds and possible disturbance to nesting (Atkinson-Willes 1969, Bouffard 1982, Cook 1987, Coulter and Miller 1968, Erwin 1989). However, Hartman found the wood duck, a prominent nesting waterfowl at Eastern Neck NWR, quietly swam away instead of flushing (1972). Speight determined that the effects of waterfowl disturbance depended more on frequency of human presence than number of people present at one time (1973).

Fishing can also potentially cause death or serious injury to migratory birds by using lead sinkers

that can become ingested or by discarding hooks, monofilament line, or other litter that can trap or entangle birds and other wildlife. The negative impacts of lead on wildlife are documented and clear (Golden et al. 2016). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead tackle over a 4-year phase-in period to educate and work with anglers on the use of non-lead alternatives. The phased transition to non-lead tackle for fishing will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles, as well as other fish and wildlife.

The concern, therefore, is if these disturbances are sufficient to adversely affect the subject purposes for which the refuges were established. Since fishing and crabbing are seasonally limited when aggregations of migratory waterfowl are not present, and are further limited by access, weather, infestation of insects, and shallow water which limits watercraft size and type, it is not likely that fishing will negatively impact wildlife species on the refuges.

Federal and State Endangered Species

The Eastern black rail (*Laterallus jamaicensis jamaicensis*; see Federal Register 2020) is listed as federally threatened and occur on the refuge. Additionally, rare skipper (*Problema bulenta*) is listed as threatened by the State (Maryland Natural Heritage Program 2016). Fishing has the potential of impacting black rails when either feeding or nesting but is not likely due to the overall small percentage of refuge that can be fished. Fishing is not likely to impact other Federal or State listed species.

Visitor Uses and Experiences

Impacts on non-fishing public uses are minimal. Public use facilities are unaffected by fishing activities. No parts of the refuge are closed to other activities to provide for angling. The continued closure of the Ingleside Recreation Area from October 1 through March 31 would benefit wildlife by avoiding disturbance to wintering waterfowl. There would be no cultural or historical resource impacts expected.

PUBLIC REVIEW AND COMMENT:

This Compatibility Determination (CD) is part of the Chesapeake Marshlands NWRC Hunting and Fishing Plan and the accompanying NEPA compliance. The plan was coordinated with all interested and/or affected parties, including State partners. The public will be notified of the availability of the plan and accompanying CDs with no less than a 60-day review and comment period. We will inform the public through local venues, the refuge website, and social media.

DETERMINATION (CHECK ONE BELOW):

Use is not compatible

Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

To ensure compatibility with refuge purpose(s) and Refuge System mission, fishing can occur at Eastern Neck NWR in accordance with State and Federal regulations, and special refuge-specific restrictions to ensure that wildlife and habitat management goals are achieved, and that the program is providing a safe, high quality fishing experience for participants. This fishing program will be monitored and potentially modified or eliminated if any of the program’s components are found not compatible.

The following stipulations are necessary to ensure compatibility:

- We allow fishing and crabbing from April 1 through September 30 during daylight hours at Ingleside Recreation Area.
- Anglers must not clean their catch or dispose of carcasses on refuge lands or in refuge waters and must carry all litter off the refuge.
- Non-lead tackle will be required for fishing beginning in fall of 2026

JUSTIFICATION:

The Refuge System Improvement Act of 1997 identifies fishing as a priority public use. Priority public uses are to receive enhanced consideration when developing goals and objectives for refuges if they are determined to be compatible. Providing fishing opportunities will promote public appreciation and support for the refuge. This activity would not conflict with any of the other priority public uses or adversely affect biological resources. Therefore, through this planning process, we have determined that recreational fishing and crabbing on Eastern Neck NWR, in accordance with the stipulations provided above, is a compatible use that will not materially interfere with, or detract from, the fulfillment of the Refuge System mission or the purpose(s) of the refuge.

SIGNATURE:

Refuge Manager

(Signature)

(Date)

CONCURRENCE:

Regional Chief

(Signature)

(Date)

MANDATORY 15 YEAR RE-EVALUATION DATE:

(Date)

LITERATURE CITED:

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- Zieman, J.C. 1976. The ecological effects of physical damage from motor boats on turtle grass beds in southern Florida. *Aquat. Bot.* 2:127-139.

FIGURES:

Figure B-1. Fishing access locations at Blackwater NWR

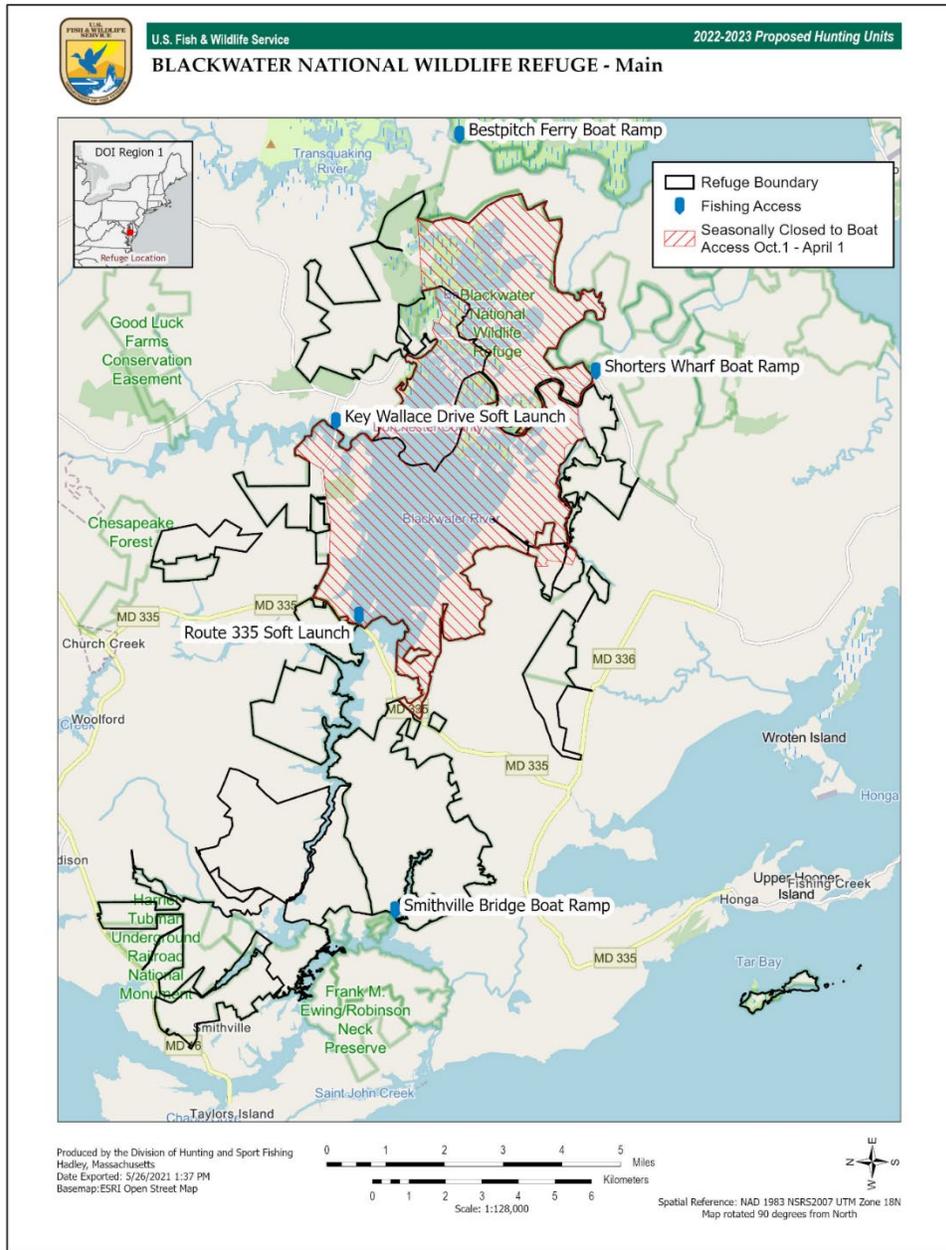
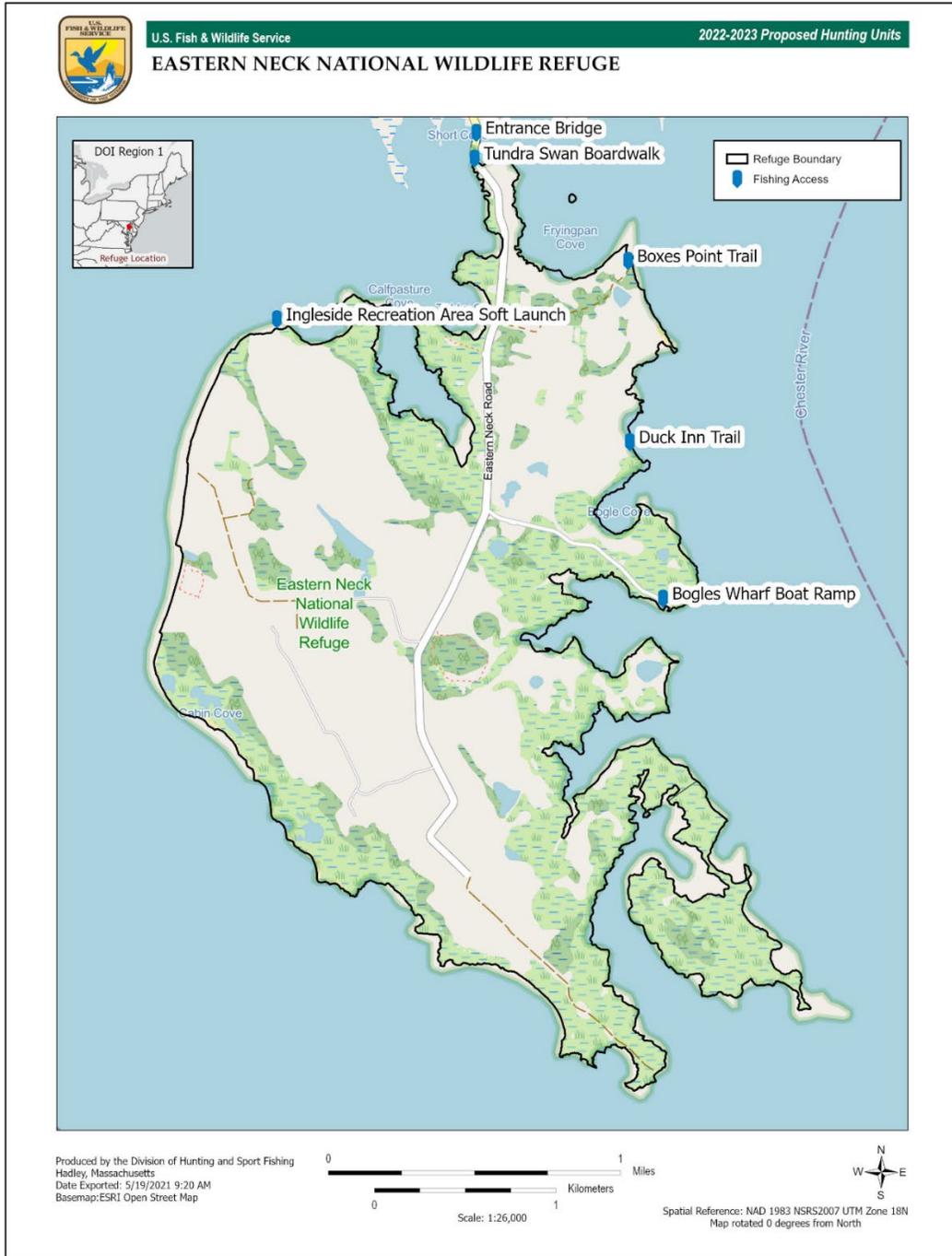


Figure B-2. Fishing access locations at Eastern Neck NWR



TABLES:

Table B-1. Annual funding and staffing requirements to administer the fishing program at Blackwater and Eastern Neck NWR.

| Requirement | Costs |
|--|-----------------|
| Interpretive programs (45 hrs. \$50/hr.) | \$2,250 |
| Fishing events (three events at 12 hrs./event and \$50/hr.) | \$1,800 |
| Preparation of signs, maps, trails, info (120 hrs. \$50/hr.) | \$6,000 |
| Law enforcement (70 hrs. \$50/hr.) | \$3,500 |
| Brochures | \$7,500 |
| Signs | \$7,500 |
| Support cost (fuel and travel expenses) | \$600 |
| Maintenance of facilities (140 hrs. \$50/hr.) | \$7,000 |
| Total | \$36,150 |

Environmental Assessment

Blackwater National Wildlife Refuge and Eastern Neck National Wildlife Refuge, units of the Chesapeake Marshlands National Wildlife Refuge Complex

This Environmental Assessment (EA) evaluates the effects associated with the proposed action and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 CFR 1500-1509) and Department of the Interior (43 CFR 46; 516 DM 8) and U.S. Fish and Wildlife Service (550 FW 3) regulations and policies. NEPA requires examination of the effects of proposed actions on the natural and human environment. A list of laws and executive orders evaluated through this Environmental Assessment is included at the end of the document.

Proposed Action

The U.S. Fish and Wildlife Service (Service) is proposing to open or expand recreational hunting and fishing opportunities on Eastern Neck and Blackwater National Wildlife Refuges (NWR, refuges), part of the Chesapeake Marshlands National Wildlife Refuge Complex (NWRC, Complex), in accordance with each refuge's respective Comprehensive Conservation Plans (CCPs) and the Chesapeake Marshlands NWRC Hunting and Fishing Plan. The refuges would open or expand opportunities for fishing, big game (white-tailed deer, sika, and turkey), small game (coyote), and migratory game bird (waterfowl) hunting. The refuges are proposing to open or expand hunting and fishing opportunities on refuge-owned lands when found to be compatible and consistent with Federal, State, and refuge-specific hunting and fishing regulations.

Eastern Neck NWR is a 2,285-acre island approximately 8 miles south of Rock Hall in Kent County, Maryland. Staff propose to maintain big game hunting opportunities on 1,985 acres of the refuge. Fishing opportunities would remain the same.

Blackwater NWR is over 32,000 acres of brackish marsh, open water, and forested habitats in Dorchester, Cecil, and Wicomico counties, Maryland. In addition to maintaining hunting opportunities on 19,119 acres, we propose to open hunting on 723 acres of recently acquired properties along the Nanticoke River and Marshyhope Creek in Wicomico and Dorchester counties to hunting. Blackwater NWR would expand fishing to include bank fishing from Key Wallace Drive where it crosses the Little Blackwater River.

Both Eastern Neck and Blackwater NWRs propose to open to incidental coyote hunting as part of the existing white-tailed deer and sika hunts. Use of rifles with straight-walled cartridges would be added as a method of take for white-tailed deer and sika. Conversion to non-lead ammunition will phase in over the next 4 years on both refuges.

A proposed action may evolve during the NEPA process as we refine our proposal and gather additional feedback from the public, Tribes, State partners, and other agencies. Therefore, the final proposed action may be different from the original. The proposed action will be finalized at the conclusion of the public comment period for the EA.

Background

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

Eastern Neck NWR was established pursuant to the Migratory Bird Conservation Act of 1929, as amended, {16 U.S.C. 715d}. The primary purpose of the refuge is to “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).

Blackwater NWR was established under the authority of the Migratory Bird Conservation Act of 1929, as amended, {16 U.S.C. 715d}. Additional lands have been added to the refuge under the authorities of the Endangered Species Act of 1973 {16 U.S.C. 1534}, Refuge Recreation Act of 1966, as amended, {16 U.S.C. 460k-1}, North American Wetlands Conservation Act {16 U.S.C. 4401-413}, and the Refuge Administration Act {16 U.S.C. 668ddb}. The primary purpose of the refuge is “...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act), “...to conserve (A) fish or wildlife which are listed as endangered or threatened species...or (B) plants.” 16 U.S.C. § 1534 (Endangered Species Act of 1973), “...suitable for -- (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species...” 16 U.S.C. § 460k-1 (Refuge Recreation Act), “...(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distribution of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.” 16 U.S.C. § 4401-413 (North American Wetlands Conservation Act), and “...to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife.” 16 U.S.C. § 668ddb (Refuge Administration Act).

The mission of the Refuge System, as outlined by the NWRSA, as amended by the National Wildlife Refuge System Improvement Act (16 U.S.C. 668dd et seq.), 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”

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

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

This plan sets forth guidance on the expansion and continued implementation of hunting and fishing programs at Eastern Neck and Blackwater NWRs. Hunting and fishing activities have taken place on both refuges for many years and have proven to be compatible with refuge purposes and the mission of the Refuge System. Lands located on both refuges were actively hunted under previous land ownership.

Purpose and Need for the Action

Hunting and fishing are identified as two of the priority public uses legislatively mandated by the NWRSA of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57) and reinforced as priority uses by Department of the Interior Secretarial Order 3356 (September 15, 2017). Additionally, hunting is a traditional use and a recreational use of renewable natural resources deeply rooted in America’s heritage, and can be an important wildlife management tool. NWRs, including Blackwater and Eastern Neck NWRs, conduct hunting and fishing programs within the framework of Federal, State, and refuge regulations. Hunters and anglers on the refuge are expected to be ethical and respectful of other users, wildlife species, and the environment while on refuge lands.

A purpose of this proposed action is to provide and expand compatible wildlife-dependent recreational opportunities on Chesapeake Marshlands NWRC. A primary need for the proposed action is to meet the Service’s priorities and mandates as outlined by the NWRSA to “recognize compatible wildlife dependent recreational uses as the priority general uses of the

Refuge System” and “ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses” (16 U.S.C. 668dd(a)(4)).

Expanding hunting and fishing access on the refuge provides an opportunity to motivate visitors to value, support and contribute to the refuge and the Refuge System and become better environmental stewards. Department of the Interior (DOI) Secretarial Order 3356 directs the Service to enhance and expand public access to lands and waters on refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. Furthermore, we are directed to work cooperatively with State, Tribal, and territorial wildlife agencies to ensure that hunting and fishing regulations for Department lands and waters complement the regulations on the surrounding lands and waters to the extent legally practicable. The proposed action will also promote priority public uses of the Refuge System, promote stewardship of our natural resources, and increase public appreciation and support for the refuge by providing opportunities for visitors to hunt. To address the needs stated above, the proposed action will bring the refuge into greater compliance with the management guidance detailed in the orders, policy, and Federal laws mentioned above. Finally, the proposed action will help to meet the statement of objectives detailed in the Hunting and Fishing Plan.

The objectives of the hunting and fishing program at Chesapeake Marshlands NWRC are to:

1. Provide the public with a quality recreational experience on refuge lands and waters and increase opportunities and access for consumptive and non-consumptive users of the refuge. The Refuge System Improvement Act of 1997 identified hunting and fishing, where compatible, as two of the six priority public uses;
2. Design hunting and fishing programs that are administratively efficient and manageable with existing staffing levels and in alignment with Maryland Department of Natural Resources (MDDNR) regulations when possible;
3. Implement hunting and fishing programs that are safe and enjoyable for all refuge users; and
4. Design a hunting program that aligns with refuge habitat management objectives.

Alternatives

Alternative A – No Action- Maintain Current Hunting and Fishing Opportunities

The No Action Alternative would continue to provide the hunting and fishing opportunities currently offered at Blackwater and Eastern Neck NWRs. At Blackwater NWR, the refuge would remain open to white-tailed deer, sika, turkey, goose, and duck hunting. At Eastern Neck NWR, the refuge would remain open to white-tailed deer and turkey hunting. Under this alternative, 19,119 acres of Blackwater NWR would be open to hunting and 1,985 acres of Eastern Neck NWR would be open to hunting. No expansion or reduction of hunting and fishing programs would occur, and the programs would be conducted as they are currently.

Alternative B – Proposed Action Alternative- Expand Hunting and Fishing Opportunities

Under the Proposed Action Alternative, the Service proposes to expand its hunting and fishing on refuge lands where these uses are found to be compatible. To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting must be conducted in accordance with State and Federal regulations, as supplemented by refuge-specific regulations (50 CFR 32.39) and information sheets/brochures. Stipulations are further detailed in the hunting and fishing Compatibility Determinations. Additional regulations and general procedures that pertain to hunting and fishing on Eastern Neck and Blackwater NWRs can be found in the Chesapeake Marshlands NWR Hunting and Fishing Plan.

Under this alternative, both refuges would open to incidental coyote hunting concurrent with established refuge deer hunts to help mitigate conflicts with other user groups and to conserve refuge personnel resources. Blackwater NWR would open an additional 723 acres of recently acquired properties along the Nanticoke River and Marshyhope Creek to hunting (Blackwater Tracts 167, 45n, 45m, and 45k). The acreage open to hunting at Eastern Neck NWR would remain the same. Blackwater NWR proposes to add early season teal hunting to the existing waterfowl hunt.

Use of rifles with straight-walled cartridges only would be added as a method of take for white-tailed deer and sika. Transition to non-lead ammunition and tackle will phase in over the next 4 years on both refuges. Blackwater NWR would expand fishing to include bank fishing from Key Wallace Drive where it crosses the Little Blackwater River and add two freshwater ponds for youth fishing and other special events (tract 100m (Hog Range) and tract 100ai (Tubman Pond)).

Measures to Avoid Conflicts:

Specific regulations were designed to prevent conflicts and negative impacts on refuge habitat and resources while expanding hunting and fishing opportunities on the refuges. Careful oversight by refuge staff will mitigate impacts of implementing the expanded programs. The refuge manager reserves the right to close a unit to hunting or completely stop hunting should any adverse effects occur.

- We will continue to maintain buffers around core eagle roosts to minimize disturbance. Other areas may be closed seasonally to minimize disturbances to concentrations of wintering waterfowl.
- Hunting and fishing information will be available at the refuge's headquarters, visitor center, and posted on the refuge's website.
- We prohibit the use of airboats, all-terrain vehicle/utility terrain vehicles (ATV/UTV), motorized off-road vehicles, and amphibious vehicles in most instances for the protection of habitats and to minimize disturbance to wildlife.
- The negative impacts of lead on wildlife are documented and clear (Golden et al. 2016). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead over a 4-year period and plan to educate and work with hunters and anglers on the use of non-lead alternatives. The phased transition to non-lead

ammunition and tackle will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles as well as other scavenging species. Eagles and other scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition.

- Hunt units may be closed to other public activities to increase overall safety, the quality of the hunts, and to minimize conflicts between user groups.

This alternative offers increased opportunities for public hunting/fishing and fulfills the Service's mandate under the NWRSA. The Service has determined that the hunt plan is compatible with the purposes of Chesapeake Marshlands NWRC and the mission of the Refuge System.

Other Alternatives Considered But Eliminated From Further Analysis

In developing hunting plans for NWRs, we regularly receive comments and requests from some members of the public to eliminate hunting. An alternative that would close the refuges to all hunting was therefore considered but dismissed from detailed analysis. A "No Hunting Alternative" would not accomplish the purposes we seek to accomplish by the adoption of this hunting and fishing plan, as described in the "purpose and need" section of this EA. Closing the refuge to hunting would conflict with the Refuge System Improvement Act, which provides that hunting is an appropriate and priority use of the Refuge System, shall receive priority consideration in refuge planning and management, mandates that hunting opportunities should be facilitated when feasible, and directs the Service to administer the Refuge System so as to "provide increased opportunities for families to experience compatible wildlife-dependent recreation, particularly opportunities for parents and their children to safely engage in traditional outdoor activities, such as fishing and hunting." Furthermore, DOI Secretarial Order 3356, signed in 2017, directs the Service to enhance and expand public access to lands and waters on national wildlife refuges for hunting, fishing, recreational shooting, and other forms of outdoor recreation. An alternative that failed to provide any opportunity to participate in hunting activities, where such activities are compatible with the purposes of the Refuge System, would also fail to meet the goals of the Refuge System.

Refuge staff have worked closely with stakeholders and the MD DNR to develop the current proposed hunting and fishing plan. There are no unresolved conflicts about the proposed action with respect to alternative uses of available resources. Additionally, the proposed action builds on a well-established existing hunting and fishing program, and includes the addition of areas developed, in part, from the planning process of the refuge's Comprehensive Conservation Plan (CCP). Therefore, the Service does not need to consider additional alternatives (43 CFR 46.310).

Affected Environment and Environmental Consequences

This section is organized by affected resource categories and for each affected resource discusses both (1) the existing environmental and socioeconomic baseline in the action area for each resource and (2) the direct, indirect, and cumulative effects and impacts of the proposed action and any alternatives on each resource. The effects and impacts of the proposed action considered here are changes to the human environment, whether adverse or beneficial, that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives. Cumulative impacts are defined as the impact on the environment which results from the

incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. This EA focuses on the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an “affected resource.” Resources that would not be more than negligibly impacted by the action may be dismissed from further analyses. We determine significance by considering the degree of effects to that environment, and connected actions are used to assist in determining significance.

Blackwater NWR consists of approximately 32,000 acres in Dorchester and Wicomico counties, Maryland. Garrett Island, also part of Blackwater NWR, is in Cecil County and is not addressed in this analysis. Eastern Neck NWR is a 2,286-acre island situated at the southern tip of Kent County, at the confluence of the Chester River and the Chesapeake Bay. Both refuges are made of tidal marsh, mixed hardwoods and loblolly pine forests, freshwater wetlands, croplands, and open water. The proposed action would take place in designated hunting units totaling 19,842 acres on Blackwater NWR and 1,985 acres on Eastern Neck NWR. For more information regarding and the general characteristics of Eastern Neck and Blackwater NWRs’s environment, please refer to their respective CCPs which can be found at:

https://www.fws.gov/refuge/Eastern_Neck/what_we_do/finalccp.html and https://www.fws.gov/refuge/Blackwater/what_we_do/finalccp.html.

The following resources either (1) do not exist within the project area or (2) would either not be affected or only negligibly affected by the proposed action:

- Geology and soils
- Air quality
- Water quality
- Floodplains
- Wilderness

As such, these resources are not further analyzed in this EA. As stated above, this section predicts the foreseeable impacts of implementing the hunting and fishing program in each of the alternatives. When detailed information may be deficient or unavailable, we base our comparisons on professional judgment and experience. We usually identify potential impacts within a long-range timeframe (i.e., 15 years); beyond that timeframe, they become more speculative.

Please keep in mind the relatively small total land mass of the hunting area of the refuges in comparison with the entire Atlantic Flyway or the breeding ranges of the many birds and wildlife that use it. We recognize that the refuges are not isolated ecologically from the lands around them; however, we may have overstated positive or negative impacts in that larger geographic context. Nevertheless, many of the actions we propose conform to the CCP and other regional landscape plans, and provide positive, incremental contributions to those larger landscape goals.

Big Game (White-tailed deer, sika, wild turkey)

Description of Affected Resource

White-tailed deer are common and widespread on both Eastern Neck and Blackwater NWRs. Sika, a non-native species of elk, is abundant on Blackwater NWR. Road-based surveys using distance sampling were completed on Blackwater NWR in 2017, 2018, and 2019 to estimate the density of white-tailed deer and sika on the refuge (Haus and Bowman 2018, Haus and Bowman 2019, Holland and Bowman 2020). Forward-looking infrared sensors (FLIR) were used to increase detections. Surveys were conducted in August and September each year. Density of deer (white-tailed deer and sika combined) averaged 52.2 deer per square mile over the 3-year period. Too few white-tailed deer were detected to develop reasonable density estimates for that species, but density of sika was estimated to be 42.1 per square mile. Though there was a fair amount of variation from year to year, all estimates are well above what would be considered ecologically sustainable for the area. The survey indicates deer populations are generally robust on Blackwater NWR.

Maryland's statewide pre-hunt white-tailed deer population was estimated at 240,000 in 2019, a 12 percent increase from the previous 5-year average of 212,000 (Eyler et al. 2020). Maryland annually monitors deer abundance using harvest estimates and age structure of the deer herd to inform management decisions.

Maryland's wild turkey population is estimated at 40,000 birds based on fall, winter, and spring harvest data, and production surveys in July and August (B. Long, personal communication, May 21, 2021). Since 2010, the population has been increasing at a rate of 4 percent per year with increasing numbers in three out of five of the State's management regions including the Central, Southern, and Upper Eastern Shore regions. The population in the Lower Eastern Shore and the Western Region of the State have been stable since 2010 (Long 2019).

Impacts on Affected Resource

Alternative A: No Action Alternative

Under this alternative, the current big game hunt program would be maintained at Eastern Neck and Blackwater NWRs. Harvest levels would likely not change dramatically under this action as no new opportunities would be provided. If public interest in sika hunting continues to increase, some additional harvest of that species may be realized.

Hunters harvested an average of 68.0 (range 50 to 91) white-tailed deer on Eastern Neck NWR during the most recent 5-year period (2016-2020). During this period, hunters harvested an average of 403.4 (range 350 to 445) sika and 70.4 (range 43 to 95) white-tailed deer on Blackwater NWR. Statewide harvest in 2020-2021 consisted of 78,275 white-tailed deer and 3,454 sika.

The most recent 5-year average (2016-2020) for annual wild turkey harvest on Eastern Neck NWR is 2.4 birds (range 0 to 5) and is 5.4 on Blackwater NWR (range 3 to 11). These data are based on birds harvested and reported via MDDNR's harvest reporting system. Wild turkey harvest for the spring 2020 hunt was 4,303 statewide, 206 in Kent County and 211 in Dorchester County.

Alternative B: Proposed Action Alternative

Under the Proposed Action Alternative, Blackwater NWR would add 723 acres to the big game hunt program. This represents a 3.8 percent increase in area open to big game hunting and would theoretically increase the harvest by a similar proportion. While this action may increase the harvest reported for Blackwater NWR, these lands were hunted under previous ownership, so there would likely be no impacts to harvested populations or State and county harvest numbers.

Both Eastern Neck and Blackwater NWRs would add use of rifles with straight-walled cartridges only as a method of take for white-tailed deer and sika. This change is precipitated by MDDNR's allowance of straight-walled cartridge use in shotgun-only counties since due to their similar ballistics and range to shotgun slugs that would therefore maintain the safety standards. Straight-walled rifle cartridges offer some increase in accuracy and performance over the currently allowed ammunition. This improvement may translate to a slightly increased harvest of white-tailed deer and sika but given the abundance of this resource on the Complex, we do not expect a negative impact on populations.

Conversion to non-lead ammunition will be phased in for all big game hunting over the next 4 years on both refuges. Non-lead ammunition has the same performance and accuracy as traditional lead-based products. The transition to non-lead ammunition is not expected to impact harvest of big game species.

Overall, we expect the Proposed Action Alternative to result in an increased harvest of less than 15 sika, 2 to 3 white-tailed deer, and 1 or less turkey per year on Blackwater NWR. We do not expect the big game harvest on Eastern Neck NWR to change. Refuges, including Blackwater and Eastern Neck NWRs, conduct the refuge hunting program within the framework of State and Federal regulations. MDDNR sets hunting frameworks based on species' populations and monitored harvests. The proposed refuge hunting regulations will be the same as, or more restrictive than, hunting regulations throughout the State. By maintaining hunting regulations that are the same as or more restrictive than the State, the refuge can ensure that they are maintaining seasons that are supportive of management on a more regional basis. Such an approach also provides consistency with large-scale population status and objectives.

Coyote

Description of Affected Resource

Coyotes are a recent arrival to Maryland. Historically found west of the Mississippi River, coyotes moved east as competing predator populations declined post-European colonization. Established coyote populations now exist in every State, including Maryland where the first documented coyote was found in 1972. Because of the ecological and social concerns related to the expanding coyote population in the State, MDDNR currently allows year-round harvest of coyote with no bag limit. Maryland's Archery Hunter Survey found coyotes statewide in 2018-2019, with the highest observation rates in the western part of the State and lowest on the eastern coastal plain. Statewide, 0.4 (SE 0.1) coyotes were observed per 100 hours. On the eastern coastal plain, the region that includes Eastern Neck and Blackwater NWRs, 0.04 (SE 0.03) coyotes were observed per 100 hours.

Impacts on Affected Resource

Alternative A: No Action Alternative

The harvest of coyote on Eastern Neck and Blackwater NWRs is currently closed. Under this alternative, the refuges would remain closed to hunting of coyote. Therefore, no impacts to coyotes or their habitat would be expected from this alternative.

Alternative B: Proposed Action Alternative

This alternative would open Eastern Neck and Blackwater NWRs to incidental coyote hunting concurrent with established refuge deer hunts. We anticipate very few hunters will encounter coyotes while hunting deer on the refuge; thus, we do not anticipate a large number will be harvested.

Waterfowl (Duck and Goose)

Description of Affected Resource

Winter waterfowl populations for Maryland are best characterized using Midwinter Waterfowl Survey data. Each year in early January, aerial survey teams of pilots and biologists make visual estimates of ducks, geese, and swans found along most of the State's key waterfowl habitats. In the most recent 5-year period for which data are available (2016 to 2020), the survey counted an average of approximately 738,400 waterfowl, including 84,600 dabbling ducks, 209,700 divers, and 381,400 Canada geese. Harvest for these species is cooperatively regulated among an international consortium of wildlife managers (Atlantic Flyway Council) and is based on surveys, harvest data, and habitat data.

Impacts on Affected Resource

Alternative A: No Action Alternative

Under this alternative, the current waterfowl hunting program would be maintained at Blackwater NWR. Harvest levels would likely not change dramatically under this action as no new opportunities would be provided. Eastern Neck NWR would remain closed to waterfowl hunting.

Alternative B: Proposed Action Alternative

This alternative would add waterfowl hunting opportunities on recently acquired properties along the Nanticoke River and Marshyhope Creek (tracts 167, 45n, 45m, and 45k) on Blackwater NWR. We also propose to add early season teal hunting to the waterfowl hunt program for Blackwater. Given the increase in the waterfowl hunting opportunities, we estimate a 25 percent increase in waterfowl harvest on Blackwater NWR. All of the newly acquired units under consideration were actively hunted under previous ownership, so there would likely be no additional impacts to waterfowl populations. Early season teal hunting will be offered at limited locations as defined in the hunt plan, leaving the majority of the refuge to serve as relatively undisturbed habitat for fall migrating teal. Eastern Neck NWR will remain closed to waterfowl hunting. Important roost areas and waterfowl concentration areas remain closed.

The Service believes that due to the time of year in which it is allowed, hunting on the refuges will not add significantly to the cumulative impacts of migratory bird management on local, regional, or Atlantic Flyway populations because the percentage likely to be taken on the complex, though possibly additive to existing hunting takes, would be a tiny fraction of the

estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and State regulatory processes. Several points support this conclusion: (1) the proportion of the national waterfowl harvest that occurs on NWRs is only 6 percent (Service 2013); (2) there are no populations that exist wholly and exclusively on NWRs; (3) annual hunting regulations within the United States are established at levels consistent with the current population status; (4) refuges cannot permit more liberal seasons than provided for in Federal frameworks; and (5) refuges purchased with funds derived from the Federal Duck Stamp must limit hunting to 40 percent of the available area. As a result, changes or additions to hunting on the refuge will have minor impacts on wildlife species in Maryland. Although the Proposed Action Alternative will increase hunting opportunities compared to the No Action Alternative, the slight increase in hunter activity will not rise to a significant cumulative impact locally, regionally, or nationally.

Fish

Description of Affected Resource

The tidal creeks and shallow ponds at Eastern Neck and Blackwater NWRs provide spawning, nursery, and/or feeding habitat for a variety of finfish and shellfish. Many fish species move into shallow waters in summer and out to deeper waters in the Chesapeake Bay in the fall. The most common finfish found on Blackwater NWR include black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), brown bullhead (*Ameiurus nebulosus*), common carp (*Cyprinus carpio*), gizzard shad (*Dorosoma cepedianum*), pumpkinseed (*Lepomis gibbosus*), and white perch (*Morone americana*). Northern snakehead (*Channa argus*), an invasive species first recorded in the Blackwater River on March 16, 2012, has rapidly colonized the drainage. Key species on Eastern Neck NWR are striped bass, white perch, yellow perch, spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), channel catfish, blue catfish (*Ictalurus furcatus*), and blue crab (*Callinectes sapidus*).

Impacts on Affected Resource

Alternative A: No Action Alternative

Under this alternative, the current recreational fishing program would be maintained at Eastern Neck and Blackwater NWRs. Harvest levels would likely not change dramatically under this action as no new opportunities would be provided.

Alternative B: Proposed Action Alternative

Fishing would be expanded under this alternative to include roadside fishing on Key Wallace Drive where it crosses the Little Blackwater River. Additionally, we would open the freshwater pond at Howard (tract 100m) and at Tubman Trail (100ai) to special events, such as youth fishing days and mentored fishing workshops. A fishing pier or boardwalk may be constructed to access the Blackwater or Little Blackwater River if a suitable location can be found. Fishing from the Wildlife Drive on Blackwater NWR would remain closed due to lack of sufficient parking and conflicts with eagle nesting, great blue heron rookery, and other user groups. Fishing opportunities on Eastern Neck NWR would continue as currently permitted.

The expansion of fishing access could result in as much as a 50 percent increase in participation. Opening additional areas to fishing access may have minor or negligible impacts on resident fish species. While fishing does remove individuals from a population, we do not anticipate increased

fishing opportunities will affect fish populations as a whole. Northern snakehead is the most popular target species for anglers on Blackwater NWR. Increasing harvest pressure is one of the few tools available for managing impacts of this invasive species. Anglers must abide by the State's seasons, catch limits, and regulations, which were designed to protect fish populations.

Non-Target Wildlife and Aquatic Species

Description of Affected Resource

Eastern Neck and Blackwater NWRs support a diversity of wildlife species typical of the forests, fields, and wetlands of the Chesapeake Bay region. The two refuges provide a mosaic of habitats for a wide variety of avian species which includes migratory waterfowl, shorebirds, raptors, songbirds, and an assortment of marsh birds. Pollinator species are as diverse as the habitats on the Complex with its freshwater wetlands, forested habitats, and species-rich grasslands. These habitats also support an abundance of reptiles and amphibians, including spotted turtle (*Clemmys guttata*), plain-bellied watersnake (*Nerodia erythrogaster*), and narrow-mouthed toad (*Gastrophryne carolinensis*). Frequently encountered mammals include red fox (*Vulpes vulpes*) and muskrat (*Ondatra zibethicus*). A more comprehensive discussion of the rich diversity of species found on the two refuges can be found in their respective CCPs: https://www.fws.gov/refuge/Eastern_Neck/what_we_do/finalccp.html and https://www.fws.gov/refuge/Blackwater/what_we_do/finalccp.html.

Impacts on Affected Resource

Alternative A: No Action Alternative

Under this alternative, hunting and fishing opportunities would continue on Eastern Neck and Blackwater NWRs as they are currently permitted. This alternative currently results in some short-term but negligible negative impacts to small mammal, birds, and other wildlife due to disturbance in areas where human access for hunting activities occur.

Alternative B: Proposed Action Alternative

Hunting and fishing activities can impact both target and non-target species. These impacts include direct mortality of individuals, changes in wildlife behavior, changes in wildlife population structure, dynamics, and distribution patterns, and disturbance from noise and hunters walking on and off trails (Cole 1990, Cole and Knight 1990). However, under the anticipated levels of use, these impacts would likely be minimal.

The frequency of hunting events is regulated to provide periods of non-disturbance in areas open to hunting. For example, Blackwater NWR's waterfowl hunt units are only open to hunting 2 days per week, leaving the remaining days to provide undisturbed rest areas for migratory birds and other wildlife. Turkey hunts are also only 2 days per week, with limited hunters per unit, to maximize success and opportunity. Providing a certain number of days closed to hunting for deer can provide benefit by reducing pressure which often causes sika to be active mainly after dark and can push them to private lands or areas inaccessible to hunters. This helps increase the quality of hunting opportunities, maximize harvest, as well as minimize disturbance to wildlife.

The negative impacts of lead on wildlife are documented and clear (Golden et al. 2016). To move towards reduction and future elimination of this threat on the refuge, we will be eliminating the use of lead ammunition and tackle over a 4-year period to educate and work with

hunters and anglers on the use of non-lead alternatives. The phased transition to lead-free ammunition and tackle for all hunting and fishing will minimize the inadvertent exposure and subsequent lethal or sub-lethal impacts to bald and golden eagles, as well as other scavenging species. Eagles and other scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition.

Lead shot and bullet fragments found in animal carcasses and gut piles are the most likely source of lead exposure. Many hunters do not realize that the carcass or gut pile they leave in the field usually contains lead bullet fragments. Research will continue on the effects of lead ammunition and the fragments it can deposit in killed game. Avian predators and scavengers can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition. Lead poison may weaken raptors and increase mortality rate by leaving them unable to hunt, or more susceptible to vehicles or power line accidents. The bioaccumulation of lead is a potential concern, but it does not likely present a significant issue on this refuge, as: 1) non-lead shot is currently required for hunting waterfowl; 2) we are proposing a 4-year phase out to the use of lead ammunition and tackle for all species by 2026; 3) the refuge strongly encourages use of non-lead alternatives for hunting big game and coyote for the next 4 years; 4) we will educate hunters, anglers, and the public to the potential adverse impacts of lead; and 5) the updated hunting and fishing activities are not likely to introduce substantially more lead into the environment over existing amounts with the current or proposed programs. Some hunters will also choose non-lead methods of take such as archery.

Fishing should benefit non-target species since the invasive snakehead is the primary target for the majority of anglers on Blackwater NWR. According to the most recent study that examined fish communities pre and post snakehead, white perch, black crappie, and brown bullhead were evenly distributed and dominated, but after snakeheads, the surveys were dominated by common carp and gizzard shad (Newhard and Love 2019). Trash, fishing line, and other debris may impact wildlife through entanglement.

Consistent with our existing program, baiting deer would not be allowed on the 723 acres being proposed for opening to hunting. Baiting for deer is allowed by MD DNR on private lands only. No baiting is allowed on either refuge, which is consistent with the State's policy on Wildlife Management Areas (WMAs) and the Federal regulation restricting baiting on most NWRs. This prevents a sense of entitlement or ownership to any one area on the refuge, thereby reducing hunter conflicts, as well as prevents artificial inflation or concentration of deer species. Prohibiting baiting also prevents artificial inflation of non-target species, such as raccoons, that may have impacts on ground-nesting birds and other non-target wildlife. Although chronic wasting disease has not been found on the eastern shore of Maryland to date, this is also a consideration.

Threatened and Endangered Species, and Other Special Status Species

Description of Affected Resource

According to the Service's Information for Planning and Consultation Tool (IPaC), threatened, endangered, or special status species on or near refuge hunting and fishing action areas are:

- Federally threatened Northern long-eared bat (Blackwater NWR only)
- Federally threatened Eastern black rail
- Special Federal status bald and golden eagles

Additionally, IPaC indicates the federally threatened puritan tiger beetle is found in Kent County, but there are no records of this species on refuge lands.

Northern long-eared bats are federally threatened. First detected on Blackwater NWR during a systematic survey of bat habitats in 2016, the species was detected again by Salisbury University in 2019. We currently have no indication that the species breeds in our area and there are no known hibernacula on the refuge.

Black rails are federally threatened and occur on both refuges during the breeding season. The species is found in irregularly flooded tidal marshes and occasionally non-tidal shallow wetlands. Additionally, Eastern narrow-mouthed toad (*Gastrophryne carolinensis*), rare skipper (*Problema bulenta*), and catchfly cutgrass (*Leersia lenticularis*) are listed as threatened or endangered by the State (Maryland Natural Heritage Program 2016). All three species are found on Blackwater NWR. Only the rare skipper is found on Eastern Neck NWR.

After four decades of protection under the Endangered Species Act, the bald eagle was removed from the Federal list of endangered and threatened wildlife in 2007. However, they are still protected under the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Forests, shorelines and wetlands provide important breeding, foraging and roosting locations for bald eagles on both refuges. Golden eagles are seen annually on Blackwater NWR during the non-breeding season and less frequently on Eastern Neck NWR. During the winters 2007-2008 through 2016-2017, a minimum of four to eight golden eagles were present annually on and around Blackwater NWR (Inskip and Golden 2017).

Impacts on Affected Resource

Alternative A: No Action Alternative

The current level of hunting and fishing activity has not adversely affected federally listed species on the refuges. Deer hunting occurs from September through the end of January, with the most participation from October through early December, when eagles are not nesting.

Alternative B: Proposed Action Alternative

Northern long-eared bats use mines and caves in the winter to hibernate and use forests to forage and roost throughout the rest of the year. Northern long-eared bats may occur in some areas in the hunting zones. The species is most sensitive to disturbance during hibernation and when raising young. Any incidental disturbance to non-breeding individuals would likely have a negligible impact on the species.

Northern long-eared bats may be disturbed if hunters walk through an area or use their roost trees for stand placement, but bats are typically nocturnal and inactive during hunting seasons and not present for most of the hunting seasons; therefore, disturbance would be highly unlikely. Gun use

could result in flushing of bats from roosting trees; however, bats are more likely to remain in the trees, and even if flushed this would not result in mortality of bats. The hunting programs would not result in any tree cutting or other habitat alteration.

Hunters and anglers may potentially disturb black rails during their activities by traversing through their habitat, creating noise, or mildly disrupting plants in the rail's habitat; however, these disturbances are expected to be minimal and unlikely to adversely affect them, as they are able to fly away from disturbance. These disturbances would not result in take.

Fishing activities would occur well away from the remote marsh habitat this species occupies. Waterfowl and deer hunting take place when the birds are absent in the winter or during the non-breeding season where an occasional disturbance would have negligible impacts on the species. Turkey hunting overlaps with the breeding season for black rail but takes place in upland habitats where the species does not occur. For these reasons there will be little to no impact on black rails on the refuges.

As stated earlier, the use of non-lead ammunition for big game and associated coyote hunting will initially be voluntary and will be required after a 4-year phase-in period. This phase-in period will allow hunters time to adapt to the new regulations without diminishing big game hunting opportunities on the refuge. Moreover, the scarce amount of lead introduced on this refuge from proposed hunting and fishing activity is not likely to adversely affect the Northern long-eared bat or Eastern black rail because those species will not be present or active in the refuge hunting areas during the hunting seasons. Furthermore, these species are not scavengers and, therefore, will not be impacted by bioaccumulation of lead or lead fragments in gut piles left on the refuge after hunting seasons. Current and proposed levels of hunting and fishing, along with non-lead alternative education, would not result in lead levels toxic to any threatened or endangered species that occur on the refuge.

Most deer and coyote hunting would take place outside of the bald eagle breeding season. Avian predators and scavengers, such as bald and golden eagles, can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition. Transitioning to non-lead ammunition and tackle would reduce the likelihood of exposure and subsequent lethal or sub-lethal impacts to eagles.

The proposed actions would likely not have negative impacts on threatened or endangered species. However, if there is a potential for hunting and fishing to have a negative impact on such species, or a new species of concern is identified on refuge lands, we will reevaluate our programs and implement program changes as necessary.

Habitat and Vegetation

Description of Affected Resource

Eastern Neck and Blackwater NWRs manage a range of diverse habitats. Both refuges are dominated by tidal and non-tidal wetlands, forested habitats of varying ages, complexity, and composition, as well as croplands and managed wetland impoundments. Big game hunting is focused on uplands habitats, but wetlands and wetland edges are key locations for sika hunters. Waterfowl hunting and fishing would occur in tidal and riverine habitats. Fishing in non-tidal

ponds would take place during youth fishing or other special events. As for foreseeable environmental trends, the biological integrity, diversity, and environmental health of the refuge's habitats are threatened by relative sea level rise, invasive plant and animal species, and an overabundance of sika.

Impacts on Affected Resource

Alternative A: No Action Alternative

Big game hunting would continue to occur in upland and, to a lesser extent, wetland habitats on the refuges. Fishing and waterfowl hunting would continue in tidal wetlands and riverine habitats. Hunters and anglers tend to park in improved lots and disperse across fairly large areas in low density, resulting in minimal trampling of vegetation. Clearing or pruning of vegetation and use of screw-in steps or spikes for tree stands is prohibited. As currently implemented, very little damage to habitat and vegetation by anglers and hunters occurs.

Alternative B: Proposed Action Alternative

Negative impacts of recreational hunting and fishing could include the temporary trampling of vegetation and light soil erosion. Most hunting activities occur during the fall and winter, when plants become dormant, and the ground is often frozen and/or covered in snow. Hunters would have minimal impacts on plants during this period. Additionally, hunter use during all seasons will be dispersed throughout the refuge, minimizing the impact to any one area.

Under the Proposed Alternative, big game hunting would expand on Blackwater NWR to include newly acquired properties along the Nanticoke River and Marshyhope Creek. These properties were open to hunting prior to acquisition by the Service. Continuing to hunt these units will be critical for reducing deer herd damage to vegetation and habitats. Positive effects on vegetation may result from maintaining white-tailed deer and sika populations at levels commensurate with the carrying capacity of available habitat. The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well-documented (Tierson et al. 1966, Behrend et al. 1970, Tilghman 1989, Cote et al. 2004, White 2012). Disturbances that typically promote forest diversity, such as fire and small canopy gaps, may not have the desired benefits if browsers are overabundant (Nuttle et al. 2013). An overabundance of deer can suppress native vegetation, facilitating the success of invasive species in forested habitats (Knight et al. 2009). Lessening the impact of excessive deer herbivory is a key forest management strategy (White 2012, Nuttle et al. 2013) and will likely become even more important as the climate warms (Galatowitsch et al 2009).

The addition of incidental coyote hunting is not expected to make a meaningful increase in hunter participation or related impact to vegetation. Similarly, the addition of early season teal hunting is only expected to lead to a slight increase in hunter activity. Adding these opportunities to the hunt program should not negatively impact vegetation and habitats on the refuges. Fishing would be expanded under this alternative to include roadside fishing on Key Wallace Drive where it crosses the Little Blackwater River. Additionally, we would open the freshwater pond at Howard (tract 100m) and at Tubman Trail (100ai) to special events, such as youth fishing days and mentored fishing workshops. Though roadside fishing on Key Wallace Drive is expected to be popular and anglers will be high density at times, the vegetation of the road edge is phragmites and other low-value species and is entirely within the mowed right-of-way.

Trampling of vegetation is expected in this area, but this area is mowed frequently to maintain the right-of-way, does not contain any species of concern, and will not impact habitats of value. The pond edges would be mowed prior to any special event, but these ponds are either adjacent to roads or part of agricultural field buffers and would be mowed anyway. Opening these ponds for fishing as part of special events on the refuge will not negatively impact habitats.

Visitor Use And Experience

Description of Affected Resource

Blackwater NWR is open to all six of the Refuge System's priority public uses, which include wildlife observation, photography, environmental education, interpretation, hunting, and fishing. In 2020, Blackwater NWR had a total of 233,148 visits. Of those visits, 13,200 were for hunting and 24,000 were for fishing. Previously, fishing was not a major use at Blackwater NWR, but the popularity of snakehead fishing recently has increased participation.

Eastern Neck NWR is open to wildlife observation, photography, interpretation, hunting, and fishing. In 2020, Eastern Neck NWR had a total of 100,298 visits. Of those visits, 598 were for hunting and 10,000 were for fishing.

Hunting and fishing has occurred at both Blackwater NWR and Eastern Neck NWR lands and waters since the beginning of recorded history in our country. Prior to acquisition, migratory waterfowl and deer were hunted by residents and private hunt clubs on both refuges. As the Service acquired lands for the Complex, deer hunting traditions continued.

Impacts on Affected Resource

Alternative A: No Action Alternative

During permitted deer hunt days, designated areas of Blackwater NWR are closed to everyone except those permitted to hunt. At Blackwater NWR, this use infrequently conflicts with other public uses, as non-hunting visitors are not able to enjoy the wildlife drive, Key Wallace Trail, and Tubman Road Trail for a handful of days throughout the year. Fishing has become a very popular activity on Key Wallace Drive and generally does not conflict with other user activities.

At Eastern Neck NWR, hunting does not conflict with other public uses because most of the refuge is closed to non-hunting uses during hunts. Fishing is limited and generally does not impact non-fishing visitors.

Alternative B: Proposed Action Alternative

This alternative would not change any of the impacts to the non-hunting public. The opportunities for recreational hunting and fishing would continue to be available to the hunters and anglers, and therefore meet the demand. Hunting and fishing on the refuge contributes to the State's wildlife management objectives, the management objectives of the refuges, and allows a traditional use to continue. The hunt areas would be closed to other public uses on designated areas during hunt days, unless it can safely sequester the locations of those uses from the locations of hunting activity. Time and space zoning (e.g., establishment of separate use area, use periods, and restriction on the number of users) is an effective tool in eliminating conflicts between user groups. Timing, duration, number of hunters, and method of take restrictions have been proposed to reduce conflicts among different user groups.

Fishing and waterfowl hunting currently occurs in rivers, bays, and tributaries connected to the proposed Complex units. Visitor conflicts currently do not arise on the refuge with the adjacent fishing and waterfowl hunting activity. Therefore, we anticipate little to no visitor use conflicts when opening deer and waterfowl hunting units. If conflicts arise, we will consider program adjustments such as altering hunt areas, methods of take, or timing.

Cultural Resources

Description of Affected Resource

Humans have occupied the area of Blackwater NWR for more than 11,000 years. The refuge contains 9 known prehistoric archeological sites and 60 archaeological sites. Because no comprehensive subsurface archaeological survey has been conducted, these known sites are likely to represent only a small subset of all preserved sites on the refuge.

Blackwater NWR contains two confirmed 18th century archaeological sites. In 2021, the Ben Ross homesite was discovered in the Peter's Neck area of the refuge. Ben Ross is the father of the famed abolitionist Harriet Tubman and she likely spent time with him here before escaping slavery and leading others to freedom. For more additional information regarding the cultural resources at Blackwater NWR, refer to our CCP (2009).

Eastern Neck NWR has extensive prehistoric archaeological and historical sites. In a 1978 study, 19 archaeological sites were documented on Eastern Neck; 12 of these had prehistoric components and 13 had historic components (Thompson and Gardner). The historic sites date primarily the late 18th and 19th centuries and the prehistoric material dated to the Woodland period.

Impacts on Affected Resource

Alternative A: No Action Alternative

Hunting and fishing, regardless of method or target species, are consumptive activities that do not pose any threat to prehistoric or historic properties on or near the refuge. No impacts to cultural resources are anticipated above what may be caused by any refuge visitor. Although hunters and anglers would be able to access parts of the refuges that are closed to other visitors, this access alone is not expected to increase vandalism or disturbance to cultural resources by individuals while they are hunting/fishing, nor is it likely that hunters/anglers would be more likely to engage in vandalism or disturbance than any other refuge visitor.

Alternative B: Proposed Action Alternative

No additional adverse impacts would occur under this alternative.

Refuge Management and Operations

Description of Affected Resource

There are 17 full-time permanent employee positions that oversee the Chesapeake Marshlands NWR Complex and are stationed at Blackwater NWR headquarters located in Cambridge, Maryland: 3 wildlife biologists, 3 visitor services specialists, 1 facility operations specialist, 3 maintenance workers, 3 wildland firefighters, 1 budget specialist, 1 administrative assistant, a deputy manager, and a refuge complex manager. We also have 2 term biologists. In addition, we

have 1 term biologist stationed at Eastern Neck NWR in Rock Hall, Maryland.

At Blackwater NWR, core infrastructure includes a Visitor Center, restrooms, a 4-mile wildlife drive, Environmental Education Building, headquarters, fire cache, and refuge shop compound. An observation walkway and platform exist off Wildlife Drive as well as a photo blind. There are two single-family houses used for quarters, as well as a fire bunkhouse and a trailer also used for quarters. The historical headquarters office building currently still exists and was last used for intern quarters. There are also numerous sheds and storage areas. The refuge also includes paved and gravel roads to the infrastructure, four trails, kiosks, interpretive signs, a Romtec toilet, and ample parking.

Over 27 miles of hunt roads are maintained on the refuge, plus 44 individual parking lots for hunters. There is a parking area and soft launch maintained on Route 335 that is popular with anglers, hunters, and other paddlers, as well as a seasonally closed soft launch on Key Wallace Drive near the bridge.

At Eastern Neck NWR, there is a historic lodge used as a contact station, restrooms, a single-family house used as quarters, and a small bunkhouse, as well as a shop compound. There are 7 trails and boardwalks and 20 parking areas for hunters.

Impacts on Affected Resource

Alternative A: No Action Alternative

Annual operating costs to administer the refuge's current hunting programs are approximately \$103,010. This includes costs related to equipment, law enforcement, public outreach materials, collection and analysis of hunt data and biological information, and maintenance of roads, trails, and kiosks. The refuge manager coordinates the budget each year to ensure funds are available. Hunters currently use refuge infrastructure, such as parking areas and refuge trails, to gain access to refuge lands. There would be no adverse impacts to refuge facilities observed under this alternative.

Alternative B: Proposed Action Alternative

Estimated costs to implement this alternative are \$70,000. This is largely due to the increased time to manage opening several new tracts, managing partnerships associated with new units, addition of adding incidental coyote hunting, and developing new fishing access opportunities such as an expanded parking lot. Visitor services, administration, management, biology, and maintenance staff time are also needed.

For the proposed action, hunters would continue to use existing refuge infrastructure (parking, trails, roads) to access hunt areas and new waterfowl units are water access only. While more visitors are expected to use the refuge under this alternative, no observable impacts to facilities or infrastructure are anticipated, mainly because the increase is small compared to the current number of hunters already using the refuge. Increased fishing access however is expected to potentially overwhelm the current parking available, unless a new lot is created or expanded.

Local and Regional Economies

Description of Affected Resource

Hunting on the eastern shore of Maryland is extremely popular for out of town visitors, with hunters travelling from Baltimore, the DC metropolitan area, Philadelphia, and Delaware, all less than two hours away. In Cambridge, hotels are usually booked for most of the peak season for deer since campgrounds are very limited. The presence of a strong population of sika on public lands is the primary draw to Dorchester in particular. There have been numerous national shows, podcasts, articles, and other media featuring public hunting for sika for many years. The advent of specialized social media groups focusing on sika in the region, as well as apps such as OnX and HuntStand, has made public land hunting on the refuge and neighboring WMAs more accessible to those not local to the area. For example, one sika social media page has over 8,100 followers from all over the U.S. Likewise, snakehead fishing has grown exponentially in the past several years and has a related snakehead fishing page with over 9,300 followers. Followers regularly ask questions on where to hunt or fish the refuge, techniques, and how to overcome the challenges to hunting the marsh.

Local hunting and fishing guides also charge clients over \$350 per day for a hunt on nearby private lands, with many hunters choosing to hunt the refuge as well. Lastly, many local landowners around Blackwater NWR lease their properties to hunt clubs with members from all over who choose to hunt both the refuge and their lease property. From hotel, meals, leases and guides, the hunt program at Blackwater NWR helps fuel a broader economy that revolves under sika hunting in Dorchester.

Blackwater NWR is located in Dorchester County. From 1970 to 2019, the population grew 8 percent from 29,506 to 31,929 (and 4 percent from 2000 to 2019), with a 20 percent increase in employment. Between 2000 to 2019, the majority of growth came from migration at 71 percent compared to 17 percent from natural change such as births and deaths (Headwaters Economics, 2021).

From 2001 to 2019 within Dorchester, the growth areas for jobs were accommodation and food services (453 new jobs), health care and social assistance, and finally administrative and waste services. In 2019, the largest number of jobs were in manufacturing, social assistance and health care, and retail. Unemployment has declined by 4.9 percent between 2010 to 2020.

Eastern Neck NWR is located in Kent County. From 1970 to 2019, the population grew 20 percent from 16,247 to 19,422 (and 1 percent from 2000 to 2019), with a 67 percent increase in employment. Between 2000 to 2019, the majority of growth came from migration at 53 percent compared to 43.7 percent from natural change such as births and deaths (Headwaters Economics 2021).

From 2001 to 2019 within Kent County, the growth areas for jobs were educational services (219 new jobs), transportation and warehousing (216 new jobs), and real estate and rental and leasing (207 new jobs). In 2019, the largest number of jobs were in social assistance and health care, retail trade, and government. Unemployment has declined by 2.5 percent between 2010 to 2020.

Impacts on Affected Resource

Alternative A: No Action Alternative

Blackwater NWR had an overall economic impact of \$7.8 million, including \$667,000 in total tax revenue, 63 jobs, and \$2.3 million in employment income to Dorchester and Wicomico Counties. Visitor recreation expenditures for 2017 were \$5.8 million, with non-residents accounting for 95 percent of the total. Expenditures from hunting visits in particular are estimated at \$224,900 and from fishing, over \$331,800.

Eastern Neck NWR had total visitor expenditures of \$709,000 in 2017 with non-residents accounting for \$417,000 or 59 percent of total expenditures. Recreational expenditures from hunting accounted for \$10,900 and for fishing, over \$134,000. The contribution of recreational spending in local communities was associated with \$250,000 in employment income, \$72,000 in total tax revenue, and \$823,000 in economic output (Caudill and Carver 2019).

While population growth is relatively stable in both counties, increased population growth will continue to stress ecosystems surrounding both refuges through direct loss of remaining habitat as well as fragmentation and degradation of remaining resources. Management cannot reverse this trend, but refuges and other conserved lands will become even more important for ecosystem health and biodiversity. Within Dorchester County, 75.4 percent of the land is in private ownership, compared to the national 61.1 percent. The Service owns 4.7 percent of the county, versus the national average of 3.9 percent. Within Kent County, over 95 percent is in private ownership, with only 1.2 percent owned by the Service. These lands are, therefore, valuable assets for public hunters and anglers. Public lands for hunting will experience more pressure and popularity as suitable lands for hunting decrease or remain constant. The current hunt and fish programs will continue to have a beneficial impact on the local economy. Hunting also assists with local farmers and crop damage, both in harvesting deer and increasing pressure.

Alternative B: Proposed Action Alternative

Increased hunting and fishing opportunities on public lands will only increase local and affordable opportunities for recreation and harvesting local food sources. Public hunting and fishing also support creation of local jobs in retail and guide services, as well as indirectly through lodging and restaurants.

While hunting and fishing will likely continue to increase due to increased opportunities, these activities account for a small percentage of the expenditures related to both refuges. Additional lands and opportunities for hunting and fishing at Blackwater and Eastern Neck NWRs will continue to enrich the local economy by attracting additional visitors, but the additional impact will likely be negligible under this action. However, it will reduce some pressure. Increased hunting will also assist local farmers near the newly added tracts by reducing deer depredation on crops.

Environmental Justice

Description of Affected Resource

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all Federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high

or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities.

Blackwater NWR

Within Dorchester County, both the percentage of residents who do not have a high school degree as well as those that do, closely match the national percentages of 12 percent and 88 percent respectively. The percentage of residents with a bachelor's degree or higher is 21.2 percent compared to the national average of 32.1 percent. Differences in education levels can inform decision makers with outreach efforts and determine if management actions or plans might disproportionately impact certain groups. Furthermore, the most prevalent income category is 17.7 percent at \$50,000 to \$74,999, with the least at 2.2 percent at \$150,000 to \$199,999 (Headwaters Economics, 2021). Income distribution across households is a key indicator for economic policy.

The minority population of people of color is only slightly lower at 37.1 percent than the national estimate of 39.3 percent based on U.S. Census Bureau data (Headwaters Economics, 2021). According to the EPA's Environmental Justice screening tool, people of color population is below the 25th percentile nationally. The low income, linguistically isolated, and lower than a high school education demographics are between the 25th and 50th national percentiles in the area of the refuge. In the area around Blackwater NWR, the population of people over the age of 64 near Blackwater NWR is above the 75th percentile nationally.

Residents who speak English less than very well is 2.8 percent versus the national of 8.4 percent in 2019. Primary messaging to the community is therefore in English. Different cultures and populations may interact with public lands in different ways based on traditions, cultures, and family experiences.

Dorchester County has a slightly higher than national percentage of families in poverty at 10.7 percent compared to 9.5 percent. However, there are significantly more single mother families in poverty at 6.6 percent compared to 4.3 percent nationally. This has increased for the county, whereas the nation's has decreased. Families in poverty may have to make compromises to meet basic needs, have lower education, and may be less likely to participate in outdoor recreation or public decision-making processes.

Eastern Neck NWR

Within Kent County, the percentage of residents who do not have a high school degree as well as those that do, are about the same as the national percentages of 12 percent and 88 percent respectively. The percentage of residents with a bachelor's degree or higher is better than the national average at 35.1 percent compared to 32.1 percent. Furthermore, the most prevalent income category is 16.4 percent at \$100,000 to \$149,999, with the least at 5 percent at less than \$10,000. Income distribution across households is a key indicator for economic policy.

The minority population of people of color is significantly lower at 22.3 percent than the national estimate of 39.3 percent based on U.S. Census Bureau data (Headwaters Economics 2021). According to the EPA, the people of color, linguistically isolated, and people under the age of five demographics are between the 25th and 50th percentiles nationally. The area of the refuge is

above the 75th percentile for the population of people over the age of 64.

Residents who speak English less than very well is 2.5 percent, versus the national percentage of 8.4 in 2019 (Headwaters Economics' 2021). Primary messaging to the community is, therefore, in English. Different cultures and populations may interact with public lands in different ways based on traditions, cultures, and family experiences.

Kent County has a much lower percentage of families in poverty at 6.4 percent compared to 9.5 percent nationally, and less single mother families in poverty at 3 percent compared to 4.3 percent nationally. The area around Eastern Neck is in between the 50th and 75th percentiles nationally for the low income and lower than a high school education demographics. Families in poverty may have to make compromises to meet basic needs, have lower education, and may be less likely to participate in outdoor recreation or public decision-making processes.

Impacts on Affected Resource

Alternative A: No Action Alternative

The current hunting and fishing programs at Blackwater and Eastern Neck do not cause issues with environmental justice as they take place on the refuges and provide a local and low-cost recreational opportunity that also provides local food sources. The programs also support the local economies as stated above.

Alternative B: Proposed Action Alternative

Hunting and fishing visitation may increase slightly with the increased opportunities. The additional economic impact will be negligible but additional areas open may reduce pressure slightly. The Service has not identified any potential high and adverse environmental or human health impacts from this proposed action or any of the alternatives. Even though non-lead ammunition can cost the same, or up to 30 percent more expensive, as lead, the cost of several boxes per year is minor compared to the other expenses involved such as firearm cost. Deer and turkey hunting also require less ammunition than small game. Minority or low-income communities would therefore not be disproportionately affected by any impacts from this proposed action or any of the alternatives.

Monitoring

Game species are monitored by MDDNR through field surveys and harvest reports generated by mandatory check-in of harvests. MDDNR has determined that populations of game species are at acceptable levels to support hunting and these assessments are reviewed and adjusted periodically. To get a better estimate of deer density on Blackwater NWR, the refuge partnered with University of Delaware in 2017 to design and implement road-based surveys using distance sampling to estimate the density of white-tailed deer and sika on the refuge (Haus and Bowman 2018, Haus and Bowman 2019, Holland and Bowman 2020). Forward-looking infrared sensors (FLIR) were used to increase detections. Surveys were conducted in August and September each year. These were completed in 2017, 2018, and 2019, but were not conducted in 2020 due to COVID. These surveys are needed to better understand current herd density, potential for impacts to habitats, and population trends. A minimum of 5 years of data will be collected and may be continued based on the necessity of the data for refuge decision making and the recommendation of University of Delaware and MDDNR.

Monitoring of fish communities has been conducted by the Service's Chesapeake Bay Field office in partnership with MD DNR in 2006-2007 and replicated in 2018-2019 (Newhard and Lov, 2019). This is not scheduled to be repeated but may be in the future to monitor changes due to snakehead populations and increased salinity upon fish species and communities. Since angling is focused on the exotic snakehead, angling pressure should benefit, not harm, native fish species.

We will continue to base the annual harvest on the observed population size and habitat conditions. If the results of monitoring programs indicate that fish and wildlife populations are negatively impacted by any of the proposed harvest management strategies, the regulations would be changed. The refuge will be adaptive towards harvest management under the hunt program to ensure species and habitat health. Refuge-specific hunting regulations may be altered to achieve harvest objectives in the future. The Chesapeake Marshlands NWR Complex Inventory and Monitoring Plan (IMP) is currently under development.

Summary of Analysis

The primary purpose of this EA is to briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

Alternative A: No Action Alternative

There would be no additional costs to the refuge under this alternative. There would be no change to the current public use and wildlife management programs on the refuges. The refuges would not increase their impact to the economy and would not provide new hunting and access opportunities. This alternative has the least direct impacts to physical and biological resources, though it would not meet critical deer herd management needs. In addition, this alternative would not meet mandates under the NWRSA and Secretarial Order 3356.

Alternative B: Proposed Action Alternative

This alternative is the Service's proposed action because it offers the best opportunity for public hunting and fishing that would result in a minimal impact on physical and biological resources, while meeting the Service's mandates under NWRSA and Secretarial Order 3356. The Service believes that hunting on the refuge will not have a significant impact on local, regional, or Atlantic flyway migratory bird populations because the percentage likely to be taken on the refuges, though possibly additive to existing hunting takes, would be a tiny fraction of the estimated populations. In addition, overall populations will continue to be monitored and future harvests will be adjusted as needed under the existing flyway and State regulatory processes. Additional hunting would not add more than slightly to the cumulative impacts stemming from hunting at the local, regional, or flyway levels, and would only result in minor, negative impacts to migratory bird or other species populations. This alternative best meets the purpose and need stated earlier.

List of Sources, Agencies and Persons Consulted

Maryland Department of Natural Resources:
Karina Stonesifer, Associate Director Game Management

Bill Harvey, Game Bird Project Leader
Brian Eyler, Deer Project Leader
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Tom Bonetti, Hunting and Fishing Coordinator, Regional Office

State Coordination

NWRs, including Chesapeake Marshlands NWRC, conduct hunting and fishing programs within the framework of State and Federal regulations. The Complex has moved ahead with developing this hunting and fishing plan based upon earlier and annual formal coordination with MD DNR and Patuxent NWR, which is the only other refuge in the State. Any deviations from the state regulations are discussed and approved in writing before announcing. The refuge is also an active member of the MDDNR's deer management stakeholder group. Chesapeake Marshlands NWRC has initiated and led several mentoring efforts with the MDDNR, including the First Shot mentored hunt program for adults beginning in 2018 with National Wild Turkey Federation and other partners, which has held over 107 hunts to date for deer and turkey. In June 2021, the refuge is piloting a similar First Cast mentored fishing program partnering with MDDNR and Snakeheadlife.com.

Maryland refuge managers formally met with MDDNR biologists and leadership in June 2021 to discuss the process and updates of all Maryland refuge hunting and fishing plans. Refuge staff worked with State partners early in the process and throughout the development of the plan.

Refuge Complex staff will continue to annually consult and coordinate with MDDNR and Patuxent NWR to maintain consistent regulations and programs, monitor populations of hunt species, and set harvest goals. We will work to ensure safe and enjoyable recreational hunting and fishing opportunities by working together with law enforcement officers from both agencies to conduct patrols, safeguard hunters and visitors, and protect both game and nongame species.

Tribal Consultation

After consideration of the proposed action, we determined that they will not impact historic properties or other cultural resources and that Tribal Nations do not own land that would be impacted by changes in the hunting and fishing program on the Complex. We made a determination in good faith that the proposed action does not have potential for effect on the

interests of any Tribal Nations, and consequently outreach is not warranted.

Public Outreach

Several annual hunt meetings were held with the public on April 5, 2017 and March 24, 2018, (March 2020 was cancelled due to COVID) to share the current hunt program, harvests, monitoring and solicit input on the program. These comments, as well as others provided since 2017 to the staff, were taken into consideration in drafting these documents. The public will be notified of the availability of the Chesapeake Marshlands NWRC Hunting and Fishing Plan, EA, and CDs for review and will include no less than a 60-day comment period. They will be informed through local media, refuge website, and social media. Comments from the public will be considered, and modifications may be incorporated into the final plan and decision documents.

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OTHER APPLICABLE STATUTES, EXECUTIVE ORDERS AND REGULATIONS

Cultural Resources

- American Indian Religious Freedom Act, as amended, 42 U.S.C. 1996 – 1996a; 43 CFR Part 7.
- Antiquities Act of 1906, 16 U.S.C. 431-433; 43 CFR Part 3.
- Archaeological Resources Protection Act of 1979, 16 U.S.C. 470aa – 470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7.
- National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470-470x-6; 36 CFR Parts 60, 63, 78, 79, 800, 801, and 810.
- Paleontological Resources Protection Act, 16 U.S.C. 470aaa – 470aaa-11.
- Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001-3013; 43 CFR Part 10.
- Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971).

Fish and Wildlife

- Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22.
- Endangered Species Act of 1973, as amended, 16 U.S.C. 1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, and 450.
- Fish and Wildlife Act of 1956, 16 U.S.C. 742 a-m.
- Lacey Act, as amended, 16 U.S.C. 3371 et seq.; 15 CFR Parts 10, 11, 12, 14, 300, and 904.
- Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712; 50 CFR Parts 10, 12, 20, and 21.
- Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001).

Natural Resources

- Clean Air Act, as amended, 42 U.S.C. 7401-7671q; 40 CFR Parts 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR Part 23.
- Wilderness Act, 16 U.S.C. 1131 et seq.
- Wild and Scenic Rivers Act, 16 U.S.C. 1271 et seq.
- Executive Order 13112 – Invasive Species, 64 Fed. Reg. 6183 (1999).

Water Resources

- Coastal Zone Management Act of 1972, 16 U.S.C. 1451 et seq.; 15 CFR Parts 923, 930, 93.
- Federal Water Pollution Control Act of 1972 (commonly referred to as Clean Water Act), 33 U.S.C. 1251 et seq.; 33 CFR Parts 320-330; 40 CFR Parts 110, 112, 116, 117, 230-232, 323, and 328.
- Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.; 33 CFR Parts 114, 115, 116, 321, 322, and 333. Safe Drinking Water Act of 1974, 42 U.S.C. 300f et seq.; 40 CFR Parts 141-148.
- Executive Order 11988 – Floodplain Management, 42 Fed. Reg. 26951 (1977).
- Executive Order 11990 – Protection of Wetlands, 42 Fed. Reg. 26961 (1977).