

## Appendix P



*Boardwalk on Refuge*

# Compatibility Determinations



**Chincoteague NWR and Wallops Island NWR  
Compatibility Determinations**

1. Wildlife Observation, Wildlife Photography, and Interpretation
2. Environmental Education
3. Fishing (Recreational)
4. Migratory Game Bird Hunting
5. Big Game Hunting
6. Commercial Filming, Still Photography, and Photography Workshops
7. Grazing of Chincoteague Ponies
8. Horseback Riding
9. Research and Studies Conducted by non-USFWS Staff
10. Shell Collection
11. Big Game Hunting (Wallops Island NWR)
12. Research and Studies Conducted by non-USFWS Staff (Wallops Island NWR)



**COMPATIBILITY DETERMINATION**

**USE:** Wildlife Observation, Wildlife Photography, and Interpretation

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C. 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is wildlife observation, wildlife photography, and interpretation. These are priority public uses identified by Executive Order 12996 (March 25, 1996) and by the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57).

**(b) Where would the use be conducted?**

The use would be conducted within the refuge's boundary, in current buildings and on current and future trails and roadsides of the refuge. Visitors can access information about the refuge using advanced technology (computers, radio, cell phone, downloadable programming, etc.). Designated areas open to visitors for wildlife observation, photography, and interpretation are as follows (see Map 2-3 in the Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS) for an illustration of where these uses would be conducted on the refuge):

- Herbert H. Bateman Educational and Administrative Center
- Assateague Lighthouse
- Beach Road and Beach Road Bike Trail
- Marsh Trail
- Wildlife Loop
- Lighthouse Trail
- Black Duck Trail
- Swan Cove Trail
- Woodland Trail
- Bivalve Trail
- Beachfront
- New Beach Access Road
- Service Road

Access to the beachfront is permitted in two ways:

- 1) Foot access is currently allowed year round from the Maryland/Virginia state line to the southern terminus of the National Park Service (NPS) recreational beach parking area.

- 2) Foot access and over sand vehicle (OSV) use/access is currently allowed at certain times of the year from the NPS southernmost recreational beach parking area at Toms Cove to “Fishing Point” on Toms Cove Hook.

Access for wildlife observation and photography in the OSV zone is further restricted by the following stipulations:

- 1) Overwash portion of the OSV zone closed March 15 through August 31 based on shorebird nesting behavior; close 200 meters north of nesting sites from 2 days prior to any nests hatching and through fledging.
- 2) Hook portion of OSV zone closed March 15 to August 31 or thereafter, until last shorebird fledges.
- 3) Upon complete establishment of the new recreational beach, from March 15 to September 15, the area south of the new assigned area is closed.
- 4) From September 16 to March 14, the zone will again start at the beach terminus of Beach Road at Toms Cove, then south along the Atlantic Ocean beachfront to “Fishing Point” on Toms Cove Hook, then returning by the same route. Walking and OSV use will generally be within the intertidal zone, unless OSVs are re-directed by signage to avoid sea turtle nest sites; vehicles are prohibited from the dunes or vegetated areas. Wildlife observation and photography could also occur along the beachfront of Assawoman, Metompkin, and Cedar Islands outside the shorebird nesting season.

**(c) When would the use be conducted?**

Opportunities for wildlife/wildlands observation, wildlife photography, and interpretation are available at existing buildings and via existing trails and newly established ones during normal refuge hours. Normal refuge hours are 5 a.m. to 10 p.m. from May through September; 6 a.m. to 6 p.m. from November through March; and 6 a.m. to 8 p.m. during the months of March, April, and October. A new access road will be established connecting current visitor use areas to the new recreational beach. Some conflicts are expected between refuge user groups, as well as wildlife use which will be managed by seasonal closures. These seasonal closures are explained below and apply mostly to non-consumptive users during the hunting season or beachfront walking during the shorebird nesting season.

- All beach areas on Assateague Island south of the newly established assigned area (i.e., the Swan Cove Trail beach terminus) will be closed to all visitor use from March 15 until September 15 or until the last shorebird fledges, due to nesting of federally threatened piping plovers, as well as other shorebird species.
- All trails south and east of the Administrative Office and the new Beach Access Road may be closed for big game hunting during the fall and winter months.
- Staffing of the Assateague Island Lighthouse and operation of the Wildlife Tour Bus is provided by the Chincoteague Natural History Association (CNHA). Operations vary throughout the year. Daily access is provided during the busier visitor use periods with

weekend access during the shoulder seasons and very limited or no access during the winter months.

- The Herbert H. Bateman Educational and Administrative Center is open daily throughout the year.
- Beachfront access on Assateague Island north of the recreation beach would be year round within the Intertidal zone.
- Staff and/or volunteer guided interpretative programs may occur year round but are concentrated in the busier visitor use periods.
- Beachfront access on the southern islands would be permitted for these uses outside of the shorebird nesting season (March 15 to September 15) and the safety and security zone established by National Aeronautics and Space Administration (NASA) on Assawoman Island. As Metompkin and Cedar Islands have other ownership as well, visitors should consult with those entities prior to visiting.

**(d) How would the use be conducted?**

These three priority visitor uses would be allowed on established and newly developed roads, trails, parking areas, beachfront areas and in buildings that have been designed to accommodate such uses and in areas that are least sensitive to human intrusion. Uses would be conducted for the general public, as well as for organized groups, including school and youth groups. Brochures and maps depicting the roads and trails open for these uses are available at the Herbert H. Bateman Educational and Administrative Center, at trailheads and on the refuge's website.

Interpretation may be conducted by way of personal presentations by staff, volunteers, CNHA personnel, contracted and guest presenters, teachers and other youth leaders, and at special events and displays both on and off the refuge. Educational and interpretive information will also be provided via signage, kiosks, printed information, exhibits, audiovisual presentations, web based information, podcasts, radio messages and lecture programs. Wildlife observation and photography are usually self-conducted activities and are facilitated through the availability of trails, viewing areas, tours, and informational materials. Wildlife observation programs such as birding field trips, CNHA Wildlife Tours, and other nature walks are frequently given. Viewing scopes are provided in designated areas.

Refuge staff are responsible for on-site evaluations to resolve visitor use issues; monitor and evaluate impacts; maintain boundaries and signs; meet with interested public; recruit volunteers; prepare and present interpretive and educational programs; maintain existing trails and viewing areas; revise brochures and develop new information materials, install and/or update kiosks; develop needed signage; organize and conduct refuge events; conduct regularly scheduled programs for the public; display off-site exhibits at local events; develop relationships with media; provide law enforcement and security; and respond to public inquiries.

Foot access is permitted in all listed areas. Bicycle access is permitted on all paved roads, hard-surfaced trails and on the Bike Trail that parallels Beach Road. Access for non-motorized, hand

carried watercraft (including but not limited to kayaks, canoes, kite boards, sail boats and sailboards) into Toms Cove and Assateague Channel will be available from a launch site to be developed near the South Pony Corral area. Access north of the recreational beach via the Service Road will be available by foot or via the CNHA Wildlife Tour Bus and by other organized groups authorized with a permit or agreement.

In addition to published 50 Code of Federal Regulation (CFR) regulations and State regulations, refuge-specific regulations also apply for “Wildlife Observation and Photography and Interpretation” and are as follows:

- All boats must be off the water by sunset. Only non-motorized, hand carried, non-commercial watercraft access will be permitted.
- Areas may be closed on the refuge with little or no warning for safety or other reasons.
- Visitors must stay on the designated trail routes and areas.
- Opportunities for wildlife observation, wildlife photography, and interpretation are available via the established road and trail network, the OSV zone, and along the proposed beach access road and bike trail as well as along the beachfront during normal refuge hours. All new construction will be done in such a way as to minimize impacts to refuge resources. Some conflict between refuge users is expected to result in short-term moderate adverse impacts, which will be managed through seasonal closures. These seasonal closures apply mostly to non-consumptive users during the hunting season. Other seasonal closures are in place to minimize wildlife disturbance.
- Bicycling is allowed on roads, paved trails or others designated for bicycle use.
- The Herbert H. Bateman Educational and Administrative Center is open daily.
- The following activities are prohibited, including, but not limited to: ice skating, camping, rollerblading, geocaching/metal detecting, off-road and mountain biking, all-terrain vehicles (ATVs), picnicking, pets, operation of model boats and airplanes, soliciting of funds (per 50 CFR 27.97 for Private Operations and per 50 CFR 27.86 for Begging), and other activities identified in 50 CFR Part 27.
- All boaters would be required to operate their craft and possess all safety equipment in accordance with Commonwealth of Virginia and U.S. Coast Guard (USCG) Regulations.

**(e) Why is this use being proposed?**

Wildlife observation, wildlife photography, and interpretation are Priority Public Uses as defined by the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57), and if compatible, are to receive enhanced consideration over other general public uses.

These uses are conducted to provide compatible educational and recreational opportunities for visitors to enjoy the resource and to gain understanding and appreciation for fish, wildlife, wildlands ecology, the relationships of plant and animal populations within the ecosystem, and wildlife management. These uses will provide opportunities for visitors to observe and learn about wildlife and wildlands at their own pace in an unstructured environment and to observe wildlife

habitats firsthand. These uses will enhance the public's understanding of natural resource management programs and ecological concepts to enable the public to better understand the problems facing our wildlife/wildlands resources, to realize what effect the public has on wildlife resources, to learn about the U.S. Fish and Wildlife Service (USFWS) role in conservation, to better understand the biological facts upon which USFWS management programs are based, and to foster an appreciation for the importance of wildlife and wildlands. It is anticipated that participation in these uses will result in a more informed public, with an enhanced stewardship ethic and enhanced support and advocacy for wildlife conservation.

These uses will also provide an intrinsic, safe, outdoor recreational opportunity in a scenic setting, with the realization that those who come strictly for recreational enjoyment will be enticed to participate in the more educational facets of the visitor use program, and can then become informed advocates for wildlife conservation.

### **AVAILABILITY OF RESOURCES:**

Allowing the use of wildlife observation, photography, and interpretation is within the resources available to administer our Visitor Services program with the current level of participation. Additional funding for visitor services' improvements can also come from entrance fee revenues, grant funds, and contributions. Compliance with refuge regulations is handled within the regular duties of the station Law Enforcement Officers. As funding is available, the refuge will complete and maintain projects and facilities. Volunteers and partners will be utilized to help with construction and maintenance.

Facilities or materials needed to support this use include maintaining access roads, parking areas, roadside pull-offs, kiosks, signs, the visitor center exhibits, wayside exhibits, observation platforms, photography blinds and trails; creating new beach access road and bike trail, observation tower, accessible crabbing area and boat launch area; and providing information in refuge publications, social media sites, the refuge's website as well as other information sharing venues.

Sufficient staff and maintenance funding within our base budget as well as revenues generated from the refuge entrance fee program are available to make annual progress toward completion of all the projects described above and to maintain those already completed; however, additional funding will be needed to construct the road and trail system to the new recreational beach.

### **ANTICIPATED IMPACTS OF THE USE:**

Anticipated impacts of the use can be divided into those associated without OSV, which encompass nearly all of the use, and those impacts associated with OSV which make up very little of the overall wildlife observation and photography use.

### Non-OSV Use Impacts

Wildlife observation, photography, and interpretation can result in varying impacts to wildlife resources. An effect of allowing visitor's access to the refuge will be the provision of additional wildlife-dependent recreational opportunities and a better appreciation and more complete understanding of the wildlife and habitats associated with the refuge, the Delmarva ecosystems, and the world at large.

Visitors engaging in these activities are expected to use and stay on trails or roads to access the interior of the refuge. This disturbance may displace individual animals to adjacent areas of the refuge.

The refuge expects that wildlife observation, wildlife photography, and interpretation will have short-term, long-term, and cumulative positive impacts on the economies of the town and county in which the refuge lies. While not as significant as the summer beach tourism, visitors participating in these wildlife oriented recreational pursuits come in noteworthy numbers - staying and spending in the local community. Please refer Appendix M of the CCP (*Chincoteague National Wildlife Refuge Economic Analysis In Support of Comprehensive Conservation Plan*) for more detailed information. The relocation of the recreational beach and associated trails may elevate interest in the wildlife oriented recreational activities on the refuge resulting in an increased spending in the local community and region.

Wildlife observation, wildlife photography, and interpretation are expected to have negligible adverse short-term, long-term or cumulative impacts on soils, local or regional air quality, and hydrology or water quality. However, negative impacts to water quality can result from human activities. We will continue to address these through educational information and programming.

Wildlife observation, wildlife photography, and interpretation are expected to have negligible adverse short-term, long-term or cumulative impacts on vegetation. Disturbance to vegetation (both wetland and upland) will occur during the construction of new beach access road and bike trails as well as associated parking lots.

Disturbance factors resulting from visitor use are always considered for all State and Federal listed species. Of these, impacts on the shorebirds including the piping plover, red knot, upland sandpiper and Wilson's plover will be minimized through the seasonal closure of beachfront south of the Swan Cove Trail beach terminus area from March 15 through September 15 (upon establishment of new recreational beach). Other than during the construction period or relocated beach infrastructure and facilities, the proposed activities would not likely affect the Delmarva fox squirrel. The bald eagle, while no longer listed as a State or Federal listed species, is still protected under the Bald and Golden Eagle Protection Act. Bald eagles may nest in areas visible to the public making for excellent wildlife observation, interpretative and photography opportunities. At this time these activities are not expected to have any negative impacts on bald eagles.

Wildlife observation, wildlife photography, and interpretation are expected to have negligible adverse short-term, long-term or cumulative impacts on waterfowl. Reducing access north of the new recreational beach area will provide waterfowl sanctuaries which will minimize some of these impacts and allow waterfowl to have undisturbed areas during biologically critical periods of the day.

This use is expected to have negligible adverse short-term, long-term or cumulative impacts on shorebirds and landbirds. We expect indirect impacts to landbirds to increase due to the proposed beach access road and trail construction and use. Visitor use activities including wildlife observation, wildlife photography, and interpretation are expected to increase in these areas as well; however, after construction, disturbance to landbirds in proposed areas for interpretation, wildlife observation and photography is expected to be negligible since all visitors will be required to be on designated walking trails and access roads.

Wildlife observation, wildlife photography, and interpretation are expected to have negligible adverse short-term, long-term or cumulative impacts on secretive marsh and waterbirds. We expect negligible increased impacts to secretive marsh and waterbirds due to proposed expansions in visitor use activities as they will be offset by fewer disturbances in current visitor use areas. The construction of a wider Service Road, new Beach Access Road and new parking lots and infrastructure to the new beach area has the potential to increase disturbance to secretive marsh and waterbirds; however, this is primarily a short-term impact.

Wildlife observation, wildlife photography, and interpretation are expected to have negligible adverse short-term, long-term or cumulative impacts on mammals. In general, the presence of humans would disturb most mammals, which would typically result in indirect short-term adverse impacts, which would be negligible because they would not cause long-term effects on individuals and populations.

Refuge strategies for conserving and maintaining biological integrity, diversity, and environmental health, restoring native plant communities, improving habitat conditions, and controlling invasive or nuisance species would be management actions incorporated in all alternatives and would provide beneficial impacts on mammals. Each of these actions would directly or indirectly benefit mammalian populations over the long term by ensuring the continuation of quality natural habitats on the refuge for resident mammalian wildlife.

Vehicles would be restricted to roads and harassment or taking of any wildlife other than legal game species would not be permitted.

The beneficial impacts of providing the existing level of wildlife-dependent activities, with some modest increases, include helping meet existing and future demands for outdoor recreation as indicated in the 2012 U.S. Geological Survey (USGS) National Visitor Survey. Visitor use appears

to be remaining fairly steady in recent years, but we want to continue to improve our opportunities to expand the knowledge base of our visitors on environmental concerns. The economic benefits of increased tourism would also benefit local communities.

Some conflict between wildlife observers, photographers and other refuge users is expected to result in short-term moderate adverse impacts, which will be managed through seasonal closures. In addition, while new visitors become familiar with those changes, violations could increase.

Guided tour activities should not conflict with other refuge users as the CNHA tour bus will be operating north of the new recreational beach. Operation/tours of the Assateague Island Lighthouse and future renovation/operation/Interpretation of the lightkeeper's house by CNHA are occurring in areas not currently open for self-guided use.

New or expanded visitor services programs, such as installation of an eBird kiosk, and/or facilities, such as a new visitor contact station, are expected to increase public awareness of, and visitation to, the refuge, and would enable staff to provide better customer service. We would expect a certain level of inconvenience during the construction of refuge facilities. The adverse effects generally are short-term, and more than offset by the long-term gains in public education and appreciation. Impacts to refuge resources are expected to be negligible.

### **OSV Impacts**

The activity of wildlife observation and photography, by itself, has no significant impact to migratory birds due to disturbance. However, the use of OSVs to gain access to remote southernmost areas of Assateague Island must be reviewed.

Migratory birds - Since the use of OSVs will occur along the Atlantic ocean beachfront, impacts to migratory birds will generally be restricted to shorebirds. The refuge consulted with the USFWS Ecological Services Virginia Field Office who issued a Biological Opinion on the impacts of OSV use, among other uses, on piping plovers. The impacts described therein can be extrapolated to other shorebirds.

The refuge has been designated as internationally important for shorebirds by the Western Hemisphere Shorebird Reserve network. It is an important staging area and provides habitat for shorebirds during both spring and fall migrations. Nesting species include piping plover, American oystercatcher, willet, common and least tern, and black skimmer. Spring migration generally runs from early April to early June, when thousands of shorebirds use refuge habitats. Dunlin and sanderling are predominant during early spring migration, while semipalmated sandpiper makes up nearly half of those birds counted during late spring migration. The peak of fall migration occurs from July through September with semipalmated and least sandpipers accounting for the majority of individuals. The red knot, designated as threatened under the Endangered Species Act, also uses the refuge during spring and fall migration.

Motorized vehicle use on beaches is an extreme threat to piping plovers, as well as other shorebirds that nest on beaches and dunes. Vehicles can crush eggs, adults, and chicks (Wilcox 1959, Tull 1984, Burger 1987, Patterson et al. 1991). In Massachusetts and New York, 18 piping plover chicks and 2 adults were killed by off-road vehicles in 14 documented incidents (Melvin et al. 1994). Goldin (1993) compiled records of 34 chick mortalities (30 on the Atlantic Coast and 4 on the Northern Great Plains) due to vehicles. Biologists who monitor and manage piping plovers believe that vehicles kill many more chicks than are found and reported (Melvin et al. 1994). Beaches used by recreational vehicles during nesting and brood-rearing periods generally have fewer breeding plovers than available nesting and feeding habitat can support. In contrast, plover abundance and productivity has increased on beaches where recreational vehicle restrictions during chick-rearing periods have been combined with protection of nests from predators (Goldin 1993) (USFWS 2008a). It has been documented that piping plover chicks will tend to run along ruts caused by vehicles and remain motionless as vehicles approach (USFWS 1996). Piping plover chicks may also have difficulty crossing deep ruts and moving quickly enough out of a vehicle's path. Additionally, piping plovers tend not to reach their full habitat carrying capacity on beaches where vehicles are allowed during the nesting and brood rearing periods (USFWS 1996).

To mitigate for these potential negative impacts, the refuge has instituted seasonal closures for surf fishermen, horseback riders, and OSV users. The beach habitats of Toms Cove Hook are the most productive on the refuge for nesting and staging shorebirds. As noted above, with establishment of the new recreational beach, the Toms Cove Hook portion of the surf fishing, horseback riding and OSV zone would be closed from March 15 through September 15 annually, and later if unfledged birds remain in the area. The closure period also encompasses the peak times of spring and fall migration, thus providing undisturbed habitat for shorebirds during the most critical times of year.

The closures extend from the nest site a distance of 200 meters (656 feet) north. It is possible that some nests may not be discovered, and the presence of nest searchers may also cause direct loss if eggs are inadvertently crushed. In either of these situations, there could be negative impacts to nesting shorebirds. When the recreational beach area is moved to a more northern location, as is proposed in the CCP/EIS (alternative B), the Overwash area would be managed identically with the Toms Cove Hook portion, which will provide added protection to birds using the Overwash area.

OSV users may encounter shorebirds at times outside of the closure period. During this time, all birds should be capable of flight, and therefore can travel short distances to other high quality, undisturbed portions of the refuge, such as the bay side of Toms Cove. There could be some negative impacts due to birds expending energy to travel away from preferred feeding or resting areas.

Based on a review of the literature, with seasonal closures in place, and if nest searches in the Overwash zone are conducted thoroughly and professionally, the direct, indirect, and cumulative impacts of OSV use to shorebirds should not be significant.

Threatened and endangered species - This section assesses impacts to federally listed threatened and endangered species: piping plover, red knot, sea turtles, and seabeach amaranth.

*Piping plover* and *red knot* impacts are covered above under migratory shorebird impacts.

*Sea turtles* - Five species of federally listed sea turtles use Assateague Island's ocean and bay waters. The leatherback sea turtle, which is also a state listed species, Kemp's Ridley sea turtle, and the Atlantic hawksbill are Federal endangered species. The loggerhead sea turtle and green sea turtle are Federal threatened, with the loggerhead also being state threatened. The loggerhead sea turtle nests on Assateague Island, which is the northern extent of its breeding range. To date, there has been no confirmed nesting by green or leatherback sea turtles within the refuge although both these species have been seen in waters off Virginia's barrier islands during the nesting season. Dead stranded turtles of these species are occasionally found on refuge beaches. However, with the average global air and water temperatures rising, refuge beaches may become more favorable for these species (USFWS 2008c).

Nesting activity on Assateague and NASA Wallops Islands has risen noticeably in recent years, perhaps the result of a loggerhead translocation project. From 1969 to 1979 sea turtle eggs from nests laid on Cape Island of Cape Romain National Wildlife Refuge (NWR), Charleston County, South Carolina were relocated to Chincoteague NWR. During, and the first two decades following, the relocation program (1970 to 1999) staff recorded 16 crawls on Assateague and NASA Wallops; 10 resulted in nests and 6 were false crawls, meaning no nest was made. Loggerhead sea turtles take 30 years to reach maturity, so females that were part of the transplant project may now be returning to their hatch and release sites. Loggerhead nesting activity from 2000 to 2012 on Chincoteague Island had a total of 66 crawls; 23 resulted in nests and 43 were false crawls (CNWR unpublished database). Eleven of the nests were located on Wild Beach, north of the recreational beach in an area closed to all OSV use. Eight nests were located on the recreational beach area and OSV zone (5 at the Overwash and 3 on public beach). These nests were monitored and managed in accordance with the Chincoteague NWR Intra-Service Section 7 and Biological Opinion (USFWS 2008). The other 4 nests were located south of the recreational beach on the Toms Cove Hook area.

OSV use poses a risk of injury to females and live stranded turtles, can leave ruts that trap hatchlings attempting to reach the ocean (Hosier et al. 1981, Cox et al. 1994), can disturb adult females and cause them to abort nesting attempts, and can interfere with sea-finding behavior if headlights are used at night (NMFS and USFWS 1991). Driving directly above incubating egg clutches can cause sand compaction, which may decrease hatching and emergence success and directly kill pre-emergent hatchlings (NMFS and USFWS 2007). Artificial lighting on human

structures may affect turtle behavior in a similar manner (Witherington and Martin 1996). When artificial lighting impairs sea-finding behavior of nesting females and emerging hatchlings, the affected animals face increased exposure to the elements and predation.

To mitigate for potential impacts to sea turtles, the following protocols will be implemented: Sea turtle crawl searches will be conducted in the morning hours during piping plover monitoring and avian predator management to ensure nest protection procedures begin as soon as possible. All sea turtle nests will be marked, thus establishing a buffer zone, to protect the nest from recreation-related human activity. Staff or volunteers will place a minimum of four informative “Area Closed” signs forming a 5-foot radius around the nest. Rope will be strung between the signs to discourage vehicles and pedestrians from trespassing into the nest site. OSV access will occur outside this buffer zone.

OSVs are prohibited from the recreational beach. However, headlights from the parking lot or adjacent OSV zone will have the potential to affect hatchling emergence to the ocean. Staff will erect a light and hatchling emergence barrier around the 5-foot radius buffer zone into the intertidal zone in both the OSV zone and recreational beach area.

The beach is wide enough to allow OSVs to travel landside of the nest without adversely affecting dune or vegetated habitats; therefore, staff will continue to allow OSV traffic west of the nest. Pedestrians may access areas west of the nest or within the intertidal zone. Because a light and hatchling emergence barrier will be in place during the entire hatch window, a nest sitter will not be present at night.

Staff will erect a light and hatchling barrier around the 5-foot radius buffer zone and toward the intertidal zone. A corridor will be created near the intertidal zone for OSV and pedestrian access. A nest sitter will open the access corridor to the public one hour after sunrise. A nest sitter will close the corridor at sunset.

Management activities on the refuge should have a net positive effect on sea turtle nesting due primarily to in situ protection of nests. Active and passive predator control, conducted primarily for plover nest protection, will also help nesting sea turtles by reducing the number of potential sea turtle nest predators on the refuge. All sea turtle nests will be left in place and protected from threats as outlined in the attached Intra-Service Section 7 Biological Evaluation Form (USFWS 2008). Following the protocols established in Enclosure 1, CNWR staff will make a determination of how to provide protection to each nest based on the nest timing, location, and any possible site-specific issues. All turtle nests on Assateague will be excavated to confirm the presence of eggs. While this excavation process has a slight possibility of damage to the eggs, it is a standard procedure recommended and used by all sea turtle experts in the United States. The nests will then be protected by predator exclosures and symbolic fencing to prevent public trespass. Any turtle nests that occur in the Overwash zone when that area is re-opened to vehicles after the end

of the plover nesting season (generally about September 15), will also be protected with a light barrier.

*Seabeach amaranth* - Seabeach amaranth is an annual plant and a member of the Amaranth family (Amaranthaceae). Upon germination, the plant initially forms a small, unbranched sprig, but soon begins to branch profusely, forming a low-growing mat. It was added to the List of Endangered and Threatened Wildlife and Plants (50 CFR 17.12) as a threatened species.

Population numbers at the refuge have been low, and limited primarily to beach areas north of the recreational beach. The number of plants within the refuge has experienced major fluctuations in numbers since its rediscovery in 2001. In 2005, a record 69 plants were documented outside of the OSV zone. The numbers dropped to 13 plants in 2006, 2 plants in 2011, and no plants were found in 2012.

OSV use on the beach during the growing season can potentially have detrimental effects on the species, as the fleshy stems of this plant are brittle and easily broken. Plants generally do not survive even a single pass by a truck tire (Weakley and Bucher 1992). Sites where vehicles are allowed to run over seabeach amaranth plants often show severe population declines. Dormant season OSV use has shown little evidence of significant detrimental effects, unless it results in massive physical erosion or degradation of the site, such as compacting or rutting of the upper beach. In some cases, winter OSV traffic may actually provide some benefits for the species by setting back succession of perennial grasses and shrubs with which seabeach amaranth cannot compete successfully. However, extremely heavy OSV use, even in winter, may have some negative impacts, including pulverization of seeds (Weakley and Bucher 1992).

As noted above, no seabeach amaranth plants have been found within the OSV zone. Activities by refuge staff for management and protection of nesting plovers and sea turtles have a net positive effect on seabeach amaranth, in that the plants are often found during these other management activities, resulting in better protection of the plants. The refuge staff annually surveys for the plant, and records or monitors any locations. Plants that have grown during the spring/summer period are usually enclosed with fencing when found. If plants are found in public OSV use areas, signs and symbolic fencing will provide protection and reduce the risk of inadvertent disturbance to plants. As a result of closure of nesting areas for protection of the plover and sea turtles, seabeach amaranth that possibly occur in these areas can complete most of its life cycle removed from the threat of crushing from public OSV use. Crushing of a plant or plants by the public, staff, or OSVs could potentially occur in some circumstances, but is highly unlikely due to the actions taken by the refuge to protect the dune and beach areas, and the fact that most of the populations of the plant occur north of the recreational beach and do not receive pedestrian or OSV use. Refuge prohibitions on OSV use in the dunes, and efforts to educate the public should decrease trampling in almost all cases. This form of take is considered insignificant (USFWS 2008a).

Wetlands - The OSV zone is located within the intertidal zone and beachfront area, therefore, there will be no wetland impacts.

Recreation - The purpose of continuing to permit OSV use on the refuge is to facilitate wildlife observation and photography, which are both priority recreational uses of the Refuge System. Allowing this use will provide additional opportunities in areas that would be difficult to access without the use of vehicles. Therefore the impact on these recreational users will be positive. While seasonal closures will limit the times and locations that these activities may occur, they are necessary to protect numerous wildlife species that use these same locations.

There is the potential of user conflicts in the OSV zone, especially when vehicles are in use in the presence of pedestrians engaging in wildlife observation or photography, or surf fishermen and/or horseback riders. Times when vehicles are actually in use will be limited. The majority of refuge beach is open for pedestrian use and restricted from OSV use, so there is sufficient opportunity for users to engage in their respective activities without causing disturbance to other users.

#### **PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague NWR CCP/EIS. Public notification and review included a notice of availability published in the Federal Register, a 90-day comment period for the draft CCP/EIS during which public meetings were held, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

#### **DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

#### **STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

The refuge will manage these three priority visitor uses (wildlife observation, photography, and interpretation) in accordance with Federal and State regulations and will review it annually to ensure high quality wildlife dependent recreational opportunities are achieved and that these programs are providing safe experiences for participants. The refuge based these stipulations on current practices, the CCP/EIS, and refuge-specific regulations.

To ensure compatibility with refuge purposes and the mission of the Refuge System, wildlife observation, photography, and interpretation can occur on the refuge if the refuge-specific regulations are followed and following stipulations are met:

- This use must be conducted in accordance with Commonwealth of Virginia and Federal regulations (50 CFR), and special refuge-specific regulations published in refuge brochures.
- The visitor use program will be reviewed annually to ensure that it contributes to refuge objectives in managing quality recreational opportunities and protecting habitats, and is subject to modification if on-site monitoring by refuge personnel or other authorized personnel results in unanticipated negative impacts to natural communities, wildlife species, or their habitats or other refuge uses. Refuge Law Enforcement Officer(s) will promote compliance with refuge regulations, monitor visitor use patterns and public safety, and document visitor interactions. Refuge Law Enforcement personnel will monitor all areas and enforce all applicable State and Federal Regulations.
- All boats must be off the water by sunset.
- Visitors must stay on the designated trail routes and areas.
- Opportunities for wildlife observation, wildlife photography, and environmental interpretation are available via existing roads and trails and along the newly constructed beach access road and bike trail during normal operational hours. Best construction practices will be used when developing the new beach access road as well as any other visitor use facility to minimize impacts to refuge resources. Moderate beneficial impacts are expected. Some conflict between refuge users is expected to result in short-term moderate adverse impacts, which will be managed through seasonal closures. These seasonal closures are highlighted below and apply mostly to non-consumptive users during the hunting season. Other seasonal closures are in place to minimize wildlife disturbance.
- After establishment of the new recreational beach, all beach areas on Assateague Island south of the new assigned area (i.e. Swan Cove Trail beach terminus) will be closed to all visitor use from March 15 until September 15 or until the last shorebird fledges due to nesting of federally threatened piping plovers as well as other shorebirds.
- All trails south and east of the Administrative Office and the New Beach Access Road may be closed for Big Game Hunting during the fall and winter months.
- Staffing of the Assateague Island Lighthouse and operation of the Wildlife Tour Bus is provided by the CNHA. Operations vary throughout the year but daily access is provided during the busier visitor use periods with weekend access during the shoulder season and very limited or no access during the winter months.
- The Herbert H. Bateman Educational and Administrative Center is open daily throughout the year.
- Staff and/or volunteer guided interpretative programs may occur year round but are concentrated in the busier visitor use periods.
- Beachfront access on the southern islands outside of the nesting season (March 15 to September 15) would be permitted for these activities and outside of the safety and security zone established by NASA on Assawoman Island. As Metompkin and Cedar Islands have other ownership as well, visitors should consult with those entities prior to visiting.
- Pets are not permitted on the refuge.

- Bicycling is allowed only on roads, hard surfaced trails, and the Beach Road Bike trail.
- The following activities are prohibited, including, but not limited to: ice skating, camping, rollerblading, geocaching/metal detecting, off-road and mountain biking, ATVs, picnicking, pets, operation of model boats and airplanes, soliciting of funds (per 50 CFR 27.97 for Private Operations and per 50 CFR 27.86 for Begging), and other activities identified in 50 CFR Part 27.
- All boaters would be required to operate their craft and possess all safety equipment in accordance with Commonwealth of Virginia and USCG Regulations.
- Beach access will occur only on refuge-owned lands on the sandy part of the beach from the toe of the dunes to the Atlantic Ocean (mean high water demarcation to mean low water demarcation). Parking lots with a dune crossover provides access to the beach. Access on the dune and adjacent marshes is prohibited. No refuge-specific permits are required.
- Access to closed areas or use during the refuge's closed hours requires a special use permit, which is subject to the refuge manager's approval, unless the activity is in conjunction with a refuge staff- or volunteer-led program.
- Changes outlined in the CCP dealing with closed and seasonally closed areas and visitor use regulations, when approved, will be incorporated into their respective visitor use program.

The refuge will implement seasonal closures and other mitigating measures as described above, and in the Biological Opinion on monitoring and management practices for piping plover, loggerhead sea turtle, green sea turtle, leatherback sea turtle, and seabeach amaranth on Chincoteague NWR within the OSV zone.

When and if the recreational beach is moved to a more stable location, and a new surf fishing and OSV zone is created adjacent to the new beach area, the Overwash area will be merged with the Toms Cove Hook area in terms of management of surf fishing, horseback riding and OSV use and seasonal restrictions.

### **JUSTIFICATION:**

Wildlife observation, photography, and interpretation are priority wildlife-dependent uses for the Refuge System through which the public can develop an appreciation for fish and wildlife (Executive Order 12996, March 25, 1996 and the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57)). USFWS's 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.

Specific refuge regulations address equity and quality of opportunities for visitors and help safeguard refuge habitats. Impacts from this proposal, short-term and long-term, direct, indirect,





**COMPATIBILITY DETERMINATION**

**USE:** Environmental Education

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C. 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is environmental education. This is a priority public use identified by Executive Order 12996 (March 25, 1996) and by the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57).

**(b) Where would the use be conducted?**

The use would occur on Chincoteague National Wildlife Refuge (NWR) at the following locations:

Environmental Education Trail: In 2001, the refuge completed construction of an environmental education (EE) trail and study area (approximately 1 mile in length) that is designated specifically for curriculum-based educational programming and group activities. The trail, located just west of the historic Assateague Lighthouse provides students with access to several refuge habitats including freshwater and saltwater wetlands and maritime forest. (Note: The Environmental Education Trail is closed to general public access and is not depicted on general refuge map graphics found in publications and on wayside exhibits).

Herbert H. Bateman Educational and Administrative Center (HHBEAC): This education center was completed in 2003 and provides students and teachers with access to 5,000 square feet of exhibits, a 125-seat auditorium, a classroom/wet lab, and a teacher resource room. In total, approximately 9,000 square feet of visitor services space is available to host environmental education programming.

Self-Guided Trails: The following trail systems may also be used for environmental education programming: Wildlife Loop (3.2 miles), Woodland Trail (1.6 miles), Lighthouse Trail (.25 miles), Marsh Trail (.5 miles), Black Duck Trail (1 mile), Swan Cove Trail (.5 miles), and Bivalve Trail.

National Park Service (NPS) Assigned Area: This assigned area currently includes the recreational beach, adjacent parking lots, and the visitor contact station. Upon establishment of the new recreational beach area proposed in the Comprehensive Conservation Plan (CCP) (approximately 1.5 miles north of the existing recreational beach), the new assigned area would include the new recreational beach, adjacent parking lots, new visitor contact station, and extend south 1 mile to the beach terminus of the Swan Cove Trail.

Toms Cove: Several formal and informal trails provide access to Toms Cove and the associated marshes for multiple uses, including environmental education.

Service Road: Several educational study areas have been identified along the Service Road and are used predominantly by the Chincoteague Bay Field Station (CBFS, formerly Marine Science Consortium), which provides students with invaluable field experiences in Ecology, Biology, Marine Science, and Environmental Science.

Websites: A variety of pre- and post-visit activities are available on the refuge's and NPS websites.

- <http://www.fws.gov/northeast/chinco/>
- <http://www.nps.gov/asis>

**(c) When would the use be conducted?**

Opportunities for EE exist year-round, during authorized refuge hours of operation, which vary on a seasonal basis.

- The highest demand for ranger led EE programs occurs in spring (March through mid-June) and fall (September through October).
- Self guided EE may occur in buildings and on trails during normal operational hours.

**(d) How would the use be conducted?**

A refuge staff member will serve as the primary point of contact, facilitating the coordination and scheduling of all EE requests being conducted on the refuge. For programs conducted by refuge staff, at least three people must be available for EE from September through mid-June on Wednesday through Friday. From March through mid-June, staff can be expected to be needed every Wednesday through Friday.

The EE Coordinator will manage classroom reservations and it may only be reserved by refuge staff and by partners (Chincoteague Natural History Association (CNHA), NPS and CBFS) for periods of more than three weekdays in a row during the months of September to February and mid-June to August to ensure it is available for educational use. From March to mid-June, the classroom cannot be scheduled for more than one weekday or for a Friday by an outside organization. Weekend days are exempt from this limitation.

The EE Coordinator will manage auditorium reservations. Auditorium videos will be shown upon request or upon need determined by the staff person working in the HHBEAC from September through mid-June on weekdays. However, the auditorium will be reserved if an EE program is scheduled as notified by the EE coordinator. Even if the EE program is scheduled for outside, the EE program leader will notify the HHBEAC personnel if they would like to keep the

auditorium reserved as a backup for inclement weather. Weekend days are exempt from this limitation.

Group tours of exhibits may be self-guided or teacher-guided. If groups request a guided tour, it will be at the discretion of the person scheduling and/or conducting the program, and may depend upon availability of staff, group size, previous visit experience and specific interest.

Minimum scheduling time requirements (including introduction in auditorium, travel time to program location, bathroom time, and program implementation):

- Habitat Hunting: 1.5 hours (actual program time-1 hour)
- The Human Connection: 1.5 hours (actual program time-1 hour)
- Wildlife and Technology: 2 hours (actual program time-1.5 hours)
- Group consisting of 2 classes for outside or outside/inside field trip: 3 hours
- Group consisting of 3 classes for an outside or outside/inside field trip: 4 hours
- Group consisting of 4 classes for an outside or outside/inside field trip: 5 hours
- Group consisting of 2 classes for an inside program: 1.75 hours
- Group consisting of 3 classes for an inside program: 2.75 hours
- Group consisting of 4 classes for an inside program: 3.5 hours

Groups arriving less than 30 minutes late will have one of their programs (their first program) shortened by the corresponding amount of time. All of their other scheduled programs will remain on schedule. Groups arriving over 30 minutes late will have one (or more if warranted) of their programs cancelled. Teachers and students can utilize any leftover time in the exhibits, watching a video in the auditorium, or on the refuge.

Access for non-motorized, hand carried watercraft (including but not limited to kayaks, canoes, kite boards, sail boats and sailboards) into Toms Cove and Assateague Channel will be available from a launch site to be developed near the South Pony Corral area.

**(e) Why is this use being proposed?**

Environmental education is a priority public use of the Refuge System under the Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the Refuge System Improvement Act of 1997. EE programs instill learning and awareness, knowledge, attitudes, skills, and commitment to conserve natural resources and to continuously revisit and explore scientific, biological, historical, and societal issues related to conservation (U.S. Fish and Wildlife Service (USFWS) policy 605 FW 6).

It must be clearly noted that the goal of EE is not environmental advocacy. It is to teach learners how to become aware, ask questions, seek evidence and formulate their own, unique, creative thoughts about the environment and conservation.

The CBFS (formerly Marine Science Consortium), located near the Wallops Flight Facility, has been conducting EE on the refuge since 1971. During an average year, their students make about 4,000 visits to the refuge. A special use permit allows the groups to use seine nets, dip nets, shovels, sediment sieves, and environmental monitoring equipment at the future terminus of Beach Road near Toms Cove and within the recreational beach area, Black Duck Pool and Swan Cove Pool impoundments, the Woodland Trail, and other approved educational areas along the Service Road.

### **AVAILABILITY OF RESOURCES:**

Allowing the use of environmental education is within the resources available to administer our current level of participation and to ensure that the use remains compatible with the refuge purposes. Additional funding for visitor services improvements and EE can also come from entrance fee revenues, grant funds, and contributions. Compliance with refuge regulations is handled within the regular duties of the station Law Enforcement Officers. As funding is available, the refuge will complete and maintain projects and facilities. Volunteers and partners will be utilized to help with construction, maintenance, and with conducting EE activities.

Facilities or materials needed to support this use include maintaining access roads, parking areas, roadside pull-offs, kiosks, signs, the Visitor Center, wayside exhibits, observation platforms, photography blinds, accessible crabbing areas, and trails; creating new beach access road and bike trail, observation tower, accessible crabbing area and boat launch area; and providing information in refuge publications, social media sites, the refuge's website as well as other information sharing venues.

Sufficient staff and maintenance funding within our base budget is available to make annual progress toward completion of all the projects described above and to maintain those already completed; however, additional funding and staff will be needed to grow the program to its full potential as identified in USFWS's "Conserving the Future" document to inventory existing environmental education efforts on refuge, identify priorities for growth, and outlines basic standards of learning in accordance with Commonwealth of Virginia and State of Maryland educational guidelines.

### **ANTICIPATED IMPACTS OF THE USE:**

Visitor use activities currently occurring on the refuge have been analyzed for impacts to wildlife and habitat and are expected to have a short term negative impacts on vegetation. EE could alter habitats by trampling vegetation, compacting soils, and increasing the potential of erosion. Repeated visitation to any particular locale at the refuge could cause damage to vegetation and therefore, wildlife habitat. Substantial, widespread habitat degradation is not expected due to the limited and regulated occurrence of this activity. For EE, impacts would be minimal since groups

use designated areas created to traverse through habitat which prevents additional vegetation impacts.

EE can result in positive impacts to the wildlife resource. Allowing visitors to participate in EE leads to a better appreciation and more complete understanding of the wildlife and habitats associated with the refuge, the Delmarva ecosystems, and the world at large.

Disturbance factors resulting from public use are always considered for all listed threatened or endangered species, at either the State or Federal level. Of these, impacts on the shorebirds including the piping plover, red knot, upland sandpiper and Wilson's plover will be minimized through the seasonal closure of beachfront south of the Swan Cove Trail beach terminus area from March 15 through September 15 (upon establishment of new recreational beach). Other than during the construction period, the proposed activities would not likely affect the Delmarva fox squirrel. Areas near active bald eagle nests will be restricted to all activities and access, in accordance with Federal, State, and refuge specific guidelines.

EE activities are expected to have negligible adverse short-term, long-term, or cumulative impacts on waterfowl, shorebirds, or landbirds. Protecting areas north of the recreational beach area will provide waterfowl sanctuaries which will minimize some of these impacts and allow waterfowl to have undisturbed access to these areas during biologically critical periods. We expect indirect impacts to landbirds to increase due to the proposed beach access road and trail construction and use. EE activities are expected to increase in these areas as well. However, after construction, disturbance to landbirds in proposed areas is expected to be negligible since all visitors will be required to be on designated walking trails and access roads.

Impacts to fisheries from visitors engaged in environmental education are expected to be temporary and minor. While students use sampling techniques such as seine and dip nets to collect organisms, all are returned to the collection area immediately following study. Specimens are collected, stored and observed in containers designed to minimize harm or long term impact. Any non-threatened and/or endangered organisms temporarily removed from the aquatic environment are insignificant to the overall population.

The beneficial impacts of providing the existing level of wildlife-dependent activities, with some modest increases, include helping meet existing and future demands for outdoor recreation as indicated in the 2012 U.S. Geological Survey (USGS) National Visitor Survey. Visitor use appears to be remaining fairly steady in recent years, but we want to continue to improve our opportunities to expand the knowledge base of our visitors on environmental concerns. The economic benefits of increased tourism would also benefit local communities.

Some conflict between EE activities and other refuge users is expected to result in short-term moderate adverse impacts, which will be managed through seasonal closures.

New or expanded visitor services programs and/or facilities are expected to increase public awareness of, and visitation to, the refuge, and would enable staff to provide better customer service. We would expect a certain level of inconvenience during the construction of refuge facilities. The adverse effects generally are short-term, and more than offset by the long-term gains in public education and appreciation. Impacts to refuge resources are expected to be negligible.

**PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague National Wildlife Refuge (NWR) Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS). Public notification and review included a notice of availability published in the Federal Register, a 90-day comment period for the draft CCP/EIS during which public meetings were held, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

**DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

The refuge will manage EE in accordance with Federal and State regulations and review it annually to ensure wildlife and habitat goals are achieved and that these programs are providing safe, high quality experiences for participants. The refuge based these stipulations on current practices, the CCP/EIS, and refuge-specific regulations (See Description of Use section).

To ensure compatibility with refuge purposes and the mission of the Refuge System, EE can occur on the refuge if the refuge-specific regulations are followed and following stipulations are met:

- This use must be conducted in accordance with State and Federal regulations (50 CFR), and special refuge-specific regulations published in refuge brochures.
- The visitor use program will be reviewed annually to ensure that it contributes to refuge objectives in managing quality recreational opportunities and protecting habitats, and is subject to modification if on-site monitoring by refuge personnel or other authorized personnel results in unanticipated negative impacts to natural communities, wildlife species, or their habitats. Refuge Law Enforcement Officer(s) will promote compliance

with refuge regulations, monitor public use patterns and public safety, and document visitor interactions. Refuge Law Enforcement personnel will monitor all areas and enforce all applicable State and Federal Regulations.

- A special use permit may be required to conduct EE in designated areas to reduce the possibility of disturbance.
- All boats must be off the water at sunset.
- Visitors must stay on the designated trail routes and areas.
- Opportunities for EE are available via existing roads and trails and along the newly constructed beach access road and bike trail during normal operational hours. Best construction practices will be used when developing the new beach access road and trail as well as any other visitor use facility to minimize impacts to refuge resources. Moderate beneficial impacts are expected. Some conflict between refuge users is expected to result in short-term moderate adverse impacts, which will be managed through seasonal closures. These seasonal closures are highlighted below and apply mostly to non-consumptive users during the hunting season. Other seasonal closures are in place to minimize wildlife disturbance.
- After establishment of the new recreational beach, all beach areas on Assateague Island south of the new assigned area (i.e. Swan Cove Trail beach terminus) will be closed to all visitor use from March 15 until September 15 or until the last shorebird fledges due to nesting of federally threatened piping plovers as well as other shorebirds. The existing Toms Cove VCS would be open year-round for environmental education programs only, and maintained by NPS until it becomes unserviceable.
- All trails south and east of the Administrative Office and the new Beach Access Road may be closed for big game hunting during the fall and winter months.
- Staffing of the Assateague Island Lighthouse and operation of the Wildlife Tour Bus is provided by the CNHA. Operations vary throughout the year but daily access is provided during the busier public use periods with weekend access during the shoulder season and very limited or no access during the winter months.
- The Herbert H. Bateman Educational and Administrative Center is open daily throughout the year.
- Staff and/or volunteer guided EE programs may occur year around but are concentrated in spring and fall months.
- All boaters would be required to operate their craft and possess all safety equipment in accordance with Commonwealth of Virginia and U.S. Coast Guard regulations.
- Beach access will occur only on refuge owned lands on the sandy part of the beach from the toe of the dunes to the Atlantic Ocean (mean high water demarcation to mean low water demarcation). Parking lots with a dune crossover provides access to the beach. Access on the dune and adjacent marshes is prohibited. No refuge-specific permits are required.
- Changes outlined in the finalized CCP dealing with closed and seasonally closed areas and public use regulations, when approved, will be incorporated into their respective public use program.

**JUSTIFICATION:**

Environmental education is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife (Executive Order 12996, March 25, 1996 and the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57)). USFWS 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.

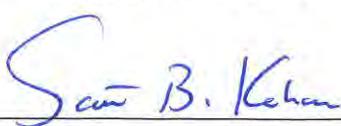
These programs and activities are directed toward organized groups and individuals associated with academic institutions. Cooperative outdoor education programs significantly expand general and specialized educational opportunities for the public beyond what the refuge alone can provide.

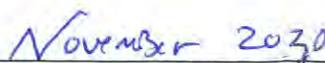
Specific refuge regulations address equity and quality of opportunities for visitors and help safeguard refuge habitats. Impacts from this proposal, short-term and long-term, direct, indirect, and cumulative, are expected to be minor, and are not expected to diminish the value of the refuge for its stated objectives. Available parking and size of the facilities will typically limit use at any given time, except during special events. Conflicts between visitors are localized and are addressed through law enforcement, public education, and continuous review and updating to public use regulations. Conflicts are further reduced by the establishment of seasonal area closures.

Stipulations above will ensure proper control of the means of use and provide management flexibility should detrimental impacts develop. Allowing this use also furthers the mission of the Refuge System by providing renewable resources for the benefit of the American public while conserving fish, wildlife, and plant resources on the refuge.

**This activity will not materially interfere with or detract from the mission of the Refuge System or purposes for which the refuge was established.**

Signature: Refuge Manager: \_\_\_\_\_  10/26/15  
(Signature and Date)

Concurrence: Regional Chief: \_\_\_\_\_  11/3/2015  
(Signature and Date)

Mandatory 15-year re-evaluation date: \_\_\_\_\_  November 2030  
(Date)



**COMPATIBILITY DETERMINATION**

**USE:** Fishing (Recreational)

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C. 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is recreational fishing (finfish, oysters, clams, and crabs). Surf fishing, crabbing, and shell fishing are among the most popular wildlife-dependent recreational activities conducted on the refuge. Some of the finfish common to the waters around the refuge are bluefish, striped bass, summer flounder, Atlantic croaker, spot, and red drum. Clearnose skate, bullfish, and southern stingrays may be caught, as well as smooth or spiny dogfish sharks. Fishing is a priority public use of the Refuge System under the Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the Refuge System Improvement Act of 1997 (Improvement Act).

**(b) Where would the use be conducted?****Assateague Island**

Surf fishing occurs along the Assateague Island beachfront from the Maryland/Virginia state line to “Fishing Point” on Toms Cove Hook. Access to the beachfront is permitted in two ways:

- 1) Foot access is currently allowed year-round from the Maryland/Virginia state line to the southern terminus of the National Park Service (NPS) recreational beach parking area.
- 2) Foot access and over sand vehicle (OSV) use/access is allowed from the NPS southernmost recreational beach parking area at Toms Cove to “Fishing Point” on Toms Cove Hook.

Access for surf fishing in the OSV zone is further restricted by the following stipulations:

- 1) Overwash portion of the OSV zone closed March 15 through August 31 based on shorebird nesting behavior; close 200 meters north of nesting sites from 2 days prior to any nests hatching and through fledging.
- 2) Hook portion of OSV zone closed March 15 to August 31 or thereafter, until last shorebird fledges.
- 3) Upon complete establishment of the new recreational beach, from March 15 to September 15, the area south of the new assigned area is closed. The new assigned area would include the new recreational beach, adjacent parking lots, new visitor contact station, and extend south 1 mile to the beach terminus of the Swan Cove Trail.
- 4) From September 16 to March 14, the zone will again start at the beach terminus of Beach Road at Toms Cove, then south along the Atlantic Ocean beachfront to “Fishing Point” on Toms Cove Hook, then returning by the same route. Walking and OSV use will

generally be within the intertidal zone, unless OSVs are re-directed by signage to avoid sea turtle nest sites; vehicles are prohibited from the dunes or vegetated areas.

Shell fishing activities (clams, oysters, and crabs) are confined primarily to saltmarsh and mudflats within Toms Cove via Bivalve Trail. Additionally, crabbing is allowed within the borrow ditch running along Beach Road within Swan's Cove Pool. To promote better access, a new fishing/crabbing dock is proposed to be built near the South Pony Corral area.

#### Southern Island Units (Assawoman, North Metompkin, and Cedar Islands)

Fishing activities also occur on the Southern Island Units (Assawoman, North Metompkin, and Cedar Islands). Access is limited to boat use, and there are time of year restrictions to portions of these islands due to threatened species nesting during the summer months. Assawoman Island would be completely closed to all forms of public use, including fishing, from March 15 through September 15 or thereafter, until the last shorebird fledges.

No data are available for use of these islands; however, information gathered during law enforcement patrols indicates that little of this use occurs on these islands.

#### **(c) When would the use be conducted?**

Surf fishing, clamming, crabbing and oyster harvest will be permitted during normal refuge hours of operation which are:

- May through September: 5 a.m. to 10 p.m.
- October: 6 a.m. to 8 p.m.
- November through February: 6 a.m. to 6 p.m.
- March and April: 6 a.m. to 8 p.m.

In addition, on Assateague Island overnight fishing permits are available, at no cost, for nighttime surf fishing only. These "life time" permits may be obtained from the NPS at the Toms Cove Visitor Center or during the winter months at the Herbert H. Bateman Educational and Administrative Center. Permittees must be actively engaged in surf fishing at all times while on the refuge after the normal refuge hours listed above.

Additionally on Assateague Island,

- Overwash and Toms Cove Hook Area - Open from September 16 through March 14. If unfledged shorebirds remain in the surf fishing and OSV zone after September 15, the refuge manager will designate a closed area to protect these birds.
- The refuge manager may close the surf fishing and OSV zone at any time for safety or security reasons.

#### **(d) How would the use be conducted?**

Visitors are allowed to fish, crab, oyster and/or clam in designated areas of the refuge as these activities are deemed wildlife oriented and are promoted within the U.S. Fish and Wildlife Service (USFWS), nationwide. Fishing, crabbing, clamming and oyster harvest would take place within the regulatory framework established by the Virginia Marine Resources Commission (VMRC) and the USFWS. Visitors are required to follow all Commonwealth of Virginia regulations, including possession of applicable licenses. Anglers age 16 and older must possess a valid Virginia Saltwater Fishing or Potomac River Fisheries Sport Fishing license. Anglers who are exempt from licensing and holders of out of state reciprocal licenses must register with the Virginia Fisherman Identification Program (FIP). In addition, the refuge may impose stricter regulations as deemed necessary to maintain healthy populations of oysters and clams on Refuge tidal lands.

Overnight fishing permits are available, at no cost, for nighttime surf fishing. These “life time” permits may be obtained from the NPS at the Toms Cove Visitor Center or during the winter months at the Herbert H. Bateman Educational and Administrative Center. Permittees must be actively engaged in surf fishing at all times while on the refuge after the normal refuge hours.

**(e) Why is this use being proposed?**

Fishing, crabbing, clamming and oyster harvest are current recreational uses on the refuge and are appropriate activities. Refuge expenses are very minimal aside from already existing standard law enforcement patrols to verify that regulations are being followed. This use supports wildlife dependent recreation as outlined in the Improvement Act.

Surf fishing was one of the first documented public recreational uses of the Chincoteague NWR (Assateague Island) soon after it was established. The first record of surf fishing appeared in the May to August 1944 refuge report. In most instances, fishermen boated to the "bow-of-the-beach" and walked over the over wash to fish on the ocean beach. In later years (1948), prior to the construction of the bridge to the island, anglers would drive down the beach from the Maryland end of Assateague Island to fish on the refuge. The construction of the bridge to Assateague Island in 1962 contributed to a significant increase in the general use of Assateague Island and subsequently to surf fishing on the refuge. Surf fishing, clamming, crabbing and oyster harvest continue to be popular family oriented recreational activities.

**AVAILABILITY OF RESOURCES:**

Permitting and oversight of recreational surf fishing, crabbing, clamming and oyster harvest is within the resources available to the Visitor Services and Law Enforcement programs to administer this use.

As indicated in the 2012 Memorandum of Understanding between the NPS and U.S. Fish and Wildlife Service (USFWS) for Interagency Cooperation at Assateague Island National Seashore and Chincoteague National Wildlife Refuge or subsequent agreements, the NPS will assist in the day-to-day management of OSVs used for surf fishing within the refuge by issuing permits,

educating permit holders on OSV use regulations, and assisting the USFWS with enforcing OSV use regulations, creel limits, and closures (USFWS 2012). Responsibility of monitoring vehicles, maintenance of facilities, and law enforcement is delegated to qualified and available full time employees of either the NPS or USFWS. Refuge staff will ensure that closed areas are delineated and maintained to achieve maximum protection for beach nesting birds and carry out appropriate monitoring and management actions as required by the USFWS's Biological Opinion on monitoring and management practices for piping plover, loggerhead sea turtle, green sea turtle, leatherback sea turtle, and seabeach amaranth on Chincoteague National Wildlife Refuge, Virginia. These activities include searching for and monitoring piping plover and sea turtle nests, erecting exclosures, signage and barriers to protect nests, and "nest sitting" just prior to anticipated emergence of sea turtle hatchlings.

The USFWS and NPS both administer the day-to-day operation of the OSV permit program. Refuge costs are primarily staff time, with some expenditures for materials such as signs, posts, and fencing. Use of volunteer interns lessens the cost to the refuge, and fee receipts augment the refuge's annual operations and maintenance budget.

Within the annual refuge operations and maintenance budget, in combination with fee receipts, there is sufficient staffing and funding available to accomplish the tasks necessary to facilitate this use. The funding received by the refuge is adequate to ensure that the use remains compatible with refuge purposes.

#### **ANTICIPATED IMPACTS OF USE:**

The day-to-day activity of crabbing, clamming and oyster harvest is considered a consumptive use of renewable resources found on the refuge. However, there are few adverse impacts from that harvest and there is no significant impact on migratory birds due to the small number of those resources that are harvested.

The activity of surf fishing, by itself, has no significant impact to migratory birds due to disturbance or the fish resources that are harvested. However, the use of OSVs to gain access to remote southernmost surf fishing areas of Assateague Island must be reviewed.

Migratory birds - Since the use of OSVs for surf fishing will occur along the Atlantic ocean beachfront, impacts to migratory birds will generally be restricted to shorebirds. The refuge consulted with the USFWS Ecological Services Virginia Field Office who issued a Biological Opinion on the impacts of OSV use, among other uses, on piping plovers. The impacts described therein can be extrapolated to other shorebirds.

The refuge has been designated as internationally important for shorebirds by the Western Hemisphere Shorebird Reserve network. It is an important staging area and provides habitat for shorebirds during both spring and fall migrations. Nesting species include piping plover,

American oystercatcher, willet, common and least tern, and black skimmer. Spring migration generally runs from early April to early June, when thousands of shorebirds use refuge habitats. Dunlin and sanderling are predominant during early spring migration, while semipalmated sandpiper makes up nearly half of those birds counted during late spring migration. The peak of fall migration occurs from July through September with semipalmated and least sandpipers accounting for the majority of individuals. The red knot, designated as threatened under the Endangered Species Act, also uses the refuge during spring and fall migration.

Motorized vehicle use on beaches is an extreme threat to piping plovers, as well as other shorebirds that nest on beaches and dunes. Vehicles can crush eggs, adults, and chicks (Wilcox 1959, Tull 1984, Burger 1987, Patterson et al. 1991). In Massachusetts and New York, 18 piping plover chicks and 2 adults were killed by off-road vehicles in 14 documented incidents (Melvin et al. 1994). Goldin (1993) compiled records of 34 chick mortalities (30 on the Atlantic Coast and 4 on the Northern Great Plains) due to vehicles. Biologists who monitor and manage piping plovers believe that vehicles kill many more chicks than are found and reported (Melvin et al. 1994). Beaches used by recreational vehicles during nesting and brood-rearing periods generally have fewer breeding plovers than available nesting and feeding habitat can support. In contrast, plover abundance and productivity has increased on beaches where recreational vehicle restrictions during chick-rearing periods have been combined with protection of nests from predators (Goldin 1993) (USFWS 2008a). It has been documented that piping plover chicks will tend to run along ruts caused by vehicles and remain motionless as vehicles approach (USFWS 1996). Piping plover chicks may also have difficulty crossing deep ruts and moving quickly enough out of a vehicle's path. Additionally, piping plovers tend not to reach their full habitat carrying capacity on beaches where vehicles are allowed during the nesting and brood rearing periods (USFWS 1996).

To mitigate for these potential negative impacts, the refuge has instituted seasonal closures for surf fishermen, horseback riders, and OSV users. The beach habitats of Toms Cove Hook are the most productive on the refuge for nesting and staging shorebirds. As noted above, with establishment of the new recreational beach, the Toms Cove Hook portion of the surf fishing, horseback riding and OSV zone would be closed from March 15 through September 15 annually, and later if unfledged birds remain in the area. The closure period also encompasses the peak times of spring and fall migration, thus providing undisturbed habitat for shorebirds during the most critical times of year.

The closures extend from the nest site a distance of 200 meters (656 feet) north. It is possible that some nests may not be discovered, and the presence of nest searchers may also cause direct loss if eggs are inadvertently crushed. In either of these situations, there could be negative impacts to nesting shorebirds. When the recreational beach area is moved to a more northern location, as is proposed in the CCP/EIS (alternative B), the Overwash area would be managed identically with the Toms Cove Hook portion, which will provide added protection to birds using the Overwash area.

Surf fishermen and OSV users may encounter shorebirds at times outside of the closure period. During this time, all birds should be capable of flight, and therefore can travel short distances to other high quality, undisturbed portions of the refuge, such as the bay side of Toms Cove. There could be some negative impacts due to birds expending energy to travel away from preferred feeding or resting areas.

Based on a review of the literature, with seasonal closures in place, and if nest searches in the Overwash zone are conducted thoroughly and professionally, the direct, indirect, and cumulative impacts of OSV use for surf fishing to shorebirds should not be significant.

Threatened and endangered species - This section assesses impacts to federally-listed threatened and endangered species: piping plover, red knot, sea turtles, and seabeach amaranth.

*Piping plover* and *red knot* impacts are covered above under migratory shorebird impacts.

*Sea turtles* - Five species of federally-listed sea turtles use Assateague Island's ocean and bay waters. The leatherback sea turtle, which is also a State listed species, Kemp's Ridley sea turtle, and the Atlantic hawksbill are Federal endangered species. The loggerhead sea turtle and green sea turtle are Federal threatened, with the loggerhead also being State threatened. The loggerhead sea turtle nests on Assateague Island, which is the northern extent of its breeding range. To date, there has been no confirmed nesting by green or leatherback sea turtles within the refuge although both these species have been seen in waters off Virginia's barrier islands during the nesting season. Dead stranded turtles of these species are occasionally found on refuge beaches. However, with the average global air and water temperatures rising, refuge beaches may become more favorable for these species (USFWS 2008c).

Nesting activity on Assateague and NASA Wallops Islands has risen noticeably in recent years, perhaps the result of a loggerhead translocation project. From 1969 to 1979 sea turtle eggs from nests laid on Cape Island of Cape Romain National Wildlife Refuge (NWR), Charleston County, South Carolina were relocated to Chincoteague NWR. During, and the first two decades following, the relocation program (1970 to 1999) staff recorded 16 crawls on Assateague and NASA Wallops; 10 resulted in nests and 6 were false crawls, meaning no nest was made. Loggerhead sea turtles take 30 years to reach maturity, so females that were part of the transplant project may now be returning to their hatch and release sites. Loggerhead nesting activity from 2000 to 2012 on Chincoteague Island had a total of 66 crawls; 23 resulted in nests and 43 were false crawls (CNWR unpubl. database). Eleven of the nests were located on Wild Beach, north of the recreational beach in an area closed to all OSV use. Eight nests were located on the recreational beach area and OSV zone (5 at the Overwash and 3 on public beach). These nests were monitored and managed in accordance with the Chincoteague NWR Intra-Service Section 7 and Biological Opinion (USFWS 2008). The other 4 nests were located south of the recreational beach on the Toms Cove Hook area.

OSV use poses a risk of injury to females and live stranded turtles, can leave ruts that trap hatchlings attempting to reach the ocean (Hosier et al. 1981, Cox et al. 1994), can disturb adult females and cause them to abort nesting attempts, and can interfere with sea-finding behavior if headlights are used at night (NMFS and USFWS 1991). Driving directly above incubating egg clutches can cause sand compaction, which may decrease hatching and emergence success and directly kill pre-emergent hatchlings (NMFS and USFWS 2007). Artificial lighting on human structures may affect turtle behavior in a similar manner (Witherington and Martin 1996). When artificial lighting impairs sea-finding behavior of nesting females and emerging hatchlings, the affected animals face increased exposure to the elements and predation.

To mitigate for potential impacts to sea turtles, the following protocols will be implemented: Sea turtle crawl searches will be conducted in the morning hours during piping plover monitoring and avian predator management to ensure nest protection procedures begin as soon as possible. All sea turtle nests will be marked, thus establishing a buffer zone, to protect the nest from recreation-related human activity. Staff or volunteers will place a minimum of four informative “Area Closed” signs forming a 5-foot radius around the nest. Rope will be strung between the signs to discourage vehicles and pedestrians from trespassing into the nest site. OSV access will occur outside this buffer zone.

OSVs are prohibited from the recreational beach. However, headlights from the parking lot or adjacent OSV zone will have the potential to affect hatchling emergence to the ocean. Staff will erect a light and hatchling emergence barrier around the 5-foot radius buffer zone into the intertidal zone in both the OSV zone and recreational beach area.

The beach is wide enough to allow OSVs to travel landside of the nest without adversely affecting dune or vegetated habitats; therefore, staff will continue to allow OSV traffic west of the nest. Pedestrians may access areas west of the nest or within the intertidal zone. Because a light and hatchling emergence barrier will be in place during the entire hatch window, a nest sitter will not be present at night.

***OSV Zone-DAY: Beach is too narrow for ORVs to pass landward during Hatch Window:***

Staff will erect a light and hatchling barrier around the 5-foot radius buffer zone and toward the intertidal zone. A corridor will be created near the intertidal zone for OSV and pedestrian access. A nest sitter will open the access corridor to the public one hour after sunrise. A nest sitter will close the corridor at sunset. If hatchling activity occurs during the day, nest sitters will follow the OSV Zone-Night protocol.

***OSV Zone-NIGHT: Beach is too narrow for OSVs to pass landward during Hatch Window:***

The OSV and pedestrian access corridor gate will close at sunset. Throughout the night a turtle sitter will open the gate to OSVs and pedestrians allowing passage north and south through the

corridor of the turtle hatchling emergence zone when hatchlings are not crawling to the ocean. After an OSV or pedestrian passes through the area, the turtle sitter will immediately re-close the gates and sweep away all OSV and foot tracks. The access corridor and gates will be used as needed from sunset until one hour after sunrise or when turtle hatchling activity ceases. A turtle sitter will be posted at nests which fall into this scenario each night for the duration of the entire hatch window.

Management activities on the refuge should have a net positive effect on sea turtle nesting due primarily to in situ protection of nests. Active and passive predator control, conducted primarily for plover nest protection, will also help nesting sea turtles by reducing the number of potential sea turtle nest predators on the refuge. All sea turtle nests will be left in place and protected from threats as outlined in the attached Intra-Service Section 7 Biological Evaluation Form (USFWS 2008). Following the protocols established in Enclosure 1, CNWR staff will make a determination of how to provide protection to each nest based on the nest timing, location, and any possible site-specific issues. All turtle nests on Assateague will be excavated to confirm the presence of eggs. While this excavation process has a slight possibility of damage to the eggs, it is a standard procedure recommended and used by all sea turtle experts in the United States. The nests will then be protected by predator exclosures and symbolic fencing to prevent public trespass. Any turtle nests that occur in the Overwash zone when that area is re-opened to vehicles after the end of the plover nesting season (generally about September 15), will also be protected with a light barrier. In addition to the barriers, human nest sitters (staff or volunteers) will be used at night during the hatch window to protect nests in areas where the location of the nest and the width of the beach is such that an OSV cannot pass landward of the nest. Nest sitters will prevent vehicles from passing seaward of turtle nests while hatchling turtles are on the beach to prevent injury to hatchling turtles.

*Seabeach amaranth* - Seabeach amaranth is an annual plant and a member of the Amaranth family (Amaranthaceae). Upon germination, the plant initially forms a small, unbranched sprig, but soon begins to branch profusely, forming a low-growing mat. It was added to the List of Endangered and Threatened Wildlife and Plants (50 CFR 17.12) as a threatened species.

Population numbers at the refuge have been low, and limited primarily to beach areas north of the recreational beach. The number of plants within the refuge has experienced major fluctuations in numbers since its rediscovery in 2001. In 2005, a record 69 plants were documented outside of the OSV zone. The numbers dropped to 13 plants in 2006, 2 plants in 2011, and no plants were found in 2012.

OSV use on the beach during the growing season can potentially have detrimental effects on the species, as the fleshy stems of this plant are brittle and easily broken. Plants generally do not survive even a single pass by a truck tire (Weakley and Bucher 1992). Sites where vehicles are allowed to run over seabeach amaranth plants often show severe population declines. Dormant season OSV use has shown little evidence of significant detrimental effects, unless it results in

massive physical erosion or degradation of the site, such as compacting or rutting of the upper beach. In some cases, winter OSV traffic may actually provide some benefits for the species by setting back succession of perennial grasses and shrubs with which seabeach amaranth cannot compete successfully. However, extremely heavy OSV use, even in winter, may have some negative impacts, including pulverization of seeds (Weakley and Bucher 1992).

As noted above, no seabeach amaranth plants have been found within the OSV zone. Activities by refuge staff for management and protection of nesting plovers and sea turtles have a net positive effect on seabeach amaranth, in that the plants are often found during these other management activities, resulting in better protection of the plants. The refuge staff annually surveys for the plant, and records or monitors any locations. Plants that have grown during the spring/summer period are usually enclosed with fencing when found. If plants are found in public OSV use areas, signs and symbolic fencing will provide protection and reduce the risk of inadvertent disturbance to plants. As a result of closure of nesting areas for protection of the plover and sea turtles, seabeach amaranth that possibly occur in these areas can complete most of its life cycle removed from the threat of crushing from public OSV use. Crushing of a plant or plants by the public, staff, or OSVs could potentially occur in some circumstances, but is highly unlikely due to the actions taken by the refuge to protect the dune and beach areas, and the fact that most of the populations of the plant occur north of the recreational beach and do not receive pedestrian or OSV use. Refuge prohibitions on OSV use in the dunes, and efforts to educate the public should decrease trampling in almost all cases. This form of take is considered insignificant (USFWS 2008a).

Wetlands - The surf fishing and OSV zone is located within the intertidal zone and beachfront area, therefore there will be no wetland impacts.

Recreation - The purpose of continuing to permit OSV use on the refuge is to facilitate surf fishing, a priority recreational use of the Refuge System. Allowing this use will provide additional opportunities in areas that would be difficult to access without the use of vehicles. Therefore the impact on these recreational users will be positive. While seasonal closures will limit the times and locations that these activities may occur, they are necessary to protect numerous wildlife species that use these same locations.

There is the potential of user conflicts in the OSV zone, especially when vehicles are in use in the presence of pedestrians engaging in wildlife observation or photography and/or horseback riders. Since OSVs are permitted only to access fishing and hunting areas, times when vehicles are actually in use will be limited. The majority of refuge beach is open for pedestrian use and restricted from OSV use, so there is sufficient opportunity for users to engage in their respective activities without causing disturbance to other users.

Allowing overnight surf fishing could potentially impact migratory shore birds and nesting sea turtles. These impacts have been reduced for shorebirds and eliminated for sea turtles by restricting this use to periods outside the peak migration and nesting seasons, respectively. There

is the possibility of increased disturbance to dune habitats; however, regular patrols and enforcement of this closed area will be implemented. No other adverse impacts are anticipated.

In addition, surf fishing takes place at the south end of Assawoman Island, and the north end of Metompkin Island except during closures or in restricted areas. Surf fishing in these areas has the potential of impacting the feeding and resting by a variety of shorebirds, gulls, and terns. Surveys conducted from 1990 to 1993 indicated an average peak of 2,000 shorebirds, 370 gulls, and 60 terns along the affected beach activity zone. The highest peak for all three species group occurred during the early fall migration (August) with 4,900, 600, and 180, respectively. Shorebird use of the beach fishing area was approximately 85 percent sanderling, with whimbrel, ruddy turnstone, red knot accounting for the remaining total. Gull species including laughing gulls in the summer months and great black-backed, herring and ring-billed during the remainder of the year. Terns present within the affected area were mostly royal, common, and least.

To mitigate for the potential negative impact of surf fishing activities to migratory birds, the refuge has instituted a seasonal closure to all access. All of Assawoman Island will be closed from March 15 through September 15 annually, and later if unfledged birds remain in the area. On Metompkin Island shore bird nesting areas are posted closed to public access during the shorebird nesting season. These closure periods also encompasses the peak times of spring and fall migration, thus providing undisturbed habitat for shorebirds during the most critical times of year.

Shell fishing activities (clams, oysters, and crabs) are confined primarily to saltmarsh and mudflats within Toms Cove. Anticipated impacts include minor disturbance to feeding wading birds, migrant shorebirds, and nesting saltmarsh species (rails and songbirds). Disturbance from crabbing in the borrow ditch along Beach Road near Swans Cove Pool will primarily affect wading birds during the summer months. Because of the small area in which crabbing is allowed disturbance is very minimal.

#### **PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague NWR CCP/EIS. Public notification and review included a notice of availability published in the Federal Register, a 90-day comment period for the draft CCP/EIS during which public meetings were held, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

#### **DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

Surf fishing, crabbing, clamming and oyster harvest would take place within the regulatory framework established by the VMRC and USFWS. Visitors are required to follow all Commonwealth of Virginia regulations, including license to fish. Anglers age 16 and older must possess a valid Virginia Saltwater Fishing or Potomac River Fisheries Sport Fishing license. Anglers who are exempt from licensing and holders of out of state reciprocal licenses must register with the Virginia FIP. In addition, the refuge may impose stricter regulations as deemed necessary to maintain healthy populations of oysters and clam on refuge tidal lands. The refuge does not host any fishing tournaments.

The refuge will implement seasonal closures and other mitigating measures as described above, and in the Biological Opinion on monitoring and management practices for piping plover, loggerhead sea turtle, green sea turtle, leatherback sea turtle, and seabeach amaranth on Chincoteague NWR within the OSV zone.

When and if the recreational beach is moved to a more stable location, and a new surf fishing and OSV zone is created adjacent to the new beach area, the Overwash area will be merged with the Toms Cove Hook area in terms of management of surf fishing, horseback riding and OSV use and seasonal restrictions.

Shell fishing will continue to be restricted to segments of the Toms Cove's saltmarsh and mudflats. These restrictions are dictated by the accessibility of these areas to the visiting public. No artificial methods for extracting shellfish from the substrate. Use of mechanized harvest equipment and artificial extraction methods such as salt or chlorine are not allowed. All other saltmarsh and mudflats will remain closed to public entry the entire year, in order to minimize disturbance.

To ensure compatibility within the lower island refuge units, seasonal restrictions will continue to be imposed on users, and periodic law enforcement patrols will be conducted on weekends and holidays during the summer months for all fishing (finfish and shellfish) activities. To reduce shorebird nesting disturbance on Assawoman Island during the breeding season, we will implement a complete closure, including fishing, from March 15 through September 15 or thereafter, until the last shorebird fledges.

**JUSTIFICATION:**

Recreational fishing (surf fishing, clamming, crabbing and oyster harvest) is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife (Executive Order 12996, March 25, 1996 and the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57)). USFWS policy is to provide expanded opportunities for wildlife-dependent uses when compatible



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**COMPATIBILITY DETERMINATION**

**USE:** Migratory Game Bird Hunting

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C. 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is the public hunting of migratory game birds. Hunting was identified as one of six priority public uses by Executive Order 12996 (March 25, 1996) and by the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57).

**(b) Where the use would be conducted?**

The use would be conducted in designated areas of the refuge. Migratory game bird hunting is open on Wildcat Marsh, Morris Island, Assawoman Island, and North Metompkin Island. Wildcat Marsh (546 acres) is located at the north end of Chincoteague Island and Morris Island (427 acres) is located between Chincoteague and Assateague Islands. Assawoman Island Division contains 1,434 acres and encompasses the entire island; Metompkin Island Division consists of 174 acres on the north end of the island. Thus, the use would be conducted in designated areas of the refuge on a total of up to 2,581 acres over the 14,032-acre refuge, or approximately 18 percent of the refuge.

**(c) When would the use be conducted?**

Hunting would take place within the season dates established by the Virginia Department of Game and Inland Fisheries (VDGIF) and the U.S. Fish and Wildlife Service (USFWS). Specific regulations for each hunt will be published by the refuge in advance of the hunt seasons.

**(d) How would the use be conducted?**

Hunting would take place within the regulatory framework established by VDGIF and USFWS. The refuge manager may, upon annual review of the hunting program and in coordination with VDGIF, impose further restrictions on hunting. Hunting at the refuge is at least as restrictive as the Commonwealth of Virginia, and in some cases, more restrictive. The refuge coordinates with the VDGIF annually to maintain regulations and programs that are consistent with the State's management programs. Hunting restrictions may be imposed if hunting conflicts with other higher priority refuge programs, endangers refuge resources, or public safety. Specific hunt details will be outlined in the annual hunt program.

**Migratory Game Bird Hunt - Specific Regulations:**

Hunters must obtain an Annual Refuge Hunt Permit and maintain the permit on their person while hunting on the refuge.



**(e) Why is this use being proposed?**

Hunting is one of the priority public uses of the Refuge System. This legitimate and appropriate use of a national wildlife refuge is generally considered compatible, as long as it does not materially interfere with or detract from the fulfillment of the Refuge System mission or the purposes of the national wildlife refuge. USFWS will continue the tradition of wildlife-related recreation on the refuge by allowing hunting in compliance with State regulations.

The primary objective of the refuge waterfowl hunts is to provide the general public with quality waterfowl hunting opportunities. This objective was reviewed in the Chincoteague National Wildlife Refuge (NWR) Environment Assessment Big Game and Migratory Game Bird Hunt Proposal of 2007 to ensure the hunt program was in conformance with the laws and policy of USFWS.

**AVAILABILITY OF RESOURCES:**

The Refuge Recreation Act requires that funds are available for the development, operation, and maintenance of the permitted forms of recreation. The permit fee (\$20 for deer), and a processing application fee (\$5/hunter) are the minimal amounts needed to offset the cost of facilitating the preseason drawings and managing the lottery hunts.

Administrative changes in the hunting program were implemented to ease the administrative burden on staff resources. Kinsail Corporation, a private firm working through a Memorandum of Understanding with the refuge, conducts the hunting applications, lottery selection, and permits. Cost savings resulted from phasing out the use of permanent hunting structures and eliminating the need to have staff conduct daily lottery drawings for permits. Regulations for the fee program allow the refuge to retain 80 percent of the total fees collected, Kinsail retains the \$5 application fee charge to each hunter. The resources necessary to provide and administer this use, at current use levels, are available within current and anticipated refuge budgets and no increase in use is proposed above historic levels.

There would be some costs associated with these programs in the form of road maintenance, and law enforcement. These costs should be minimal relative to total refuge operations and maintenance costs and would not diminish resources dedicated to other refuge management programs.

**ANTICIPATED IMPACTS OF THE USE:****General Impacts of Public Use**

Direct impacts are those impacts immediately attributable to an action. Indirect impacts are those impacts that are farther in time and in space. Effects that are minor when considered alone, but collectively may be important are known as cumulative effects. Incremental increases in activities by people engaged in the variety of allowed uses on the refuge could cumulatively result in

detrimental consequences to wildlife and/or habitats. Refuge staff will monitor these activities to ensure wildlife resources are not impacted in a detrimental manner. Since the hunting areas comprise portions of the refuge with the least amount of waterfowl use and hunting times are restricted, disturbance and other impacts are not expected to be significant.

In this compatibility determination, some of the anticipated impacts are not considered major or significant, and are described as either negligible or minor. The magnitude of such changes is defined as follows:

- Negligible -- Management actions would result in impacts that would not be detectable or if detected, would have effects that would be considered slight, localized, and short-term.
- Minor -- Management actions would result in a detectable change, but the change would be slight and have only a local effect on the community, the resource, or ecological processes. The change would be discountable, insignificant, and of little consequence and short-term in nature.

The use would be conducted in designated areas of the refuge, on a total of up to 2,581 acres over the 14,032-acre refuge. In 2014, only 213 visits occurred on the refuge for migratory bird hunting, possibly because the hunt areas are only accessible by boat. Thus, our determination considers these factors in our overall analysis.

Hunting provides additional wildlife-dependent recreational opportunities and can foster a better appreciation and more complete understanding of the wildlife and habitats associated with Delmarva ecosystems. This can translate into more widespread and stronger support for wildlife conservation, the refuge, the Refuge System, and the USFWS. The following is a discussion of refuge-specific impacts.

### **Impacts on Socioeconomic Environment**

Accomack County is one of the poorest counties in Virginia. The 2010 population estimate for Accomack County is 33,164 persons (U.S. Census Bureau.) Chincoteague NWR is one of the most heavily visited refuges in the Refuge System. Visitors come to Chincoteague for a variety of reasons. Many come in the summer months to access the beach. The beaches of Assateague Island offer a unique experience in the mid-Atlantic area as they exist primarily in an undeveloped setting unlike other beaches like Virginia Beach or Ocean City that are heavily developed. This natural setting draws many families seeking out a more traditional beach going experience.

Spending associated with recreational use of the refuge can generate a substantial amount of economic activity in both local and regional economies. Refuge visitors spend money on a wide variety of goods and services. Trip-related expenditures may include expenses for food, lodging, and transportation. Anglers, hunters, boaters, and wildlife watchers also buy equipment and supplies for their particular activity. Because this spending directly affects towns and communities where these purchases are made, recreational visitation can have an impact on local

economies, especially in small towns and rural areas. These direct expenditures are only part of the total picture, however. Businesses and industries that supply the local retailers where the purchases are made also benefit from recreation spending. For example, a family may decide to purchase a set of fishing rods for an upcoming vacation. Part of the total purchase price will go to the local retailer, say a sporting goods store. The sporting goods store in turn pays a wholesaler who in turn pays the manufacturer of the rods. The manufacturer then spends a portion of this income to cover manufacturing expenses. In this fashion, each dollar of local retail expenditures can affect a variety of businesses at the local, regional and national level. Consequently, consumer spending associated with refuge recreation can have an impact on economic activity, employment, household earnings and local, State, and Federal tax revenue.

Total visits to the refuge exceeded 1.36 million in 2010. Refuge recreation-related expenditures, and associated economic output, jobs, job income and total (county, State and Federal) tax revenue are as follows: total retail related expenditures are estimated at \$113.8 million; economic output at \$150.3 million; jobs at 1,794, job income at \$48.6 million and total tax revenue of \$10.6 million. (2012, Chincoteague National Wildlife Refuge -Economic Analysis - In Support of Comprehensive Conservation Plan,)

The refuge's contribution to the economy of the area through offering hunting opportunities for migratory game birds and big game is negligible in context of overall visitation and expenditures. Offering these hunting opportunities may enable hunters to contribute to the local community through local purchases of gas, food, lodging, and supplies.

### **Impacts on Cultural Resources**

The body of federal historic preservation laws has grown dramatically since the enactment of the Antiquities Act of 1906. Several themes recur in these laws, their promulgating regulations, and more recent Executive Orders. They include:

- Each agency is to systematically inventory the historic properties on their holdings and to scientifically assess each property's eligibility for the National Register of Historic Places.
- Federal agencies are to consider the impacts to cultural resources during the agencies management activities and seek to avoid or mitigate adverse impacts.
- Protection of cultural resources from looting and vandalism are to be accomplished through a mix of informed management, law enforcement efforts, and public education.
- The increasing role of consultation with groups, such as Native American tribes, in addressing how a project or management activity may impact specific archaeological sites and landscapes deemed important to those groups.

The USFWS is legally mandated to inventory, assess, and protect cultural resources located on those lands that the agency owns, manages, or controls. USFWS cultural resource policy is delineated in 614 FW 1-5 and 126 FW 1-3.

In the USFWS Northeast Region, the cultural resource review and compliance process is initiated by contacting the Regional Historic Preservation Officer/Regional Archaeologist. The officer or archeologist will determine whether the proposed undertaking has the potential to impact cultural resources, identify the “area of potential effect,” determine the appropriate level of scientific investigation necessary to ensure legal compliance, and initiates consultation with the pertinent State Historic Preservation Office and federally recognized Tribes.

With a relatively small number of hunters dispersed across the refuge during the hunting season, impacts would be negligible on the refuge’s cultural resources based on our observations of past hunting impacts.

### **Impacts on Air Quality**

Hunting is expected to have negligible adverse short-term, long-term or cumulative impacts on local or regional air quality. Localized increases in emissions from hunter’s vehicles or boat motors would be negligible compared to current off-refuge contributions to pollutant levels and likely increases in air emissions in the Accomack County air shed from land development over the next 15 years. Any adverse air quality effects from refuge activities would be more than offset by the benefits of maintaining the refuge in natural vegetation. The hunting program would not violate Environmental Protection Agency (EPA) standards and would comply with the Clean Air Act.

### **Impacts on Soils**

The soils of Chincoteague NWR consist primarily of sand and silt loams. The soils are a mixture of Chincoteague silt loam (0-1 percent slope), Assateague fine sand (2-35 percent slope), Camocca fine sand (0-2 percent slope), beach sand (0-5 percent slope), Fisherman-Camocca complex (0-6 percent slope), and Udorthents and Udipsamments soils (0-30 percent slope). The soils are predominantly made of loam, silt, and sand. Assateague fine sand areas are rarely flooded. However, the rest of the areas are frequently to moderately prone to flooding. Hiking or walking can alter habitats by trampling vegetation, compacting soils, and increasing the potential of erosion. Using these baseline impacts, the refuge’s hunt program has the potential to cause some soil compaction since off-trail foot travel occurs; however, hunting is expected to have negligible adverse short-term, long-term or cumulative impacts on soils. With a limited number of hunters dispersed across the refuge during the hunting season, impacts would be negligible based on our observations of past hunting impacts. Vehicles would continue to be confined to existing refuge roads and parking lots to minimize impacts outside of that developed footprint.

### **Impacts on Hydrology and Water Quality**

No natural freshwater streams or lakes exist on Chincoteague NWR. Rainfall and tidal over wash are the only sources of surface water on Assateague Island. The moist soil units or impoundments are slightly brackish to highly saline because of tidal over wash, salt spray, and the accumulation of salt residue as water evaporates. The same environmental influences make the groundwater lenses beneath the islands brackish. Evaporation and transpiration account for major surface

water depletion during the summer months. The drinking water supply for Chincoteague Island and the refuge comes via pipeline from three deep wells and a shallow well field near the National Aeronautics and Space Administration (NASA) base on the mainland. Large bodies of water bordering the Refuge are the Atlantic Ocean, Chincoteague Bay, and Assateague Channel. Hunting is expected to have negligible adverse short-term, long-term or cumulative impacts on hydrology or water quality based upon staff observations of past hunting impacts. The hunting program would not violate federal or state standards for contributing pollutants to water sources and would comply with the Clean Water Act.

The use of boats by hunters has the potential to affect water quality negatively by increasing erosion, stirring up bottom sediments, or introducing pollutants into waterways. USFWS does not expect emissions from vehicles or boat motors to substantially affect the water quality of the region. Non-toxic shot is required for all waterfowl hunting. Public outreach and education on littering and proper waste disposal will lessen potential negative water quality impacts.

### **Impacts on Vegetation**

Repeated visitation to any particular locale at the refuge could continue to cause minor site-specific damage to vegetation. Accidental introduction of invasive plants, pathogens, or exotic invertebrates attached to boats, or on shoes or clothing, is another source of direct impact on vegetation. In places where unmarked paths are created by hunters and anglers, little used pathways will retain their dominant vegetation species, but on medium-use pathways some plant species will be replaced and heavily used paths will often contain invasive species (Liddle and Scorgie 1980).

Using the information previously presented as a baseline and considering staff observations of past impacts, hunting is expected to have negligible adverse short-term, long-term, or cumulative impacts on vegetation. Disturbance to vegetation is expected to increase due to an expected increase in migratory game bird hunters in new free roam hunting areas during all hunting seasons. The possibility for new trails to be developed from repeated hunter entry may occur. However, anticipated dispersal of hunters across hunting areas, the inherent nature of hunters to only travel as far as needed to find a hunting location, and knowing that most vegetative species will have already undergone senescence or become dormant, the impacts to vegetation are expected to be negligible. On-going education about the peril of non-native invasive plant species introduction will continue through refuge outreach.

### **Impacts on Federal and State Endangered Species**

The endangered Delmarva Peninsula fox squirrel (*Sciurus cinereus cinereus*) and the threatened seabeach amaranth (*Amaranthus pumilus*) are the only federally listed species that could potentially utilize refuge hunt areas during the Virginia hunting seasons. Although the Delmarva Peninsula fox squirrel has been proposed for delisting from the endangered species list since the draft Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS) was published, it has not been finalized yet. Piping plover, red knot, and loggerhead sea turtles are not

found on the refuge during the hunting seasons. While the bald eagle is no longer a federally listed species, the refuge uses the national bald eagle management guidelines for bald eagle management to implement time-of-year restrictions for nesting eagles. The guidelines do not permit any activity within 330 feet of an active nest during the breeding season (USFWS 2011).

A Section 7 Evaluation has been conducted as part of this review and it was determined that proposed activities will not likely affect the Delmarva fox squirrel or seabeach amaranth. No Delmarva fox squirrels have been found on the southern island units where much of the waterfowl hunting occurs. Furthermore, the hunting of any squirrel species is prohibited on the refuge to further minimize impacts to this endangered species. Seabeach amaranth is an annual plant (i.e., not persistent in winter) and would not likely be seen on the refuge during the hunting season. Plants that have grown during the spring/summer period are usually enclosed with fencing when found.

### **Impacts on Waterfowl**

The migratory game bird hunting areas consists of approximately 1,750 acres or 13 percent of the refuge land, with a rail hunting area of 864 acres or 6 percent of the refuge land. Only the saltmarsh portion of Wildcat Marsh, Morris Island, Assawoman, and Metompkin Islands are used for waterfowl hunting. Rail hunting is only permitted on marshes of Assawoman Island and the north end of Metompkin Island.

Hunting occurs only on the northern end of Chincoteague Island, and on Morris, Assawoman, and the north end of Metompkin Islands. Morton (1986) found that the increased presence of humans associated with the refuge big game hunting program can contribute to movements of ducks, particularly black ducks, off the refuge. These disturbances are at a time when these birds need the isolation of the refuge to feed and rest. Paulus (1984) and Belanger (1989) found that hunting activity (gun shots or hunter movements) caused waterfowl to move to less disturbed areas and avoided some areas until after the hunting season. Laskowski et al (1993) documented human disturbance to a representative species of waterfowl by the visiting public (on managed impoundments) on Back Bay NWR, Virginia. Disturbance elicited behavioral changes ranging from increase alertness to flying to other parts of the refuge. McNeil et al. (1992) found that many waterfowl species avoid human disturbance by feeding at night instead of the day.

Waterfowl and other migratory bird hunting will continue to be limited to specific areas on the refuge in order to reduce potential disturbance. Migratory game birds are those bird species so designated in conventions between the United States and several foreign nations for the protection and management of these birds. Under the Migratory Bird Treaty Act (16 USC 703-712), the Secretary of the Interior is authorized to determine when “hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any bird, or any part, nest, or egg” of migratory game birds can take place, and to adopt regulations for this purpose.

Light goose, resident Canada goose, and mourning dove hunting would result in a potential increase in visitors related to hunting. These hunt programs would be regulated as the current hunt programs are, with a limited amount of permits awarded. This number of new permits would not cause significant impacts to birds because the total number of hunters that would be on the refuge at any time would not be enough to result in any significant disturbance.

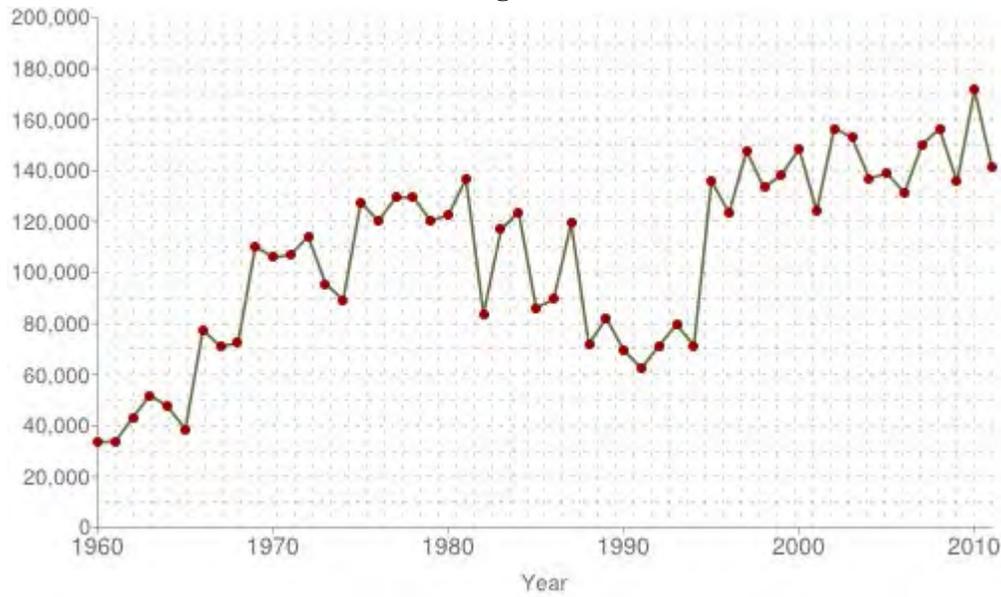
Net positive impacts from the refuge hunt program are expected. We expect that the harvest of local resident Canada geese would have the following beneficial effects:

- Increase natural seed regeneration within refuge impoundments thereby increasing fall/winter food availability for migrating ducks, geese and swans.
- Reduce fecal contamination in the refuge impoundments. Excessive fecal matter also changes the nitrogen and oxygen levels in the refuge waters resulting in algal blooms and death of aquatic organisms. (Source: U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS). 1999. Environmental Assessment for the management of conflicts associated with non-migratory Canada geese, migratory Canada geese, and urban/suburban ducks in the Commonwealth of Virginia. 77 pp.)
- Reduce the possibility of transmitting disease to susceptible populations of migrating birds as they over-winter at the refuge or pass through.
- Reduce negative interactions (aggressive behavior) with refuge visitors on roads and trails during spring breeding season.

Harvest and disturbance of light geese under the authority of the light goose conservation order would have the following beneficial effects:

- Reduce damage caused by light geese to sensitive arctic breeding habitats. This would have the additional benefit of reducing negative impacts to other bird species nesting within that same arctic habitat.
- Reduce damage to wintering habitats within the Atlantic Flyway.

Total number of ducks harvested in Virginia



Total number of geese harvested in Virginia



<http://www.flyways.us/regulations-and-harvest/harvest-trends>

The resident Canada goose population increased significantly during the 1980s and early 1990s. The population peaked at over 260,000 geese in the mid- to late-1990s in Virginia and has been steadily reduced by specific management programs since that time. The current population estimate is 158,267 (+/- 28%) in Virginia and over 1 million in the Atlantic Flyway. For migrant Canada geese, the breeding population estimate for 2012 (190,340) is similar to the past 3 year average (189,317).

[http://www.dgif.virginia.gov/hunting/va\\_game\\_wildlife/waterfowlfactsheets.pdf](http://www.dgif.virginia.gov/hunting/va_game_wildlife/waterfowlfactsheets.pdf)

Liberal duck seasons (60 days, 6 bird bag limit) and resident goose seasons have resulted in higher waterfowl harvests in Virginia during the past 10 years. Harvest has averaged approximately 150,000 ducks and 60,000 geese from 2000 to 2011, compared to 114,770 ducks and 25,000 geese during the 1990s. The long season length and liberal bags offer greater opportunity and a greater cumulative harvest over the course of the season.

Waterfowl hunter numbers in Virginia have been generally stable since the late 1990s, and Federal Duck Stamp sales have averaged 23,390 in Virginia (for 5-year period, 2006-10). Since 1999, the Harvest Information Program (HIP) has been used to estimate hunter effort and harvest. The average number of duck and goose hunters over the past 3 years, as measured by HIP, was 13,618 and 12,360 respectively. In 2011, only 99 visits occurred on the refuge for migratory bird hunting, possibly because the hunt areas are only accessible by boat.

#### Chincoteague Waterfowl Harvest (self-reported, 2008-2013)

2008/2009 - 212

2009/2010 - 65

2010/2011 - 53

2011/2012 - 67

2012/2013 - 69

Given the exceptionally low numbers of waterfowl harvested from the refuge in respect to the total Statewide harvest and waterfowl population, no cumulative impacts to local, regional, or statewide populations of ducks or geese are anticipated from hunting on the refuge.

Based on past observations of impacts on shorebirds by refuge staff, disturbance by refuge hunters to shorebirds is expected to be negligible since most shorebird species have completely passed through Virginia by peak hunting season in November through January. Some hunting occurs when these species may be migrating before and after this peak hunting time. In addition, hunters are restricted from prime shorebird use areas.

#### Impacts to Landbirds

Disturbance to landbirds has been well documented. Pedestrian travel can influence normal behavioral activities, including feeding, reproductive, and social behavior and the location of recreational activities impacts species in different ways. Miller et al. (1998) found that nesting success was lower near recreational trails, where human activity was common, than at greater distances from the trails. A number of species have shown greater reactions when pedestrian use occurred off trail (Miller et al. 1998). For songbirds, Gutzwiller et al. (1997) found that singing behavior of some species was altered by low levels of human intrusion.

Disturbance to these non-hunted migratory birds could have regional, local, and flyway effects. Free-roaming big game hunters may cause local, temporary, minor alterations to feeding and

resting behavior in landbirds. However, the limited number of hunters, and the availability of nearby undisturbed habitats, renders the direct, indirect, and cumulative impacts on these species negligible. Hunting will have little to no effect on nesting landbirds due to seasonal differences in these activities. The early part of nesting season of some raptors coincides with the end of the majority of hunting seasons, but hunting would have little impact on the critical periods of incubation and fledging.

### **Impacts on Secretive Marsh and Waterbirds**

Resident waterbirds tend to be less sensitive to human disturbance than are migrants, and thus will be less impacted by disturbance from public use on the refuge. However, wading birds have been found to be extremely sensitive to disturbance in the northeastern U.S. and may be adversely impacted by disturbance from public use on the refuge (Burger and Gochfeld 1998). The impacts of intrusion through public use are generally negligible for this group of birds, but can vary by species and between years (Gutzwiller and Anderson 1999).

Disturbance to secretive marsh birds and waders from hunting would start in September and usually end in January, unless hunting is allowed during the snow goose conservation order into mid-April. This disturbance may have direct effects on migrating and wintering secretive marsh birds and waders. Due to the limited number of hunting days and the restricted hours, we expect the short-term, long-term and cumulative impacts to be negligible.

### **Impacts on Fisheries**

Impacts to fisheries from visitors engaged in hunting are expected to be temporary and negligible. Anticipated increases in hunting will cause increased suspension of bottom sediments from boat motors. However, since hunting occurs during the fall and winter months, this sediment suspension should not adversely affect biological oxygen demand (BOD) for fisheries resources. Effects on inter-jurisdictional fishes are expected to be unlikely from hunting because the majority of the refuge will experience minimal, transitory use by hunters.

### **Impacts on Mammals**

In general, the presence of humans will disturb most mammals, which typically results in indirect negligible short-term adverse impacts without long-term effects on individuals and populations. Adverse impacts on resident game populations from hunting would be negligible.

Negative impacts from hunting on non-hunted mammals, such as voles, moles, mice, shrews, and bats, are expected to be negligible. Except for some species of migratory bats, these species have very limited home ranges and hunting would not affect their populations regionally. Impacts of hunting to migratory bat species would be negligible. These species are in torpor or have completely passed through Virginia by peak hunting season in November through January. Vehicles are restricted to roads and harassment or taking of any wildlife other than legal game species is not permitted.

### **Impacts to Amphibians and Reptiles**

The direct, indirect, and cumulative effects of hunting to amphibians and reptiles such as snakes, skinks, turtles, lizards, salamanders, frogs, and toads are expected to be negligible. Hibernation or torpor by cold-blooded reptiles and amphibians limits their activity during the hunting seasons for migratory game birds, when temperatures are low and hunters would rarely encounter them during most of the hunting season.

### **Impacts to Invertebrates**

Impacts to invertebrates such as butterflies, moths, other insects, and spiders are expected to be negligible. Invertebrates are not active during the majority of the hunting seasons and would have few interactions with hunters during the hunting season.

### **Impacts on Public Use and Access**

Refuge lands allow the public to enjoy hunting at no or little cost in a region where private land is leased for hunting, often costing a person several hundred to several thousand dollars per year for membership. Refuge hunting programs also make special accommodations for mobility-impaired hunters. Hunting provides opportunities to experience a wildlife-dependent recreational activity, instills an appreciation for and understanding of wildlife, the natural world and the environment, and promotes a land ethic and environmental awareness. Visitors interested in hunting would find high quality opportunities to engage in their favored pastime.

The refuge would also be promoting a wildlife-oriented recreational opportunity that is compatible with the purpose for which the refuge was established. The public would have an increased awareness of the refuge and the Refuge System and public demand for more areas to hunt and learn about wildlife would be met. The hunting program provides an administratively simple program that balances other public use activities. The program supports Presidential Executive Order #13443: Facilitation of Hunting Heritage and Wildlife Conservation, regional directives, and parallels State hunting regulations. In addition, it provides seasonal closures to minimize wildlife disturbance and/or avoid conflicts with other uses, enhances disabled hunting opportunities, further develops an appreciation for fish and wildlife, and expands public hunting opportunities.

Migratory game bird hunting on Wildcat Marsh, Morris, Assawoman, and Metompkin Islands is expected to cause no conflicts with other refuge public use programs. It is anticipated that hunting will be the only major use on these areas and will take place at a time when other public uses are declining. All hunting areas are remote, accessible only by boat, and located a considerable distance from the main public use areas. These factors alone should eliminate conflicts with other public use activities.

### **Other Past, Present, Proposed, and Reasonably Foreseeable Actions and Anticipated Impacts**

Cumulative effects on the environment result from incremental effects of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. While cumulative effects may result from individually minor actions, they may, viewed as a whole, become substantial over time. The hunt plan has been designed to be sustainable through time given relatively stable conditions.

Natural marsh habitats on some migration and wintering areas have been impacted by the destructive feeding strategies of overabundant greater snow geese (Giroux and Bedard 1987, Giroux et al. 1998, Young 1985). In addition, goose damage to agricultural crops has become a problem (Bedard and Lapointe 1991, Filion et al. 1998, Giroux et al. 1998, Delaware Division of Fish and Wildlife 2000). Snow geese use the refuge wetland habitats extensively, and are not subjected to any hunting disturbance or mortality on the refuge. Impacts to refuge wetlands and impacts to wetland-dependent wildlife increase over time if the population is not adequately controlled at the flyway level, through the coordinated efforts of individual agencies.

Similarly, resident Canada geese have been shown to cause changes in wetland community structure (Laskowski et al. 2002). Resident geese can reduce the amount of plant biomass that would be available to migrant birds at the end of the growing season. Heavy grazing by geese can result in reduced yields and in some instances a total loss of the grain crop (Allen et al. 1985, Flegler et al. 1987). Thus, uncontrolled Canada goose populations on the refuge can affect migratory bird populations utilizing the refuge as well as contribute to agricultural losses on lands surrounding the refuge.

The geographic boundary for considering cumulative effects in the Chincoteague CCP/EIS includes the Southern Delmarva Peninsula (in particular Accomack County) and all coastal NWRs in the area of the Chesapeake Bay and Delmarva Peninsula. Although our analysis is done resource by resource, we have chosen a large geographic boundary to include all possible cumulative effects, including possible additive effects of strategies within this CCP on others' actions. The other NWRs are included because past and future management actions and resources at these refuges could be similar to the actions proposed in this CCP. These include the Eastern Shore of Virginia/Fisherman Island NWRs, Eastern Neck NWR, Back Bay NWR, Prime Hook NWR, Bombay Hook NWR, and the Chesapeake Marshlands NWR Complex (NWRC), which includes Blackwater, Martin, and Susquehanna NWRs. The total land area of these refuges, including Chincoteague and Wallops Island NWRs, is approximately 87,500 acres. For these other refuges, this cumulative effects analysis includes only the adverse effects of each refuge CCP's selected alternative. Bombay Hook is in the process of developing its CCP/EA and therefore, no information impact information is available to include in this analysis.

Other refuges in the mid-Atlantic area often experience different and fewer impacts to vegetation, habitat, and wildlife, than Chincoteague NWR does, probably because Chincoteague NWR is one of the most intensely visited refuges in the nation. The other refuge EAs (developed as part of their CCP process) are concerned primarily with the impacts to wildlife from hunting and human

interaction and with specific actions that require vegetation clearing. Minor adverse effects to vegetation and wildlife as a result of human contact and trampling from various public activities are reported at the refuge under all alternatives, as well as at Eastern Shore of Virginia/Fisherman Island NWRs and the Chesapeake Marshlands NWRC. Although this is a cumulative effect, in all cases it is temporary and partially mitigated for by education and management activities. Both Chincoteague NWR and Prime Hook NWR experience impacts from overgrazing of certain overpopulated wildlife species (e.g. light geese); this will be mitigated through hunting. As shown in Table 4-7 in the Final CCP/EIS, actions on all of the refuges, at the Seashore, and on the Wallops Flight Facility (WFF) have identified vegetation clearing projects. At WFF most of the effect of a very large vegetation clearing project will be mitigated by replanting with lower-growing vegetation. The estimated total effect of these actions (excluding the mitigated areas at WFF), and the clearing associated with the beach parking and access for the preferred alternative at Chincoteague NWR, is approximately 27 acres. This is less than 0.01 percent of the total area of these sites and most of the impacts would be mitigated. Selective cutting of forest vegetation through silviculture practices at both Chincoteague NWR and Prime Hook NWR would have temporary adverse impacts, but beneficial long term impacts to vegetation and wildlife habitat. The spraying of herbicides and pest control chemicals could result in cumulative effects to invertebrates at Chincoteague NWR and Prime Hook NWR.

Minor adverse effects to shorebirds as a result of human contact from hunting, fishing, hiking, and walking are reported at the refuge under all alternatives, as well as at Eastern Shore of Virginia/Fisherman Island NWRs and the Chesapeake Marshlands NWRC. At Eastern Shore of Virginia NWR, additional human contact would increase over the existing condition by adding canoeing and kayaking opportunities and from the loss of beneficial foods when an impoundment complex is allowed to revert to scrub-shrub and natural emergent marshes. At Chesapeake Marshlands NWRC, an adverse effect would result from permitting hunting on an additional 200 acres. At Chincoteague NWR, these would be offset in the preferred alternative by relocation of the beach and beach parking area and allowing natural processes to occur, which is beneficial to shorebirds, and also by allowing for natural succession of vegetation to occur in the 300-acre NWF. While a cumulative adverse effect would result from actions at these three refuges, the net effect, when considering the beneficial impact of management actions at the three refuges, is negligible.

None of the protected wildlife or plant species that would be adversely affected at the refuge would be adversely affected by actions that have been taken or are proposed at other NWRs in the cumulative effects analysis study area. Some past actions at the WFF have had an adverse effect on piping plover habitat; however, all of these actions have been subject to Section 7 consultation and the impacts have been mitigated. Therefore, there are no adverse cumulative impacts to threatened and endangered species.

### **Anticipated Impacts if Individual Actions are Allowed to Accumulate**

The cumulative impact of hunting on migratory and resident wildlife populations at Chincoteague NWR is negligible. The proportion of the refuge's harvest of migratory game birds is negligible when compared to local, regional, and flyway populations and harvest.

Because of the regulatory process for harvest management of migratory birds in place within the USFWS, the setting of hunting seasons largely outside the breeding seasons of resident and migratory wildlife, the ability of individual refuge hunt programs to adapt refuge-specific hunting regulations to changing local conditions, and the wide geographic separation of individual refuges, we anticipate no direct or indirect cumulative effects on resident wildlife, migratory birds, and non-hunted wildlife of hunting on Chincoteague NWR.

**PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague National Wildlife Refuge CCP/EIS. Public notification and review included a notice of availability published in the Federal Register, a 90-day comment period for the draft CCP/EIS during which public meetings were held, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

**DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

The refuge will manage the hunt program in accordance with Federal and State regulations and review it annually to ensure wildlife and habitat goals are achieved and that the program is providing a safe, high quality hunting experience for participants.

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting can occur on the refuge if the refuge-specific regulations highlighted in this document and following stipulations are met:

- This use must be conducted in accordance with State and Federal regulations, and special refuge regulations published in the refuge Hunting Regulations brochures.
- This use is subject to modification if on-site monitoring by refuge personnel or other authorized personnel results in unanticipated negative impacts to natural communities, wildlife species, or their habitats.
- Law Enforcement Officer(s) will promote compliance with refuge regulations, monitor public use patterns and public safety, and document visitor interactions. Law

Enforcement personnel will monitor all areas and enforce all applicable State and Federal Regulations.

- Several management strategies identified by Klein (1989) are used to control the negative effects of recreation on wildlife; these included: permits, user fees, zoning (Cullen 1985), travel ease, public education (Purdy et al. 1987), limiting number of visitors present, and periodic closing. Chincoteague NWR employs these measures to lessen the disturbance and impact to wildlife.
- The refuge manager may, upon annual review of the hunting program and in coordination with VDGIF, impose further restrictions on hunting. Further restrictions may include but are not limited to recommending that the refuge be closed to hunting or further liberalize hunting regulations. Hunting restrictions may be imposed if hunting conflicts with other, higher priority refuge programs, endangers refuge resources, or public safety. Specific hunt details will be outlined in the annual hunt program.

### **JUSTIFICATION:**

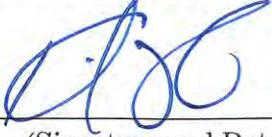
Hunting is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife (Executive Order 12996, March 25, 1996 and the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57)). USFWS 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 seasons and bag limits are established by the Commonwealth of Virginia and generally adopted by the refuge. These restrictions ensure the continued well-being of overall populations of game animals. Hunting does result in the taking of many individuals within the overall population, but restrictions are designed to safeguard an adequate breeding population from year to year. Specific refuge regulations address equity and quality of opportunity for hunters, and help safeguard refuge habitat. Disturbance to other fish and wildlife does occur, but this disturbance is generally short-term and adequate habitat occurs in adjacent areas. Loss of plants from foot traffic is minor, or temporary, since hunting occurs mainly after the growing season.

Conflicts between hunters are localized and are addressed through law enforcement, public education, and continuous review and updating to State and refuge hunting regulations. Conflicts between other various user groups are minor given the season of the year for hunting, the location of most hunting away from public use facilities, and seasonal area closures.

Stipulations above will ensure proper control of the means of use and provide management flexibility should detrimental impacts develop. Allowing this use also furthers the mission of the Refuge System by providing renewable resources for the benefit of the American public while conserving fish, wildlife, and plant resources on the refuge.

This activity will not materially interfere with or detract from the mission of the Refuge System or purposes for which the refuge was established.

Signature: Refuge Manager:  10/26/15  
(Signature and Date)

Concurrence: Regional Chief: Scott B. Kahan 11/3/2015  
(Signature and Date)

Mandatory 15-year re-evaluation date: November 2030  
(Date)

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**COMPATIBILITY DETERMINATION**

**USE:** Big Game Hunting

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C. 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is the public hunting of big game (white-tailed deer and sika elk). Hunting was identified as one of six priority public uses by Executive Order 12996 (March 25, 1996) and by the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57).

**(b) Where the use would be conducted?**

The use would be conducted in designated areas of the refuge on the Virginia portion of Assateague Island. Assateague Island is a barrier beach island that extends over 30 miles along the Atlantic coast. Additionally, big game hunting is allowed on the northern portion of Chincoteague Island on a unit of the refuge known as Wildcat Marsh.

**(c) When would the use be conducted?**

Hunting would take place within the season dates established by the Virginia Department of Game and Inland Fisheries (VDGIF) and the U. S. Fish and Wildlife Service (USFWS); however, the hunting of sika elk may occur outside of the Commonwealth's deer season as a depopulation hunt. Deer hunting is normally between mid-November through the first week of January. Specific regulations for each hunt will be published by the refuge in advance of the hunt seasons.

**(d) How would the use be conducted?**

Hunting would take place within the regulatory framework established by VDGIF and USFWS; however, the hunting of sika elk may occur outside of the Commonwealth's deer season as a depopulation hunt.

The refuge manager may, upon annual review of the hunting program and in coordination with VDGIF, impose further restrictions on hunting. Hunting at the refuge is at least as restrictive as the Commonwealth of Virginia, and in some cases, more restrictive. The refuge coordinates with the VDGIF annually to maintain regulations and programs that are consistent with the State's management programs. Hunting restrictions may be imposed if hunting conflicts with other higher priority refuge programs, endangers refuge resources, or public safety. Specific hunt details will be outlined in the annual hunt program.



**Big Game Hunt - Specific Regulations:**

**Permits** - Applications for the big game hunt are processed by Kinsail Corporation. Hunters can apply and pay on-line.

**Orientations** - All hunters must attend a firearms orientation session prior to their assigned hunt period to obtain their permit. Sessions will be held prior to each scheduled hunt period. Hunters must be on time. Once the orientation begins, individuals will not be allowed in or allowed to hunt, under any circumstances. Scouting will be permitted following the orientation session. Hunters may only scout their area on the day prior to their scheduled 2-day hunt period.

**General Regulations**

- Hunters must adhere to regulations published in the refuge hunt brochure, all Accomack County and VDGIF hunting regulations, and those specific regulations that apply to big game hunting.
- VDGIF requirements on the use of firearms, muzzleloaders and bows apply.
- A sign-in/out box is located at the kiosk in parking area one. Each hunter must sign in immediately before entering and sign out after exiting the hunt zone.
- Reporting all harvested animals must comply with VDGIF requirements via tele-check and also be indicated on refuge check in/out sheet located at the kiosk.
- Hunters must park in designated parking areas.
- Non-hunters or persons not in possession of a valid refuge permit are not permitted to hunt on the refuge.
- All hunters must make a reasonable effort to recover wounded animals.
- Discharging any weapon within 50 feet of the centerline of any road or on/from/into a safety zone is prohibited.
- The boundaries of the hunt zone are recognized in the field by prominent signs. Each hunter is responsible for knowing the boundaries of the hunt zone.
- Federal government worksites may be staffed during the hunt. The zone around these sites is posted closed to hunting. Hunters may enter this zone strictly for the purpose of accessing the hunting area and must have their weapons unloaded.
- Hunters may pursue downed or crippled deer into the safety area (closed to hunting around the worksites). Contact the refuge headquarters for assistance if needed to dispatch wounded animal.
- Those hunters scouting must be in possession of their hunt permit.
- Any hunters who require assistance with retrieving or dressing harvested animals may apply for up to two non-hunting permits. This permit will allow an assistant to be present only during the retrieval and dressing of harvested animals. Non-hunting assistant permits must be requested.

**(e) Why is this use being proposed?**

Hunting is one of the priority public uses of the Refuge System. This legitimate and appropriate use of a national wildlife refuge is generally considered compatible, as long as it does not materially interfere with or detract from the fulfillment of the Refuge System mission or the purposes of the national wildlife refuge. USFWS will continue the tradition of wildlife-related recreation on the refuge by allowing hunting in compliance with State regulations.

Primary objectives of the refuge hunts are to (1) maintain big game populations at a level compatible with refuge habitats, (2) reduce the exotic big game population, (3) reduce competition between exotic sika elk (*Cervus nippon*), and native wildlife, including white-tailed deer (*Odocoileus virginianus*), waterfowl and other wetland species, (4) provide the general public with quality big game hunts, and, (5) minimize direct conflicts between big game populations and humans, particularly when human safety is an issue. These objectives were reviewed in the Chincoteague National Wildlife Refuge (NWR) Environment Assessment Big Game and Migratory Game Bird Hunt Proposal of 2007 to ensure the hunt program was in conformance with the laws and policy of USFWS.

#### **AVAILABILITY OF RESOURCES:**

The Refuge Recreation Act requires that funds are available for the development, operation, and maintenance of the permitted forms of recreation. The permit fee (\$20 for deer), and a processing application fee (\$5/hunter) are the minimal amounts needed to offset the cost of facilitating the preseason drawings and managing the lottery hunts.

Administrative changes in the hunting program were implemented to ease the administrative burden on staff resources. Kinsail Corporation, a private firm working through a Memorandum of Understanding with the refuge, conducts the hunting applications, lottery selection, and permits. Cost savings resulted from phasing out the use of permanent hunting structures and eliminating the need to have staff conduct daily lottery drawings for permits. Regulations for the fee program allow the refuge to retain 80 percent of the total fees collected, Kinsail retains the \$5 application fee charge to each hunter. The resources necessary to provide and administer this use, at current use levels, are available within current and anticipated refuge budgets and no increase in use is proposed above historic levels.

There would be some costs associated with these programs in the form of road maintenance, and law enforcement. These costs should be minimal relative to total refuge operations and maintenance costs and would not diminish resources dedicated to other refuge management programs.

#### **ANTICIPATED IMPACTS OF THE USE:**

##### **General Impacts of Public Use**

Direct impacts are those impacts immediately attributable to an action. Indirect impacts are those impacts that are farther in time and in space. Effects that are minor when considered alone, but collectively may be important are known as cumulative effects. Incremental increases in activities by people engaged in the variety of allowed uses on the refuge could cumulatively result in detrimental consequences to wildlife and/or habitats. Refuge staff will monitor these activities to ensure wildlife resources are not impacted in a detrimental manner. Since the hunting areas comprise portions of the refuge with the least amount of waterfowl use and hunting times are restricted, disturbance and other impacts are not expected to be significant.

In this compatibility determination, some of the anticipated impacts are not considered major or significant, and are often described as either negligible or minor. The magnitude of such changes is defined as follows:

- Negligible -- Management actions would result in impacts that would not be detectable or if detected, would have effects that would be considered slight, localized, and short-term.
- Minor -- Management actions would result in a detectable change, but the change would be slight and have only a local effect on the community, the resource, or ecological processes. The change would be discountable, insignificant, and of little consequence and short-term in nature.

In 2014, big game hunting saw 1,437 visits, and the refuges harvested a total of 173 white-tailed deer over the past 5 years, with 37 in 2012. Thus, our determination considers these factors in our overall analysis.

Hunting provides additional wildlife-dependent recreational opportunities and can foster a better appreciation and more complete understanding of the wildlife and habitats associated with Delmarva ecosystems. This can translate into more widespread and stronger support for wildlife conservation, the refuge, the Refuge System, and the USFWS. The following is a discussion of refuge-specific impacts.

### **Impacts on Socioeconomic Environment**

Accomack County is one of the poorest counties in Virginia. The 2010 population estimate for Accomack County is 33,164 persons (U.S. Census Bureau.) Chincoteague NWR is one of the most heavily visited refuges in the Refuge System. Visitors come to Chincoteague for a variety of reasons. Many come in the summer months to access the beach. The beaches of Assateague Island offer a unique experience in the mid-Atlantic area as they exist primarily in an undeveloped setting unlike other beaches like Virginia Beach or Ocean City that are heavily developed. This natural setting draws many families seeking out a more traditional beach going experience.

Spending associated with recreational use of the refuge can generate a substantial amount of economic activity in both local and regional economies. Refuge visitors spend money on a wide variety of goods and services. Trip-related expenditures may include expenses for food, lodging, and transportation. Anglers, hunters, boaters, and wildlife watchers also buy equipment and

supplies for their particular activity. Because this spending directly affects towns and communities where these purchases are made, recreational visitation can have an impact on local economies, especially in small towns and rural areas. These direct expenditures are only part of the total picture, however. Businesses and industries that supply the local retailers where the purchases are made also benefit from recreation spending. For example, a family may decide to purchase a set of fishing rods for an upcoming vacation. Part of the total purchase price will go to the local retailer, say a sporting goods store. The sporting goods store in turn pays a wholesaler who in turn pays the manufacturer of the rods. The manufacturer then spends a portion of this income to cover manufacturing expenses. In this fashion, each dollar of local retail expenditures can affect a variety of businesses at the local, regional and national level. Consequently, consumer spending associated with refuge recreation can have an impact on economic activity, employment, household earnings and local, State, and Federal tax revenue.

Total visits to the refuge exceeded 1.36 million in 2010. Refuge recreation-related expenditures, and associated economic output, jobs, job income, and total (county, State and Federal) tax revenue are as follows: total retail related expenditures are estimated at \$113.8 million; economic output at \$150.3 million; jobs at 1,794, job income at \$48.6 million and total tax revenue of \$10.6 million. (2012, Chincoteague National Wildlife Refuge -Economic Analysis - In Support of Comprehensive Conservation Plan,)

The refuge's contribution to the economy of the area through offering hunting opportunities for migratory game birds and big game is negligible in context of overall visitation and expenditures. Offering these hunting opportunities may enable hunters to contribute to the local community through local purchases of gas, food, lodging, and supplies.

### **Impacts on Cultural Resources**

The body of Federal historic preservation laws has grown dramatically since the enactment of the Antiquities Act of 1906. Several themes recur in these laws, their promulgating regulations, and more recent Executive Orders. They include:

- Each agency is to systematically inventory the historic properties on their holdings and to scientifically assess each property's eligibility for the National Register of Historic Places.
- Federal agencies are to consider the impacts to cultural resources during the agencies management activities and seek to avoid or mitigate adverse impacts.
- Protection of cultural resources from looting and vandalism are to be accomplished through a mix of informed management, law enforcement efforts, and public education.
- The increasing role of consultation with groups, such as Native American tribes, in addressing how a project or management activity may impact specific archaeological sites and landscapes deemed important to those groups.

The USFWS is legally mandated to inventory, assess, and protect cultural resources located on those lands that the agency owns, manages, or controls. USFWS cultural resource policy is delineated in 614 FW 1-5 and 126 FW 1-3.

In the USFWS Northeast Region, the cultural resource review and compliance process is initiated by contacting the Regional Historic Preservation Officer/Regional Archaeologist. The officer or archeologist will determine whether the proposed undertaking has the potential to impact cultural resources, identify the “area of potential effect,” determine the appropriate level of scientific investigation necessary to ensure legal compliance, and initiates consultation with the pertinent State Historic Preservation Office and federally recognized Tribes.

With a relatively small number of hunters dispersed across the refuge during the hunting season, impacts would be negligible on the refuge’s cultural resources based on our observations of past hunting impacts.

### **Impacts on Air Quality**

Hunting is expected to have negligible adverse short-term, long-term or cumulative impacts on local or regional air quality. Localized increases in emissions from hunter’s vehicles or boat motors would be negligible compared to current off-refuge contributions to pollutant levels and likely increases in air emissions in the Accomack County air shed from land development over the next 15 years. Any adverse air quality effects from refuge activities would be more than offset by the benefits of maintaining the refuge in natural vegetation. The hunting program would not violate Environmental Protection Agency (EPA) standards and would comply with the Clean Air Act.

### **Impacts on Soils**

The soils of Chincoteague NWR consist primarily of sand and silt loams. The soils are a mixture of Chincoteague silt loam (0-1 percent slope), Assateague fine sand (2-35 percent slope), Camocca fine sand (0-2 percent slope), beach sand (0-5 percent slope), Fisherman-Camocca complex (0-6 percent slope), and Udorthents and Udipsamments soils (0-30 percent slope). The soils are predominantly made of loam, silt, and sand. Assateague fine sand areas are rarely flooded. However, the rest of the areas are frequently to moderately prone to flooding. Hiking or walking can alter habitats by trampling vegetation, compacting soils, and increasing the potential of erosion. Using these baseline impacts, the refuge’s hunt program has the potential to cause some soil compaction since off-trail foot travel occurs; however, hunting is expected to have negligible adverse short-term, long-term or cumulative impacts on soils. With a limited number of hunters dispersed across the refuge during the hunting season, impacts would be negligible based on our observations of past hunting impacts. Vehicles would continue to be confined to existing refuge roads and parking lots to minimize impacts outside of that developed footprint, with the exception of hunters assigned to Toms Cove Hook.

### **Impacts on Hydrology and Water Quality**

No natural freshwater streams or lakes exist on Chincoteague NWR. Rainfall and tidal over wash are the only sources of surface water on Assateague Island. The moist soil units or impoundments are slightly brackish to highly saline because of tidal over wash, salt spray, and the accumulation

of salt residue as water evaporates. The same environmental influences make the groundwater lenses beneath the islands brackish. Evaporation and transpiration account for major surface water depletion during the summer months. The drinking water supply for Chincoteague Island and the refuge comes via pipeline from three deep wells and a shallow well field near the National Aeronautics and Space Administration (NASA) base on the mainland. Large bodies of water bordering the Refuge are the Atlantic Ocean, Chincoteague Bay, and Assateague Channel. Hunting is expected to have negligible adverse short-term, long-term or cumulative impacts on hydrology or water quality based upon staff observations of past hunting impacts. The hunting program would not violate standards for contributing pollutants to water sources and would comply with the Clean Water Act.

USFWS does not expect emissions from vehicles to substantially affect the water quality of the region. Lead slugs and buckshot are permitted for deer hunting. Public outreach and education on littering and proper waste disposal will lessen potential negative water quality impacts.

### **Impacts on Vegetation**

Repeated visitation to any particular locale at the refuge would continue to cause minor site-specific damage to vegetation. Accidental introduction of invasive plants, pathogens, or exotic invertebrates attached to boats, or on shoes or clothing, is another source of direct impact on vegetation. In places where unmarked paths are created by hunters and anglers, little used pathways will retain their dominant vegetation species, but on medium-use pathways some plant species will be replaced and heavily used paths will often contain invasive species (Liddle and Scorgie 1980).

Using the information previously presented as a baseline and considering staff observations of past impacts, hunting is expected to have negligible adverse short-term, long-term, or cumulative impacts on vegetation. Disturbance to vegetation is expected to increase due to an expected increase in deer hunters in new free roam hunting areas during all hunting seasons. The possibility for new trails to be developed from repeated hunter entry may occur. However, anticipated dispersal of hunters across hunting areas, the inherent nature of hunters to only travel as far as needed to find a hunting location, and knowing that most vegetative species will have already undergone senescence or become dormant, the impacts to vegetation are expected to be negligible. The refuge has 10,241 huntable acres, and issued 298 big game permits during the 2013/2014 season, for a density of one hunter per 34.3 acres. On-going education about the peril of non-native invasive plant species introduction will continue through refuge outreach.

Deer overabundance can affect native vegetation and natural ecosystems and has been well-studied (Tilghman 1989, Nudds 1980, Hunter 1990). White-tailed deer selectively forage on vegetation (Strole and Anderson 1992), and thus can have substantial impacts on certain herbaceous and woody species and on overall plant community structure (Waller and Alverson 1997). Overbrowsing by deer can decrease tree reproduction, understory vegetation cover, plant density, and plant diversity (Warren 1991). High densities of deer have also been recognized as

vectors for spreading invasive species like Japanese stiltgrass. Thus, control of the white-tailed deer population on the refuge will have a moderate beneficial impact on the vegetation communities.

### **Impacts on Federal and State Endangered Species**

The endangered Delmarva Peninsula fox squirrel (*Sciurus cinereus cinereus*) and the threatened seabeach amaranth (*Amaranthus pumilus*) are the only federally listed species potentially utilizing refuge hunt areas during the Virginia hunting seasons. Although the Delmarva Peninsula fox squirrel has been proposed for delisting from the endangered species list since the draft CCP/EIS was published, it has not been finalized yet. Piping plover, red knot, and loggerhead sea turtles are not found on the refuge during hunting seasons. While the bald eagle is no longer a federally listed species, the refuge uses the national bald eagle management guidelines for bald eagle management to implement time-of-year restrictions for nesting eagles. The guidelines do not permit any activity within 330 feet of an active nest during the breeding season (USFWS 2011).

A Section 7 Evaluation has been conducted as part of this review and it was determined that proposed activities will not likely affect the Delmarva fox squirrel or seabeach amaranth. The hunting of any squirrel species is prohibited on the refuge to further minimize impacts to this endangered species. As stated earlier, the refuge has 10,241 huntable acres, and issued 298 big game permits during the 2013/2014 season, for a density of one hunter per 34.3 acres. Seabeach amaranth is an annual plant (i.e., not persistent in winter) and would not likely be seen on the refuge during hunting season. Plants that have grown during the spring/summer period are usually enclosed with fencing when found.

### **Impacts on Waterfowl**

Morton (1986) found that the increased presence of humans associated with the refuge big game hunting program can contribute to movements of ducks, particularly black ducks, off the refuge. These disturbances are at a time when these birds need the isolation of the refuge to feed and rest. Paulus (1984) and Belanger (1989) found that hunting activity (gun shots or hunter movements) caused waterfowl to move to less disturbed areas and avoided some areas until after the hunting season. Laskowski et al (1993) documented human disturbance to a representative species of waterfowl by the visiting public (on managed impoundments) on Back Bay NWR, Virginia. Disturbance elicited behavioral changes ranging from increase alertness to flying to other parts of the refuge. McNeil et al. (1992) found that many waterfowl species avoid human disturbance by feeding at night instead of the day.

### **Impacts to Landbirds**

Disturbance to landbirds has been well documented. Pedestrian travel can influence normal behavioral activities, including feeding, reproductive, and social behavior and the location of recreational activities impacts species in different ways. Miller et al. (1998) found that nesting success was lower near recreational trails, where human activity was common, than at greater

distances from the trails. A number of species have shown greater reactions when pedestrian use occurred off trail (Miller et al. 1998). For songbirds, Gutzwiller et al. (1997) found that singing behavior of some species was altered by low levels of human intrusion.

Disturbance to these non-hunted migratory birds could have regional, local, and flyway effects. Free-roaming big game hunters may cause local, temporary, minor alterations to feeding and resting behavior in landbirds. However, the limited number of hunters, and the availability of nearby undisturbed habitats, renders the direct, indirect, and cumulative impacts on these species negligible. Hunting will have little to no effect on nesting landbirds due to seasonal differences in these activities. The early part of nesting season of some raptors coincides with the end of the majority of hunting seasons, but hunting would have little impact on the critical periods of incubation and fledging.

### **Impacts on Secretive Marsh and Waterbirds**

Resident waterbirds tend to be less sensitive to human disturbance than are migrants, and thus will be less impacted by disturbance from public use on the refuge. However, wading birds have been found to be extremely sensitive to disturbance in the northeastern U.S. and may be adversely impacted by disturbance from public use on the refuge (Burger and Gochfeld 1998). The impacts of intrusion through public use are generally negligible for this group of birds, but can vary by species and between years (Gutzwiller and Anderson 1999).

Disturbance to secretive marsh birds and waders from hunting would start in September and usually end in January, unless hunting is allowed during the snow goose conservation order into mid-April. This disturbance may have direct effects on migrating and wintering secretive marsh birds and waders. Due to the limited number of hunting days and the restricted hours, we expect the short-term, long-term and cumulative impacts to be negligible.

### **Impacts on Fisheries**

Impacts to fisheries from visitors engaged in hunting are expected to be temporary and negligible. Since hunting occurs during the fall and winter months, any sediment suspension should not adversely affect biological oxygen demand (BOD) for fisheries resources. Effects on inter-jurisdictional fishes are expected to be unlikely from hunting because the majority of the refuge will experience minimal, transitory use by hunters.

### **Impacts on Mammals**

In general, the presence of humans will disturb most mammals, which typically results in indirect negligible short-term adverse impacts without long-term effects on individuals and populations. Adverse impacts on resident game populations from hunting would be negligible.

VDGIF, under the direction of a Governor-appointed Board of Directors, is specifically charged by the General Assembly with the management of the State's wildlife resources. The Virginia Deer Management Plan, first completed in 1999 and revised in 2006, guides management of deer

habitat, deer populations, damage caused by deer, and deer-related recreation in the Commonwealth. In 2012, 213,597 deer were reported killed by hunters in Virginia. This total included 96,712 antlered bucks, 18,061 button bucks, 98,781 does (46.3 percent), and 43 “unknown” deer. It is also 8 percent below the last 10-year average of 232,573. In Accomack County, an average of 3,056 deer per year are killed (see Table, 2008-2012 data).

Accomack County Deer Kills, 2008-2012

Year	Antlered Males	Male Fawns	Females	% Female	Unknown	Total
2008	1412	371	1924	51.9%	0	3707
2009	1225	249	1614	52.3%	0	3088
2010	1246	307	1740	52.8%	0	3293
2011	1007	263	1535	54.7%	2	2807
2012	923	212	1249	52.4%	0	2384

<http://www.dgif.virginia.gov/wildlife/deer/harvest/index.asp>

Population reconstruction computer models indicate that Virginia’s Statewide deer population has been relatively stable over the past decade, fluctuating between 850,000 and 1,050,000 animals (mean = 945,000). <http://www.dgif.virginia.gov/wildlife/deer/management-plan/virginia-deer-management-plan.pdf>

Hunting resident game species, such as deer, on Chincoteague NWR and Wallops Island NWR will result in negligible impacts on their populations because of their restricted home ranges. The refuges also contribute negligibly to the state’s total harvest for resident game species.

Chincoteague NWR white-tailed deer harvest

2008/2009 - 23  
 2009/2010 - 20  
 2010/2011 - 15  
 2011/2012 - 27  
 2012/2013 - 26

Wallops Island NWR white-tailed deer harvest

2008 - 13  
 2009 - 15  
 2010 - 15  
 2011 - 8  
 2012 - 11

The refuges harvested a total of 173 white-tailed deer over the past 5 years, with 37 in 2012. Given the exceptionally low numbers of animals harvested from the refuges in respect to the total

Statewide harvest and deer population, no cumulative impacts to local, regional, or Statewide populations of white-tailed deer are anticipated from hunting of the species on the refuges.

The refuge recognizes the need for an overall Assateague Island deer and elk population estimate. Staff continues to collaborate with Assateague Island National Seashore to develop a protocol for data collection resulting in a deer and elk population estimation. Using past harvest data, VDGIF Wildlife Biologist, Todd Engelmeyer, estimated the Assateague Island, Virginia, sika herd population size. Engelmeyer applied the Downing Population Reconstruction Model to 2007 and 2008 CNWR sika harvest data to produce a minimum population estimate. Downing population reconstruction “uses harvest-by-age data and backward addition of cohorts to estimate minimum population size over time” (Davis et al 2007). Results indicated a minimum population estimate of 644 sika (218 bucks, 426 does) in fall 2007 and 567 sika (181 bucks, 386 does) in fall 2008 (Todd Engelmeyer, VDGIF, pers. comm.). Note the Downing Population Estimate is based on harvest data, not survey data and the estimate only takes into account the Virginia portion of Assateague. The estimate does not consider the Maryland portion of Assateague Island nor hunter effort, skill, etc. Also, no prevention or control of epizootic hemorrhagic disease exists to date except by keeping populations below the carrying capacity of their habitats. Based on these considerations, it is anticipated that hunting would have short-term and long-term minor-to-moderate beneficial impacts on deer health and quality and habitat condition.

The continued aggressive management of the non-native sika population would have a beneficial impact on native white-tailed deer. As white-tailed deer compete with sika for habitat and food sources, the decreased sika population would reduce this competition. Deer impacts to ecosystems (e.g., forest regeneration, ground-dwelling birds) are a concern in certain areas with poor habitat and high deer populations. The VDGIF has implemented innovative programs such as the Deer Population Reduction Program (DPOP). The refuge manages sika population with DPOP. The 5-year (2008-2012) average of sika harvested from CNWR is 212, while white tailed deer averaged 22 annually.

Negative impacts from hunting on non-hunted mammals, such as voles, moles, mice, shrews, and bats, are expected to be negligible. Except for some species of migratory bats, these species have very limited home ranges and hunting would not affect their populations regionally. Impacts of hunting to migratory bat species would be negligible. These species are in torpor or have completely passed through Virginia by peak hunting season in November through January. Vehicles are restricted to roads and harassment or taking of any wildlife other than legal game species is not permitted.

### **Impacts to Amphibians and Reptiles**

The direct, indirect, and cumulative effects of hunting to amphibians and reptiles such as snakes, skinks, turtles, lizards, salamanders, frogs, and toads are expected to be negligible. Hibernation or torpor by cold-blooded reptiles and amphibians limits their activity during the hunting seasons for

deer, and migratory game birds, when temperatures are low and hunters would rarely encounter them during most of the hunting season.

### **Impacts to Invertebrates**

Impacts to invertebrates such as butterflies, moths, other insects, and spiders are expected to be negligible. Invertebrates are not active during the majority of the hunting seasons and would have few interactions with hunters during the hunting season.

### **Impacts on Public Use and Access**

Refuge lands allow the public to enjoy hunting at no or little cost in a region where private land is leased for hunting, often costing a person several hundred to several thousand dollars per year for membership. Refuge hunting programs also make special accommodations for mobility-impaired hunters. Hunting provides opportunities to experience a wildlife-dependent recreational activity, instills an appreciation for and understanding of wildlife, the natural world and the environment, and promotes a land ethic and environmental awareness. Visitors interested in hunting would find high quality opportunities to engage in their favored pastime.

The refuge would also be promoting a wildlife-oriented recreational opportunity that is compatible with the purpose for which the refuge was established. The public would have an increased awareness of the refuge and the Refuge System and public demand for more areas to hunt and learn about wildlife would be met. The hunting program provides an administratively simple program that balances other public use activities. The program supports Presidential Executive Order 13443: Facilitation of Hunting Heritage and Wildlife Conservation, regional directives, and parallels State hunting regulations. In addition, it provides seasonal closures to minimize wildlife disturbance and/or avoid conflicts with other uses, enhances disabled hunting opportunities, further develops an appreciation for fish and wildlife, and expands public hunting opportunities.

As the majority of big game hunting will take place north of the major public use area and will occur after the high visitation summer season, little conflict with other refuge visitation is expected.

However, limited hunting will occur within the major public use area, requiring the closing of some trails to the general public. In order to minimize conflicts, selected hunting zones will be limited to half-day hunts. To accommodate hunters confined to wheelchairs, hunt zone(s) will be closed to the general public daily, throughout the hunt. Closures within the major public use area will be heavily signed and patrolled to alert non-hunters of the ongoing big game hunt. In addition, allowing firearms hunting only from Monday through Friday and not on the weekends will further reduce conflicts with other refuge visitors.

### **Other Past, Present, Proposed, and Reasonably Foreseeable Actions and Anticipated Impacts**

Cumulative effects on the environment result from incremental effects of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. While cumulative effects may result from individually minor actions, they may, viewed as a whole, become substantial over time. The hunt plan has been designed to be sustainable through time given relatively stable conditions.

The geographic boundary for considering cumulative effects in the Chincoteague CCP/EIS includes the Southern Delmarva Peninsula (in particular Accomack County) and all coastal NWRs in the area of the Chesapeake Bay and Delmarva Peninsula. Although our analysis is done resource by resource, we have chosen a large geographic boundary to include all possible cumulative effects, including possible additive effects of strategies within this CCP on others' actions. The other NWRs are included because past and future management actions and resources at these refuges could be similar to the actions proposed in this CCP. These include the Eastern Shore of Virginia/Fisherman Island NWRs, Eastern Neck NWR, Back Bay NWR, Prime Hook NWR, Bombay Hook NWR, and the Chesapeake Marshlands NWR Complex (NWRC), which includes Blackwater, Martin, and Susquehanna NWRs. The total land area of these refuges, including Chincoteague and Wallops Island NWRs, is approximately 87,500 acres. For these other refuges, this cumulative effects analysis includes only the adverse effects of each refuge CCP's selected alternative. Bombay Hook is in the process of developing its CCP/EA and therefore, no information impact information is available to include in this analysis.

Other refuges in the mid-Atlantic area often experience different and fewer impacts to vegetation, habitat, and wildlife, than Chincoteague NWR does, probably because Chincoteague NWR is one of the most intensely visited refuges in the nation. The other refuge EAs (developed as part of their CCP process) are concerned primarily with the impacts to wildlife from hunting and human interaction and with specific actions that require vegetation clearing. Minor adverse effects to vegetation and wildlife as a result of human contact and trampling from various public activities are reported at the refuge under all alternatives, as well as at Eastern Shore of Virginia/Fisherman Island NWRs and the Chesapeake Marshlands NWRC. Although this is a cumulative effect, in all cases it is temporary and partially mitigated for by education and management activities. Both Chincoteague NWR and Prime Hook NWR experience impacts from overgrazing of certain overpopulated wildlife species (e.g. light geese); this will be mitigated through hunting. As shown in Table 4-7 in the Final CCP/EIS, actions on all of the refuges, at the Seashore, and on the Wallops Flight Facility (WFF) have identified vegetation clearing projects. At WFF most of the effect of a very large vegetation clearing project will be mitigated by replanting with lower-growing vegetation. The estimated total effect of these actions (excluding the mitigated areas at WFF), and the clearing associated with the beach parking and access for the preferred alternative at Chincoteague NWR, is approximately 27 acres. This is less than 0.01 percent of the total area of these sites and most of the impacts would be mitigated. Selective cutting of forest vegetation through silviculture practices at both Chincoteague NWR and Prime Hook NWR would have temporary adverse impacts, but beneficial long term impacts to

vegetation and wildlife habitat. The spraying of herbicides and pest control chemicals could result in cumulative effects to invertebrates at Chincoteague NWR and Prime Hook NWR.

Minor adverse effects to shorebirds as a result of human contact from hunting, fishing, hiking, and walking are reported at the refuge under all alternatives, as well as at Eastern Shore of Virginia/Fisherman Island NWRs and the Chesapeake Marshlands NWRC. At Eastern Shore of Virginia NWR, additional human contact would increase over the existing condition by adding canoeing and kayaking opportunities and from the loss of beneficial foods when an impoundment complex is allowed to revert to scrub-shrub and natural emergent marshes. At Chesapeake Marshlands NWRC, an adverse effect would result from permitting hunting on an additional 200 acres. At Chincoteague NWR, these would be offset in the preferred alternative by relocation of the beach and beach parking area and allowing natural processes to occur, which is beneficial to shorebirds, and also by allowing for natural succession of vegetation to occur in the 300-acre NWF. While a cumulative adverse effect would result from actions at these three refuges, the net effect, when considering the beneficial impact of management actions at the three refuges, is negligible.

None of the protected wildlife or plant species that would be adversely affected at the refuge would be adversely affected by actions that have been taken or are proposed at other NWRs in the cumulative effects analysis study area. Some past actions at the WFF have had an adverse effect on piping plover habitat; however, all of these actions have been subject to Section 7 consultation and the impacts have been mitigated. Therefore, there are no adverse cumulative impacts to threatened and endangered species.

#### **Anticipated Impacts if Individual Actions are Allowed to Accumulate**

The cumulative impact of hunting on migratory and resident wildlife populations (white-tailed deer and sika) at Chincoteague NWR is negligible. The proportion of the refuge's harvest of deer is negligible when compared to local, regional, and state populations and harvest.

Because of the setting of hunting seasons largely outside the breeding seasons of resident and migratory wildlife, the ability of individual refuge hunt programs to adapt refuge-specific hunting regulations to changing local conditions, and the wide geographic separation of individual refuges, we anticipate no direct or indirect cumulative effects on resident wildlife, migratory birds, and non-hunted wildlife of hunting on Chincoteague NWR.

#### **PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague NWR CCP/EIS. Public notification and review included a notice of availability published in the Federal Register, a 90-day comment period for the draft CCP/EIS during which public meetings were held, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

**DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

The refuge will manage the hunt program in accordance with Federal and State regulations and review it annually to ensure wildlife and habitat goals are achieved and that the program is providing a safe, high quality hunting experience for participants.

To ensure compatibility with refuge purposes and the mission of the Refuge System, hunting can occur on the refuge if the refuge-specific regulations highlighted in this document and following stipulations are met:

- This use must be conducted in accordance with State and Federal regulations, and special refuge regulations published in the refuge Hunting Regulations brochures.
- This use is subject to modification if on-site monitoring by refuge personnel or other authorized personnel results in unanticipated negative impacts to natural communities, wildlife species, or their habitats.
- Law Enforcement Officer(s) will promote compliance with refuge regulations, monitor public use patterns and public safety, and document visitor interactions. Law Enforcement personnel will monitor all areas and enforce all applicable State and Federal Regulations.
- Several management strategies identified by Klein (1989) can be used to control the negative effects of recreation on wildlife; these included: permits, user fees, zoning (Cullen 1985), travel ease, public education (Purdy et al. 1987), limiting number of visitors present, and periodic closing. Chincoteague NWR employs these measures to lessen the disturbance and impact to wildlife.
- Big game hunting, using firearms, will continue to be permitted on about 5,200 acres of the 13,682-acre refuge, or 38 percent of the total area; other areas will remain closed to this activity.
- Big game hunting will continue to be by permit only, with all successful hunters being required to register at the refuge game check station.
- The archery hunt will begin in early October in order to avoid the major migration period.
- The refuge manager may, upon annual review of the hunting program and in coordination with VDGIF, impose further restrictions on hunting. Further restrictions may include but are not limited to recommending that the refuge be closed to hunting or further liberalize hunting regulations. Hunting restrictions may be imposed if hunting conflicts with other refuge programs, endangers refuge resources, or public safety. Specific hunt details will be outlined in the annual hunt program.

**JUSTIFICATION:**

Hunting is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife (Executive Order 12996, March 25, 1996 and the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57)). USFWS 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 seasons and limits are established by the Commonwealth of Virginia and generally adopted by the refuge. These restrictions ensure the continued well-being of overall populations of game animals. Hunting does result in the taking of many individuals within the overall population, but restrictions are designed to safeguard an adequate population from year to year. Specific refuge regulations address equity and quality of opportunity for hunters, and help safeguard refuge habitat. Disturbance to other fish and wildlife does occur, but this disturbance is generally short-term and adequate habitat occurs in adjacent areas. Loss of plants from foot traffic is minor, or temporary, since hunting occurs mainly after the growing season.

Conflicts between hunters are localized and are addressed through law enforcement, public education, and continuous review and updating to State and refuge hunting regulations. Conflicts between other various user groups are minor given the season of the year for hunting, the location of most hunting away from public use facilities, and seasonal area closures.

Big game hunting is conducted to maintain populations at a level compatible with refuge habitat, reduce the exotic sika population to lessen competition with native white-tailed deer, and to provide the general public with quality hunting. Without a method to reduce the big game populations on Assateague Island, overpopulation would occur, followed by a reduction in the quality of the habitat, and a reduced herd size due to disease and starvation. A public hunt is the most feasible alternative at this time to accomplishing a reduction in the herd size.

Stipulations above will ensure proper control of the means of use and provide management flexibility should detrimental impacts develop. Allowing this use also furthers the mission of the Refuge System by providing renewable resources for the benefit of the American public while conserving fish, wildlife, and plant resources on the refuge.



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**COMPATIBILITY DETERMINATION**

**USE:** Commercial Filming, Still Photography, and Photography Workshops

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is commercial filming, still photography, and photography workshops. “Commercial filming” means the film, electronic, magnetic, digital or other recording of a moving image by a person, business, or other entity for a market audience that involves the advertisement of a product or service, the creation of a product for sale, or the use of actors, models, sets, or props. For the purposes of this definition, creation of a product for sale includes a film, video, television broadcast, or documentary of historic events, wildlife, natural events, features, subjects, or participants in a sporting or recreation event created for the purpose of generating income, such as for a documentary, television or feature film, advertisement, or similar project.

“Still photography” conducted on lands managed by Department of the Interior (DOI) agencies requires a permit when it involves models or props that are not a part of the site’s natural or cultural resources or administrative facilities, or when it takes place at a location where members of the public generally are not allowed, or where additional administrative costs are likely. The land use fee for still photography would apply only to still photography that requires a permit.

Conducting “photography workshops” for commercial purposes typically involves approximately 10 to 20 participants and an instructor. The emphasis is placed on wildlife and scenic photography.

“Commercial” filming, still photography, and photography workshops are not priority public uses. Hereafter, commercial filming, still photography, and photography workshops will be collectively referred to as commercial photography.

**(b) Where would the use be conducted?**

The use would be conducted within the refuge’s boundary.

**(c) When would the use be conducted?**

The use may take place at anytime during the year. Seasonal closures may be in effect during different times of the year which would prevent the activity from taking place.

**(d) How would the use be conducted?**

The use would be conducted in specified areas of the refuge depending on season, number of requests, and possible impacts to the resource. Specific areas of the refuge would be identified for the activity on a case-by-case basis and participants would remain in the area designated. U.S. Fish and Wildlife Service (USFWS) wilderness policy generally prohibits commercial photography in wilderness areas unless we determine it is necessary to provide educational information about wilderness uses and values and does not degrade the wilderness character of the area. In cases where we allow such photography as a commercial service, we first evaluate it for appropriateness and compatibility, and we manage the use through an audiovisual productions permit. Although there exists no “congressionally designated wilderness lands” within the refuge, there are 1,300 acres of land that have been proposed as wilderness. Proposed wilderness areas are managed by the USFWS to maintain their wilderness qualities in the event Congress designates them as wilderness. Hiking, photography, hunting, fishing, and wildlife observation may be among the permitted uses. At Chincoteague National Wildlife Refuge (NWR) due to its vastness and difficulty for the general public to access the more remote sections of the refuge, limited commercial filming and photography access can directly support the interpretation and education of the resources managed on the refuge as well as promoting wilderness character. We do not expect limited commercial photography access to materially interfere with or detract from the mission of the Refuge System, nor diminish the purpose for which the refuge was established. It will not pose significant adverse effects on refuge resources, interfere with public use of the refuge, or cause an undue administrative burden.

Each request for this use will be considered, and if appropriate, will be issued a Special Use Permit (SUP) by the refuge manager. Each request must be presented in writing with details of who, what, where, when, why, and how the commercial operation will be conducted. Each request will be evaluated on its own merit. The refuge manager will use professional judgment and ensure that the request will have no considerable negative impacts to natural or cultural resources, or visitor services, and does not violate refuge regulations. Special needs will be considered on a case-by-case basis and are subject to the refuge manager’s approval. Any approved SUP will outline the framework in which the use can be conducted and refuge staff will ensure compliance with the permit. The criteria that the refuge manager will use in approving or disapproving a commercial filming request are listed below under "Stipulations Necessary to Ensure Compatibility."

**(e) Why is this use being proposed?**

The production of commercial films, still photography, and conducting photography workshops are all popular enterprises on the refuge, due to the scenic natural habitats, abundant wildlife and prominent cultural features found in the area. Providing a mechanism to allow this use augments the refuge’s ability to reach potentially new audiences. Involvement in these uses will allow the permittee and any participants an opportunity to learn more about the refuge and the USFWS, while encouraging them to share their experiences with the general public through a variety of media formats. Each proposed use has the potential to support and enhance the priority public uses of wildlife photography, environmental education, and interpretation.

**AVAILABILITY OF RESOURCES:**

Permitting this use is within the resources available to administer our Visitor Services Program. When additional staff costs are incurred to review each request, analyze affected habitats and wildlife, coordinate with the outside entity and process a SUP, the costs will be paid by permittee. Ensuring compliance with the terms of the Permit is within the regular duties of the refuge Law Enforcement Officer(s).

**ANTICIPATED IMPACTS OF THE USE:**

Visitor use activities currently occurring on the refuge have been analyzed for impacts to wildlife and habitat and are expected to have a short term negative impact on vegetation. Commercial photography could alter habitats by trampling vegetation, compacting soils, and increasing the potential of erosion. Repeated visitation to any particular locale at the refuge could cause damage to vegetation and therefore, wildlife habitat. Substantial, widespread habitat degradation is not expected due to the limited and regulated occurrence of this activity. For commercial photography, impacts would be minimal since permittees use refuge trails and roadsides created to traverse through habitat, and avoid additional vegetation impacts.

Commercial filming, still photography, and the conduct of photography workshops can result in positive impacts to the wildlife resource. While some level of disturbance is expected to impact wildlife resources, a positive effect of limited commercial photography activities will allow the permittee and any participants an opportunity to learn more about the refuge and the USFWS, while encouraging them to share their experiences with the general public through a variety of media formats. Each proposed use has the potential to support and enhance the priority public uses of wildlife photography, environmental education, and interpretation.

Those engaged in commercial photography are expected to use and stay on designated hiking trails or roads to access the interior of the refuge. To minimize disturbance to natural resources and ensure public safety, the refuge has implemented restrictions on public entry such as closed areas, seasonally restricted areas, and daily hour restrictions. Facilities most utilized by those engaged in commercial photography are roads, parking lots, trails, and observation platforms. Areas near active bald eagle nests will be restricted to all activities and access, in accordance with Federal, State, and refuge specific guidelines.

Commercial photography is expected to have negligible short-term, long-term or cumulative impacts on the economy of the town of Chincoteague, Accomack County, or of the region. We would not expect this activity to considerably alter the demographic of economic characteristics of the local community. All refuge actions will neither disproportionately affect any communities nor damage or undermine any businesses or community organizations. No adverse impacts are foreseen to be associated with changes in the community character or demographic composition.

Commercial photography, as with other uses, has the potential to impact cultural resources that are located within the refuge boundary. Without adequate oversight, participants may inadvertently damage or disturb known or undiscovered cultural artifacts or historic properties. All participants will be required to strictly adhere to special permit conditions developed to protect natural and cultural resources during commercial photography.

**PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague National Wildlife Refuge (NWR) Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS). Public notification and review include a notice of availability published in the Federal Register, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

**DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

Each request must comply with 43 CFR Part 5, Public Law 106-206 of May 2000, 8 RM 16 (Refuge Manual), and any revisions to these or other related federal policies.

To ensure compatibility with the Refuge System mission and refuge purposes, and to minimize or exclude adverse impacts as described above, the activity will be subject to the following stipulations:

- Commercial photography in support of conservation, refuge purposes, the Refuge System Mission, and/or for education and interpretive purposes will be considered.
- Permittee(s), designated representatives, and associates will comply with all refuge regulations and conditions of the SUP as provided by the refuge manager. The SUP will detail who, what, where, when, why, and how the commercial operation will be conducted.
- The refuge manager will consider requests that include special access only if they demonstrate a means to enhance education, appreciation, and/or understanding of the natural resources conservation and the Refuge System.
- Alterations to any vegetation are prohibited unless pre-approved by refuge manager.
- Permittee will be required to minimize potential impacts to refuge visitors and natural and/or cultural resources within the refuge.

- Permittee is responsible for acquiring and/or renewing any necessary Commonwealth of Virginia and Federal permits prior to beginning or continuing their project.
- The refuge manager or designee can suspend the project, modify conditions, and/or terminate the project that is already permitted and in progress should unacceptable, unforeseen, or unexpected impacts or issues arise or be noted.
- Proper credit should be given to the refuge and the USFWS for all commercial photography, including commercial recordings of images and sounds collected on the refuge.
- Permittee will clean up all sites of trash and litter and to restore the site(s) to pre-filming conditions to the satisfaction of the refuge manager.
- Permittee will provide the USFWS with at least one free copy of all commercial product(s) generated on the refuge. This product(s) will be available for use by the USFWS.

The refuge shall also collect any costs incurred as a result of commercial photography activities, including but not limited to administrative, personnel costs, damage to facilities and resources, etc. All costs recovered shall be in addition to any use fee. Public Law 106-206 states that fees for commercial photography must be based on several criteria, including:

- The number of days the commercial photography or still photography takes place on Federal land.
- The size of the film crew present on Federal land.
- The amount and type of equipment present on Federal land.

### **JUSTIFICATION:**

Commercial photography has the potential to inspire and educate the public about the Refuge System, natural habitats, and wildlife. Wildlife photography is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife (Executive Order 12996, March 25, 1996 and the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57)). USFWS policy is to provide expanded opportunities for wildlife-dependent uses when compatible and consistent with sound fish and wildlife management, ensuring that they receive enhanced attention during planning and management.

Specific refuge regulations address equity and quality of opportunities for visitors and help safeguard refuge habitats. Impacts from this proposal, short-term and long-term, direct, indirect, and cumulative, are expected to be minor and are not expected to diminish the value of the refuge for its stated objectives.

Stipulations above will ensure proper control of the means of use and provide management flexibility should detrimental impacts develop. Allowing this use also furthers the mission of the Refuge System by providing renewable resources for the benefit of the American public while conserving fish, wildlife, and plant resources on the refuge.

Commercial photography is considered an economic use of a national wildlife refuge and is guided by the following policies:

*16 U.S.C. 668dd, 50 CFR 27.71, Motion or Sound Pictures*

The taking or filming of any motion or sound pictures on a national wildlife refuge for subsequent commercial use is prohibited except as may be authorized under the provisions of 43 CFR part 5.

*16 U.S.C. 668dd, 50 CFR 27.97, Private Operations*

Soliciting business or conducting a commercial enterprise on any national wildlife refuge is prohibited except as may be authorized by special permit.

*16 U.S.C. 668dd, 50 CFR 27.86, Begging*

Begging on any national wildlife refuge is prohibited. Soliciting of funds for the support or assistance of any cause or organization is also prohibited unless properly authorized.

*16 U.S.C. 668dd, 50 CFR, Subpart A, 29.1 Allowing Economic Uses on National Wildlife Refuges*

We may only authorize public or private economic use of the natural resources of any national wildlife refuge, in accordance with 16 U.S.C. 715s, where we determine that the use contributes to the achievement of the national wildlife refuge purposes or the Refuge System mission.

*8 RM 16, Audio Visual Productions*

*5 RM 17, Commercial & Economic Uses on National Wildlife Refuges*

*43 CFR Part 5, Making Pictures, Television Productions or Sound Tracks on Certain Areas Under the Jurisdiction of the Department of the Interior*

*Public Law 106-206, Commercial Filming*



**COMPATIBILITY DETERMINATION**

**USE:** Grazing of Chincoteague Ponies

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C. 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is grazing of Chincoteague ponies. The grazing program on the refuge allows up to 150 adult Chincoteague ponies, a registered breed and owned by the Chincoteague Volunteer Fire Company (CVFC), a 501c3 nonprofit organization, to graze within two separate compartments on the refuge. In 2013, an Interim Pony Management Plan was developed as part of the draft Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS) to provide guidance and set short term management objectives for this use. This is not a priority public use.

**(b) Where would the use be conducted?**

The horses are allowed to graze on approximately 3,946 acres. The current grazing program includes two compartments: the southern compartment which contains 547 acres and the northern compartment which has 3,399 acres. The southern compartment consists primarily of salt marsh with a limited amount of shrub/scrub and upland pine forest. U.S. Fish and Wildlife Service (USFWS) allows the grazing of up to 50 adult Chincoteague ponies in this unit. This compartment is the primary public viewing area for the Chincoteague ponies. The northern compartment is a mix of salt marsh, brackish water areas, scrub/shrub, pine forest and maritime forest. USFWS allows the grazing of up to 100 adult Chincoteague ponies in this unit. However, if necessary during the winter months, ponies from the southern compartment may be moved to the north compartment for animal safety and welfare.

The compartments were established to keep the ponies off the beach and dune areas and some of the major moist soil management units, as well as separating them from the visiting public for safety reasons. The maximum number of ponies allowed has remained constant at 150 adult animals since the initial permit was issued in the 1940s. Any recruitment above that number is removed each summer.

**(c) When would the use be conducted?**

The grazing program is conducted year round.

**(d) How would the use be conducted?**

A Special Use Permit (SUP) for grazing is annually issued to the CVFC at the start of the new fiscal year. Prior to the signing of the new SUP, the refuge manager will meet with the Pony Committee Chair for the CVFC and discuss changes or updates to the proposed SUP. Once agreement has been reached as to the content of the SUP, the Pony Committee Chair will submit the proposed SUP to the CVFC Pony Committee and then the full CVFC membership. Once approved, the SUP will be signed by the refuge manager and the Pony Committee Chair and/or the President of the CVFC. Additional meetings with the CVFC Pony Committee are held to organize volunteer work details and/or round-up events.

As stated, the ponies are contained by either fencing or natural barriers, such as the Assateague Channel. The fire company is required to keep the ponies within the grazing units and to repair the fence as needed with the assistance of refuge personnel. The roundups are conducted by the CVFC members on horseback. Both the spring and fall roundups take 2 days to complete. The summer event(s) (round-up, penning, sunrise walk down the beach, swim, auction, and return) is a 1-week event. This week long event takes place in the last week of July in which the Wednesday and Thursday fall within the month of July. This provides consistency in long range planning efforts for the CVFC, the refuge, Town of Chincoteague, Chamber of Commerce, and tourism related agencies.

**(e) Why is this use being proposed?**

The grazing of the Chincoteague ponies, by the CVFC, has been an ongoing use since the 1920s, nearly 20 years prior to the refuge's establishment. The proposal being reviewed is a continuation of that use. However, a brief history is instrumental in understanding this use.

Domestic livestock grazing has long been a part of Assateague Island's history from the time the Eastern Shore was settled during the early 1600s. Early accounts of grazing horses and other livestock (sheep, goats, cattle, etc.) on barrier islands indicate this was a common and widespread practice all along the Atlantic Coast. Periodic roundups and so called "pennings" were often held to determine ownership and to count and sell excess or unwanted stock. In the mid 1920s the CVFC purchased horses/ponies from the estate of Joseph S. Pruitt, an oysterman from Greenbackville, Virginia. The first annual pony roundup and swim conducted by the CVFC was in 1925. Fire company members, later dubbed "Saltwater Cowboys," herded the ponies to the Assateague Channel and swam them to nearby Chincoteague Island for auction.

With the creation of the refuge in 1943, USFWS granted a permit to livestock owner, Wyle Maddox, to graze cattle and horses on designated portions of the island (Narrative Report (NR) 1943). In 1946, USFWS issued the CVFC a SUP for grazing no more than 150 head of horses (NR 1946). These animals (domestic animals and horses) were allowed free range of the entire refuge. Between 1946 and 1952, both permits were in effect; however, in 1953 the only grazing permit issued was to the CVFC. This permit was renewed annually and is currently in place, although the

conditions of the permit have changed considerably over the years. Since the late 1950s, a number of attempts have been made to fence the ponies out of the most sensitive wildlife areas. The latest attempt, which continues to the present, was begun in 1989, when the fences around the two compartments were redone in order to more adequately contain the ponies.

Foals of the year are sold at auction and are not included in count of adult horses. This activity includes three roundups each year with the annual pony penning and swim in July. The historical details of the grazing program are covered in the 1990 Pony Management Plan (as amended in 1995). Additionally, this program was evaluated in the 1992 Final EIS and the 1993 Chincoteague National Wildlife Refuge (NWR) Master Plan. This use was subsequently considered compatible in two compatibility determinations approved in 1994 and 2004.

In 1947, the Chincoteague ponies reaped national and international attention with Marguerite Henry's children's classic, *Misty of Chincoteague*. The later movie version in 1961 further heightened the popularity of the authentic island pony and its lineage. To children and adults, "Misty of Chincoteague" is an iconic symbol of the spirited ponies freely roaming on Assateague Island.

The Assateague Island recreational beach, the ponies, and the refuge are the town of Chincoteague's and Accomack County's major tourist attractions. Every year the refuge experiences between 1.2 and 1.5 million visits. This makes the refuge one of the top five most visited national wildlife refuges in America. Due to refuge related tourism, over \$100 million dollars is spent in the regional economy for lodging, meals, gasoline, souvenirs, recreation, and other items.

In 2010, the town completed a visitor survey. Eighty percent of Chincoteague visitors selected Assateague Beach as their top destination. Viewing the wild ponies consistently ranked among the top three activities most important to visitors.

By allowing the uses described in this determination, the visiting public, who might come just to see these world famous ponies, will also be exposed to natural resource related subjects and therefore, will have a better understanding and appreciation for wildlife, the cultural history of the refuge, and the importance of the Refuge System. Therefore, the draw of the Chincoteague ponies will positively contribute to the achievement of Refuge System and refuge purposes.

#### **AVAILABILITY OF RESOURCES:**

The CVFC owns and manages the Chincoteague ponies and is responsible for the health and well-being of the ponies including, but not limited to: veterinarian services, supplemental watering and feeding, rounding-up horses that escape their pastures, opening gates/fences when large coastal

storm threaten, and oversight of the three round-ups and the pony swim. Additionally, CVFC jointly coordinates efforts with refuge staff to identify and conduct maintenance and replacement projects for gates and fence lines, clearing of down trees and limbs from fence lines, repair of corrals, and other pony related management and/or maintenance projects.

The refuge will provide the posts, barbed wire, and gates needed to maintain the approximate 13 miles of fence line that contains the Chincoteague ponies in the two pasture areas. This expenditure is undertaken by USFWS to limit its exposure for possible litigation. Federal Courts have held that the government should compensate private individuals "...for the value of the improvements that they had constructed on lands covered by their grazing permits...." (Rusk 2008). The word "their" in this sentence refers to government agencies. The estimated cost for materials to replace 1 mile of three strand barbed wire fence is \$3,500. Annual costs to USFWS are estimated at \$65,000.

Additionally, staff time is devoted to issuing the permit, assisting with fence repair and maintenance, crowd control during pony round-ups, and ensuring compliance with the special conditions. The refuge is very fortunate to attract individuals and groups from around the country that wish to conduct volunteer service at the refuge, and these volunteers are often employed to help with fence and gate maintenance projects. Within the annual refuge operations and maintenance budget, there is sufficient staffing and funding available to accomplish these tasks encompassed by this use.

#### **ANTICIPATED IMPACTS OF THE USE:**

Numerous studies have been conducted and articles written on the effect of grazing on marshes. Some of these studies have been specific to Assateague Island and even to the refuge. Depending on the study, one can find both positive and negative effects of grazing on marshes. Several studies have shown that grazing could have a stimulating effect on grass production (McNaughton, 1979; Hubbard, 1970; Chabreck, 1968; and Ranwell, 1961). McNaughton (1979) found that production of grasses increased up to an optimal level of grazing then declined when subjected to overgrazing. Bakker (1985) determined that grazing of a salt marsh lead to enhanced species diversity, due to the removal of litter. However, Wood (1980) found that the net primary productivity of the marsh on a barrier island in North Carolina was reduced by heavy grazing, but that exploitation of the salt marsh was not exceeding productivity. Rubenstein et al (1976), working in the same location as Wood, indicated that grazing had no significant effect on above ground biomass but did on the below ground biomass in marsh areas. Turner (1987), in studying grazing on a barrier island in Georgia, indicated that the abundance of the periwinkle snail was reduced due to grazing, and that grazing had a substantial impact on standing stocks of *Spartina*. Turner (1988), in another study on the same island, determined that the horse population should be maintained at a level to prevent excessive damage to the salt marsh. Zervanos (1978), working

on Assateague Island, found little evidence to demonstrate adverse effects from pony grazing on the Maryland end of the island. Keiper (1981) determined that grazing on the refuge may stimulate additional plant growth, although the vegetation may be shorter but denser; he discovered that more growth was exhibited in the grazed versus un-grazed sites.

Since the ponies are allowed to graze within migratory bird habitat, impacts are likely to occur. Pony grazing on the natural marshes and within moist soil management units can lessen the amount of food and cover available to migratory birds. The value, of areas of the marsh which may be heavily grazed, is less for migratory birds, such as rails and black ducks which utilize this habitat. Nests of ground-nesting birds, such as willets, quail, shorebirds, etc. are in danger of being trampled if nesting occurs within the grazing compartments. Based on the research cited in this determination, some habitat may actually be improved, while others are negatively impacted.

The National Park Service (NPS) (2009) published a *Finding of No Significant Impact - Environmental Assessment of Alternatives for Managing the Feral Horses of Assateague Island National Seashore*. In this document the NPS determined that "...Scientific studies have found that the horses can disrupt important native plant communities, such as salt marsh wetlands, by reducing plant vigor, changing species composition, and altering marsh structure and morphology. This, in turn, can reduce the ecological functionality of those communities and their value as habitat for native fauna, thereby limiting biodiversity. Horse grazing has been shown to also harm rare species, including the beach-dwelling threatened species *Amaranthus pumilus*, by dramatically reducing seed production and limiting the plant's reproductive potential. Natural processes essential to maintaining a healthy barrier island ecosystem have also been affected by a too-large horse population. Favored by horses, the intensive grazing of American beach grass (*Ammophila brevigulata*) has been demonstrated to alter the processes of dune formation and stabilization. Collectively, the results of a broad array of research indicate that the recommended limit of 150 horses has failed to protect the other natural resources and values of Assateague Island. ..." Additionally, as part of its research efforts, the NPS determined that a feral horse population maintained in the range of 80 to 100 would best sustain herd health.

Research now indicates that the mid-Atlantic coastline is experiencing a rate of sea level rise that is second only to that of the Louisiana and Texas wetlands/coastline along the Gulf of Mexico. Delissa Padilla Nieves, (2009), conducted a Sea Level Affecting Marsh Model (SLAMM) analysis for the lower Delmarva Peninsula. The results of that modeling revealed an overall loss of approximately 57 percent of the salt marsh by the year 2100 under a 1-meter sea level rise scenario. Most of the grazing area within the southern compartment (547 acres) consists primarily of salt marsh. In the northern compartment (3,399 acres) much of this unit is also salt marsh, but it does have a more upland shrub/scrub and pine forest component. Over the term of this Compatibility Determination (10 years) conversion of salt marsh habitat to mud flats or open water is expected to be less than significant.

Since the establishment of the refuge, the actual amount of grazing on the refuge has been reduced from two grazing permits to only one, with the number of animals being reduced by half in the early 1950s when the second permit was discontinued. Additionally, restrictions have also been added to reduce any possible impacts to the migratory bird habitat. Since the early 1950s, the number of ponies has been fairly constant at around 150 adult animals; therefore, their impacts can be considered to be fairly constant. However, continued grazing by Chincoteague ponies in the salt marshes of the two grazing compartments is expected to reduce and/or eliminate the accumulation of detritus (decaying vegetation). This buildup of decaying vegetation is thought to be vital if salt marsh root systems are to keep pace with rising sea levels. Reducing grazing pressure on the salt marsh is consistent with CVFC's goal of maintaining a viable healthy population of Chincoteague ponies on the refuge. Although not mandated, we believe maintaining the Chincoteague pony population at or below its current number of 135 animals, in lieu of 150, over the next 10 years is important in maintaining a balanced approach to pony grazing in the light of a changing climate.

**PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague NWR CCP/EIS. Public notification and review included a notice of availability published in the Federal Register, a 90-day comment period for the draft CCP/EIS during which public meetings were held, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

**DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

The CVFC will be required to adhere to the special conditions contained in the SUP which allows the grazing and must be consistent with provisions of the Pony Management Plan in order for this activity to remain compatible. The special conditions include:

1. This permit authorizes the use of the Chincoteague NWR for the grazing of Chincoteague Ponies (ponies) only. Ponies are authorized only within the permitted pasture/habitat units (i.e. North and South Pony Management Areas, see attached map.) The herd numbers will not exceed

that allotted (150) for such grazing, unless permission is granted by the refuge manager for extenuating circumstances (i.e. weather, tidal flooding, etc.). Permittee is solely responsible for ensuring the ponies are in compliance with these conditions. Failure to comply may result in cancellation of grazing privileges, the imposition of administrative fees and/or legal charges.

- a. Permittee has 1 week to return ponies to permitted compartments once notified by the refuge manager; an additional week may be granted based on adequate justification. Ponies that habitually get out of permitted compartments will be removed from the refuge until the fence is repaired or escape is blocked.
  - b. Ponies will be promptly returned to their assigned grazing units after the annual July round-up and auction.
2. The permittee is responsible for the maintenance of all assigned fences, including repair of damage caused by tidal flooding and other acts of nature. The USFWS will purchase all post and fencing materials necessary for scheduled maintenance and repairs of fence lines. The permittee, in concert with the refuge manager, will develop a fence replacement and repair schedule/plan that stipulates the replacement of fence lines for a period of 10 years. The permittee will work in concert with the refuge manager for the scheduling of joint fence maintenance activities.
  3. The permittee will designate individuals authorized to assist in management activities for the Chincoteague pony herd and will supply a list to the refuge manager within 30 days after issuance of the SUP. The top four names will be authorized to take action in the event of an emergency, if the Pony Committee Chairman is not available. Additionally, the permittee will provide the refuge manager a list of volunteers and helpers assigned to Pony Committee activities (round-ups, feeding and watering, etc.).
  4. The permittee will provide the name and phone number of a contact veterinarian in case of emergency. Chincoteague NWR will contact the permittee in case of an emergency, but should the permittee fail to respond within 12 hours, the refuge will initiate veterinarian services and the permittee will be responsible for all charges. Permittee will comply with all Commonwealth of Virginia and U.S. Department of Agriculture livestock health laws.
  5. Pony penning activities are allowed for herd size management. Additional stipulations apply and are identified in the 2013 Interim Pony Management Plan and SUP.
  6. The permittee is responsible for conduct of members of work parties while on the refuge. Consumption of alcoholic beverages is not allowed on the refuge.
  7. The permittee after each round-up (spring, summer and fall) will provide the refuge manager a written report stating the number of ponies present on the refuge. The report at a minimum will

provide the number of adult females and males found in individual grazing units (north and south). Stock present in excess of the maximum allowable as of November 1 will be removed from the refuge within 30 days. Animals in excess of the maximum allowable after 30 days will subject the permittee to appropriate administrative and legal action.

8. The refuge manager reserves the right to amend or modify this permit if conditions and management considerations dictate. The Chairman of the Pony Committee will be notified prior to any anticipated changes in this permit.

### **JUSTIFICATION:**

The Chincoteague ponies are important assets to the local communities, evoking a meaningful sense of place and generating both economic and environmental benefits. The Chincoteague ponies have long been a part of Assateague Island's history. In 1947, the Chincoteague ponies reaped national and international attention with Marguerite Henry's children's classic, *Misty of Chincoteague*. The later movie version in 1961 further heightened the popularity of the authentic island pony and its lineage. To children and adults, "Misty of Chincoteague" is an iconic symbol of the spirited ponies freely roaming on Assateague Island.

The Assateague Island recreational beach, the ponies, and the refuge are the town of Chincoteague's and Accomack County's major tourist attractions. Every year the refuge experiences between 1.2 and 1.5 million visits. This makes the refuge one of the top five most visited National Wildlife Refuges in America. Due to refuge related tourism, over \$100 million dollars is spent in the regional economy for lodging, meals, gasoline, souvenirs, recreation, and other items.

In 2010, the town completed a visitor survey. Eighty percent of Chincoteague visitors selected Assateague Beach as their top destination. Viewing the wild ponies consistently ranked among the top three activities most important to visitors.

By allowing the uses described in this determination, the visiting public, who might come just to see these world famous ponies, will also be exposed to natural resource related subjects and therefore, will have a better understanding and appreciation for wildlife, the cultural history of the refuge, and the importance of the Refuge System. Therefore, the draw of the Chincoteague ponies will positively contribute to the achievement of Refuge System and refuge purposes.

Past studies by USFWS confirm that controlled livestock grazing can be beneficial to some vegetative communities by increasing vigor of perennial grasses, speeding recycling of nutrients, increasing production of vegetation, preventing the decline and death of plants due to lodging and



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**COMPATIBILITY DETERMINATION**

**USE:** Horseback Riding

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C. 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is recreational horseback riding on Chincoteague NWR, on Assateague Island, Virginia. Horseback riding is not a priority public use; however, it does facilitate wildlife observation and photography.

**(b) Where would the use be conducted?**

Horseback riding will be conducted along the southernmost Atlantic ocean beachfront of Assateague Island. Access for horseback riding (in the oversand vehicle, or OSV, zone) is restricted by the following stipulations:

- 1) Overwash portion of the OSV zone closed March 15 through August 31 based on shorebird nesting behavior; close 200 meters north of nesting sites from 2 days prior to any nests hatching and through fledging.
- 2) Hook portion of OSV zone closed March 15 to August 31 or thereafter, until last shorebird fledges.
- 3) Upon complete establishment of the new recreational beach, from March 15 to September 15, the area south of the new assigned area is closed.
- 4) From September 16 to March 14, the zone will again start at the beach terminus of Beach Road at Toms Cove, then south along the Atlantic Ocean beachfront to "Fishing Point" on Toms Cove Hook, then returning by the same route.

The approximate linear distance of beachfront open to horseback or OSV use at this time of year is 4.5 miles one way, 9 miles round trip. Travel will generally be within the intertidal zone, unless horseback riders and vehicle drivers are re-directed by signage to avoid sea turtle nest sites; horseback riding and vehicles are prohibited from the dunes or vegetated areas.

**(c) When would the use be conducted?**

- If unfledged shorebirds remain in the OSV zone after September 15, the refuge manager will designate a closed area to protect these birds;
- The refuge manager may close the OSV zone at anytime for safety or security reasons.

Horseback riding will be permitted during normal refuge hours of operation which are:

- May through September: 5 a.m. to 10 p.m.;

- October: 6 a.m. to 8 p.m.;
- November through March: 6 a.m. to 6 p.m.;
- April: 6 a.m. to 8 p.m.

**(d) How would the use be conducted?**

In cooperation with the National Park Service (NPS) the refuge will develop maps and brochures that detail the specific routes of travel and any regulations that those engaged in horseback riding must adhere to. A check-in and check-out box will be located conveniently at the start of the trail so that horseback riders can sign-in and obtain current brochures, maps and any updates on closed areas or beachfront conditions.

The refuge, in conjunction with NPS, will be responsible for all routine maintenance activities and law enforcement within the area established for this use. Refuge staff will post nesting areas for the protection of endangered species (i.e. sea turtles) as well as informing riders of any special restricted areas.

**(e) Why is this use being proposed?**

Horseback riding has a long history on Assateague Island. Even before the establishment of the refuge in 1943, horseback riding was the preferred way of rounding-up livestock that was allowed to free range on the island. During World War II, the United States Coast Guard patrolled the Assateague Island shoreline by horseback looking for German U-boats or evidence of human activity on the beach. However, recreational horseback riding has always been a favorite pastime of local/county residents and has been permitted with varying degrees of restrictions since the establishment of the refuge.

Historically, horseback riding was allowed on the Beach Road, Spur Road to the OSV zone and, depending on the time of year, the area of Toms Cove Hook that was open to off road vehicle use and along a small section of Toms Cove beyond the Coast Guard Station. Since the writing of the last Compatibility Determination for horseback riding (2004), horseback riders have parked their trailers at or near the southern terminus of the current NPS assigned area and have accessed the horseback riding area/OSV zone from that location. In 2012, approximately 140 riders participated in this activity. This use has remained very low over the years, with the vast majority of this use taking place in the beachfront area of the OSV zone.

**AVAILABILITY OF RESOURCES:**

The resources necessary to provide and administer this use, at current levels, is available within current and anticipated refuge budgets. Staff time associated with administration of this use is minimal. Since all of this activity takes place in an area that is currently administered as the OSV zone, which has a much larger volume of traffic/use, administering this use will be a minor duty in the oversight of the OSV use.

## ANTICIPATED IMPACTS OF THE USE:

### Wildlife Impacts

Studies that have been conducted elsewhere show that horseback travel can cause disturbances to wildlife. Disturbances vary with the wildlife species involved and the type, level, frequency, duration and the time of year such activities occur. Whittaker and Knight (1998) note that wildlife response can include attraction, habituation and avoidance. The proposed use has the potential of intermittently interrupting the feeding habits of a variety of shorebirds, gulls, terns and wading birds on the refuge. Numerous studies have documented that migratory birds are disturbed by human activity on beaches. Erwin (1989) documented disturbance of common terns and skimmers and recommended that human activity be restricted a distance of 100 meters around nesting sites. Disturbance can cause shifts in habitat use, abandonment of habitat and increase energy demands on affected wildlife (Knight and Cole 1991). Flight in response to disturbance can lower nesting productivity and cause disease and death. Knight and Cole (1991) suggest recreational activities occurring simultaneously may have a combined negative impact on wildlife. Hammitt and Cole (1998) conclude that the frequent presence of humans in a wildland area can dramatically change the normal behavior of wildlife mostly through unintentional harassment. Horseback riders would tend to present some of the same potential impacts as pedestrians. However, since this use will not be allowed during the nesting season no impact to nesting shorebirds is expected.

Besides possible direct disturbance, horseback riding can lead to soil compaction, which could have detrimental effects on invertebrates using the area and therefore limit the amount of forage for shorebirds. However, since this activity occurs mostly in the intertidal zone, the addition of horses is not expected to cause any additional serious consequences to migratory birds, as the result of soil compaction. Due to the limited amount of this activity and the closures in place to restrict this use, overall disturbance is expected to be minimal. Anticipated impacts of horse use on wildlife include temporal disturbances to species using refuge habitats open to horseback riding. These disturbances are likely to be short term and infrequent based on current levels of use. Routes found compatible for horseback riding are located in the OSV zone on the refuge. Smaller more sensitive wildlife habitat such as riparian, wetland and grassland areas are closed for this use. Based on current observations by Refuge Law Enforcement Officers and other refuge staff existing levels of use are not anticipated to significantly increase wildlife habitat fragmentation or cause significant impacts through disturbance.

### Impacts to plants

Under all development scenarios, approximately 96 percent of the horseback riding will take place along the Atlantic Ocean beachfront below the high tide zone. This area is devoid of vegetation. It is anticipated however, that allowing this use will have minimal impact to vegetation near parking area assigned for horse trailer parking. Current plant communities that occur in these areas are not rare or highly sensitive to disturbance based on available information. Through the development of brochures, maps, and established travel corridors we will minimize the impacts to vegetation along the entire horseback riding/OSV zone.

### **Invasive Species**

Exposed soil and an abundance of sunlight along roads and trails provide ideal conditions for the establishment of invasive plant species. The known incidence of invasive plant species is relatively low on the refuge. Based on current levels of use it is anticipated that no significant increases in invasive plant species will occur as a result of this use. In addition, the saline environment of the area helps prevent the establishment of invasive plants from seeds found in the fecal excrement of horses.

### **Threatened and Endangered Species**

Two Federal threatened species found on the refuge could be affected by this activity. Piping plovers (*Charadrius melodus*) which use the refuge can be impacted negatively by human activity. Pedestrians on beaches may crush eggs (Burger 1987, Hill 1988, Shaffer and Laporte 1992, Cape Cod National Seashore 1993, Collazo et al. 1994). Other studies have shown that if pedestrians cause incubating plovers to leave their nests, the eggs can overheat (Burgstrom 1991) or the eggs can cool to the point of embryo death (Welty 1982). Pedestrians have been found to displace unfledged chicks (Strauss 1990, Burger 1991, Hoopes et al. 1992, Loegering 1992, Goldin 1993). Horses have the potential to cause some of the same impacts but the seasonal closure of the horseback riding and OSV zone will prevent any disturbances to nesting piping plovers. It is anticipated that recreational horseback riding will not cause any direct or indirect impacts to nesting or migrating piping plovers or red knots due to the minimal nature of this use and the seasonal closures of nesting areas.

Seabeach amaranth (*Amaranthus pumilus*) is a small annual dune plant native to barrier island beaches of the Atlantic coast. It is currently listed as a Federal threatened species. Germination takes place over a relatively long period of time, generally from April to July. Flowering begins as soon as plants have reached sufficient size, sometimes as early as June, but more typically commencing in July and continuing until the death of the plant in late fall. Seed production begins in July or August and reaches a peak in most years in September but continues until the death of the plant. It is a "pioneer species," growing on newly created dunes, over wash fans and other areas of bare sand. Intensive recreational use of beaches threatens amaranth populations in some instances. Pedestrian traffic, even during the growing season, generally occurs in areas where it has little effect on populations of seabeach amaranth. Any impacts by recreational horseback riders will be similar to those of OSV use since they will occur in the same area under the same rules and regulation of OSV use.

Unregulated, OSV use and by extension horseback riding on the beach during the growing season could have detrimental effects on the species if those uses are not routed around the plants (Weakley and Bucher 1991). The fleshy stems of this plant are brittle and easily broken. Therefore, even minor beach traffic (OSV and horseback riding) over the plants during the growing season is detrimental, causing mortality and reduced seed production (Weakley and Bucher 1991). Dormant season OSV use has shown little evidence of significant detrimental

effects, unless it results in massive physical erosion or degradation of the site. In some cases, winter OSV traffic may actually provide some benefits for the species by setting back succession of perennial grasses and shrubs with which seabeach amaranth cannot compete successfully (USFWS 1996). Extremely heavy use of an Amaranthus site, even in the winter, may have some negative impacts including pulverization of seeds. No negative impacts are anticipated to seabeach amaranth by horseback riding.

### **User Conflicts**

Conflicts between trail users are commonly reported in the literature (Knight and Gutzwiller 1995, Ramthun 1995, Watson et. al 1994, Chavez et al. 1993). Conflicts range from concerns over personal safety to certain user groups feeling that they should be given priority over other groups based on a past history or other reasons. In the best professional opinion of the refuge law enforcement officers obtained from observation and direct contact, no significant user conflicts have been reported on the refuge.

### **PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague NWR Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS). Public notification and review included a notice of availability published in the Federal Register, a 90-day comment period for the draft CCP/EIS during which public meetings were held, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

### **DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

### **STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

Klein (1989) identified several management strategies used to control the negative effects of recreation on wildlife; these included: user fees, travel ease, permits, zoning (Cullen, 1985), public education (Purdy 1987), limiting number of visitors present, and periodic closing. Chincoteague NWR employs measures such as:

- a. Charging an entrance fee
- b. Develop informational brochures and maps
- c. Developing rules and regulations that govern horseback riding
- d. Specify areas open or closed to horseback riding
- e. Protecting and marking sea turtle nest and sea beach amaranth plants

## f. Conducting routine law enforcement patrols

Horseback riding will be permitted from established parking area(s) and corridors and then along the beachfront/intertidal zone. This area will be subject to the same conditions and closures as the OSV zone as they apply:

- g. Sand dunes and vegetated areas are considered closed, even within OSV zone.
- h. Horseback riders must stay to the east of the black and white post
- i. Horseback riding is permitted
  - May through September: 5 a.m. to 10 p.m.;
  - October: 6 a.m. to 8 p.m.;
  - November through March: 6 a.m. to 6 p.m.;
  - April: 6 a.m. to 8 p.m.
- j. Litter or waste may not be burned, buried or discarded but must be removed and disposed of in designated receptacles located outside of OSV zone.
- k. The OSV and horseback riding zone will be subject to partial or total closure to all OSV, horseback riding, boat, and pedestrian use during the piping plover nesting season.
- l. Horseback riding is allowed east and south of the designated black and white OSV posts along the intertidal area and terminates at Fishing Point, the western tip of Toms Cove Hook.
- m. This activity will be limited to times when this area is open to OSVs.
- n. Horseback riding will mimic the opening and closing of the OSV zone.
  - September 16 to March 14, it will be permitted along the beachfront ending at the south tip of Assateague Island known as “Fishing Point.”
  - After September 15, if unfledged shorebird chicks remain in the OSV zone the refuge manager will designate a closed area to protect those chicks.
- o. Prior to opening of the OSV and horseback riding zone, locations of seabeach amaranth plants and sea turtle nests will be identified by refuge staff. All seabeach amaranth plants and sea turtle nests found by refuge staff will be protected with wire mesh fencing similar to predator exclosures used for piping plover nests. Fences provide additional protection from being crushed by either OSVs or horses.



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**COMPATIBILITY DETERMINATION**

**USE:** Research and Studies Conducted by non-USFWS Staff

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C. 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is research conducted by agencies, organizations, and other research entities other than U.S. Fish and Wildlife Service (USFWS) staff on the refuge. Research is the planned, organized, and systematic gathering of data to discover or verify facts.

This determination covers low or no-impact research projects; namely, those projects with methods that only have a minimal potential to adversely impact cultural resources, water, soils, or native wildlife and plants. This is not an all-inclusive list, but examples of the types of research that may be allowed include: mist-netting for banding or tagging birds, point count surveys, fish and amphibian tagging, electrofishing, radio-telemetry tracking, use of cameras and recorders, use of live or other passive traps, or non-destructive searches of nests, dens, or burrows.

Research activities allowed under this determination must not result in long-term, negative alterations to wildlife behavior (e.g. result in wildlife leaving previously occupied areas for long periods; modifying their habitat use; or, causing nest or young abandonment). No project may degrade wildlife habitat, including vegetation, soils, and water. Research associated activities that would generally not be allowed include, but are not limited to, those that would result in soil compaction or erosion, degrade water quality, remove or destroy vegetation, involve off-road vehicle use, collect and remove animals or whole native plants, cause public health or safety concerns, or result in conflicts with other compatible refuge uses.

Refuge support of research directly related to refuge goals and objectives may take the form of funding, in-kind services such as housing or use of other facilities, vehicles, boats, or equipment, direct staff assistance with the project in the form of data collection, provision of historical records, conducting of management treatments, or other assistance as appropriate.

While we will actively promote research projects that directly relate to knowledge and management of refuge resources, we also recognize that Chincoteague National Wildlife Refuge (NWR) lies in a unique geographic location and its secure nature offers significant opportunities to other federal agencies to fulfill their missions. Although these agencies' interests are not always closely aligned with the refuge's purposes or the Refuge System mission, the National Aeronautics and Space Administration (NASA), U.S. Geological Survey (USGS), United States Coast Guard (USCG), National Oceanic and Atmospheric Administration (NOAA), and the

Department of the Navy each have an interest in conducting nationally important research on the refuge. This research typically involves space exploration, geologic or atmospheric studies, or is important for national defense or homeland security operations. For these reasons, research proposals from these federal agencies will be considered by the refuge manager even if they do not contribute directly to refuge needs. Research proposals from these agencies are subject to all the same considerations and stipulations found in this determination, such as the condition that all research have low or no-impact to refuge resources and that there be no conflicts with other compatible refuge uses. Non-wildlife or habitat research proposals from agencies other than those mentioned above will be evaluated separately.

Research conducted by non-USFWS staff is not a priority public use of the National Wildlife Refuge System (Refuge System) under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee) and the Refuge System Improvement Act of 1997 (Public Law 105-57).

**(b) Where would the use be conducted?**

Chincoteague NWR is located primarily in Accomack County, Virginia with approximately 418 acres in Worcester County, Maryland. Most of the 14,032-acre refuge is located on the southern end of Assateague Island (9,021 acres), a 37-mile long, mid-Atlantic, coastal, barrier island on the east side of the Delmarva Peninsula. In addition, the refuge operates three divisions that are located on islands which, including Assateague Island, extend over 30 miles along the Atlantic Coast. Assawoman Island Division contains 1,434 acres and encompasses the entire island; Metompkin Island Division consists of 174 acres on the north end of the island; and Cedar Island Division contains 1,412 acres in fee title and 600 acres in easements. Additional lands can be found on the north end of Chincoteague Island: Wildcat Marsh (546 acres) and Morris Island (427 acres), which is located between Chincoteague and Assateague Islands.

Research locations will vary depending on the individual research project that is proposed. A specific research project is usually limited to a particular location, habitat type, plant, or wildlife species. On occasion, research projects will encompass an assemblage of habitat types, plants, or wildlife. The research location will be limited to those areas of the refuge that are absolutely necessary to conduct the research project. The refuge may limit areas available to research as necessary to ensure the protection of Federal trust resources, or to reduce conflict with other compatible refuge uses. The methods and routes of access to study locations will be identified by refuge staff.

**(c) When would the use be conducted?**

The timing of the research may depend entirely on the individual research project that is being conducted. Scientific research will be allowed to occur on the refuge throughout the year. An individual research project could be short-term in design, requiring only one or two visits over the course of a few days, or be a multiple year study that may require regular visits to the study site. The timing of each individual research project will be limited to the minimum required to complete

the project. If a research project occurs during the refuge hunting season, special precautions will be required and enforced to ensure safety. The refuge manager would approve the timing (e.g., project length, seasonality, time of day) of the research prior to the start of the project to minimize impacts to wildlife and habitats, ensure safety, and reduce conflicts with other compatible refuge uses.

**(d) How would the use be conducted?**

The objectives, methods, and approach of each research project will be carefully scrutinized by the refuge manager before it will be allowed on the refuge. Only low or no-impact research activities, such as those listed under section (a) above, are covered under this determination.

Research projects must have a USFWS-approved study plan and protocol. A detailed research proposal that follows the refuge's study proposal guidelines (see attachment 1) is required from parties interested in conducting research on the refuge. Each research proposal request will be considered, and if determined appropriate and compatible, will be issued a special use permit (SUP) by the refuge manager that includes the stipulations in this determination. The refuge manager will use sound professional judgment and ensure that the request will not materially interfere with or detract from the fulfillment of the Refuge System mission or the purpose(s) of the refuge. Before initiating a research project that involves federally listed endangered or threatened species, an interagency Section 7 consultation should be completed.

If approved, multi-year research projects will be reviewed annually to ensure that they are meeting their intended design purposes, that reporting and communicating with refuge staff is occurring, and that projects continue to be consistent with the mission of the Refuge System and purposes for which the refuge was established.

If the refuge manager decides to deny, modify, or halt a specific research project, the refuge manager will explain the rationale and conclusions supporting their decision in writing. The denial or modification to an existing study will generally be based on evidence that the details of a particular research project may:

- Negatively impact water, soils, native fish, wildlife, and habitats or cultural, archaeological, or historical resources beyond the low or no-impact standard.
- Detract from fulfilling the refuge's purposes or conflict with refuge goals and objectives.
- Raise public health or safety concerns.
- Conflict with other compatible refuge uses.
- Not be manageable within the refuge's available staff or budget time.
- Deviate from the approved study proposal such that impacts to refuge resources are more severe or extensive than originally anticipated.

This determination makes clear that research should not materially interfere with or detract from the refuge's purposes or the Refuge System mission.

**(e) Why is this use being proposed?**

Scientific research, including inventory and monitoring projects, are an integral part of refuge management. Quality research provides critical information for establishing baseline information on refuge resources and evaluating management effects on wildlife and habitat. Research findings can inform, strengthen, and improve future refuge management decisions, as well as inform management decisions on other ownerships with Federal trust resources in the Delmarva Peninsula and possibly elsewhere in the Northeast Region. For example, past projects on the refuge have studied federally listed species, such as piping plover, red knot, Delmarva Peninsula fox squirrel, loggerhead sea turtle, and other species of conservation concern, such as American oystercatcher and saltmarsh sparrow. Research projects may also include evaluating habitat management treatments and the associated wildlife community response, as well as, measures of impacts from public uses on refuge lands.

The refuge manager would particularly encourage research supporting approved refuge goals and objectives that clearly improves land management decisions related to Federal trust resources, helps evaluate or demonstrate state-of-the art techniques, and/or helps address or adapt to changing climate and land use impacts. Research conducted by other federal agencies that is not refuge resource based may be allowed for instances of national significance to space exploration, geologic or atmospheric studies, or because it is important for national defense or homeland security operations.

**AVAILABILITY OF RESOURCES:**

The resources necessary to provide and administer this use are available within current and anticipated refuge budgets. The bulk of the cost for research is incurred in staff time to review research proposals, coordinate with researchers, and write SUPs. In some cases, a research project may only require 1 day of staff time to write a SUP. In other cases, a research project may take many weeks, as the refuge staff must coordinate with students and advisors and accompany researchers' onsite visits. These responsibilities are accounted for in budget and staffing plans. We estimate the annual costs associated with the administration of this use.

*Review proposals, coordinate with researchers*

(Refuge Biologist):	\$6,000
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*Review proposals, issue SUPs*

General coordination (Refuge Manager):	\$4,000
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*Vehicle, equipment, housing maintenance*

(Maintenance Worker):	\$3,000
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Total Annual Cost of Program:	\$13,000
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We do not anticipate charging fees.

### **ANTICIPATED IMPACTS OF THE USE:**

Disturbance to wildlife, vegetation, water, soils, or cultural resources could occur while researchers are accessing study sites on vehicles or by foot, or while they are engaged in their project. The presence of researchers could also indirectly disturb wildlife. Potential impacts include:

- Trampling, damage, and killing of vegetation from walking off-trail (Kuss 1986, Roovers et al. 2004, Hammitt and Cole 1998).
- Soil compaction, soil erosion, and changes in hydrology from hiking on and off trail (Kuss 1986, Roovers et al. 2004).
- Disturbance to wildlife that causes shifts in habitat use, abandonment of habitat, increased energy demands on affected wildlife, changes in nesting and reproductive success, and singing behavior (Knight and Cole 1991, Miller et al. 1998, Shulz and Stock 1993, Gill et al. 1996, Arrese 1987, Gill et al. 2001).

Overall, we expect that these impacts would be negligible because of the low number of researchers and because, under this determination, only low or no-impact projects would be allowed. As indicated under (a) above, low impact projects are those that would only minimally impact cultural resources, water, soils, or native wildlife and plants, and would not result in long-term, negative alterations to species' behavior, or their habitat, including vegetation, soils, and water. Research would only be conducted in approved locations and at approved times of day and season to minimize impacts to sensitive habitats and wildlife.

Animals may be temporarily disturbed during direct or remote observation, telemetry, capture (e.g., mist-netting), or banding. In rare cases, direct injury or mortality could result as an unintended result of research activities. Mist-netting and banding, which are common research methods, can cause stress, especially when birds are captured, banded, and weighed. In very rare cases, birds have been injured or killed during mist netting, or killed when predators reach the netted birds before researchers (Spotswood et al. 2012). To minimize the potential for injuries, researchers should be properly trained (Fair et al. 2010, Spotswood et al. 2012).

The U.S. Department of Agriculture's Animal Welfare Information Center maintains a website with resources to help minimize stress, injury, and mortality of wildlife in field studies at:

<https://awic.nal.usda.gov/research-animals/wildlife-field-studies>.

Researchers may also inadvertently damage plants (e.g. via trampling or equipment use) during the research project. To minimize impacts, the SUP will outline how researchers are allowed to access their study sites and use equipment to minimize the potential for impacts to refuge

vegetation, soils, and water. We would not allow the collection and removal, or permanent damage, of any native plants under this determination.

Overall, allowing well-designed, properly reviewed, low or no-impact research to be conducted by non-USFWS personnel is likely to have very little negative impact on cultural resources, water, soils, or wildlife populations and habitats. We anticipate research will only have negligible to minor impacts to refuge wildlife and habitats because it will only be carried out after the refuge approves a detailed project proposal and issues a SUP including the stipulations in this determination to ensure compatibility. These stipulations are designed to help ensure each project minimizes impacts to refuge cultural resources, wildlife, vegetation, soils, and water.

We also anticipate only minimal impacts because USFWS staff will supervise this activity, and it will be conducted in accordance with refuge regulations. In the event of persistent disturbance to refuge resources, the activity will be further restricted or discontinued. If the research project is conducted with professionalism and integrity, potential temporary or minor adverse impacts are likely to be outweighed by the knowledge contributed to our understanding of refuge resources and our management effects on those resources, as well as the opportunity to inform, strengthen, and improve future refuge management decisions.

**PUBLIC REVIEW AND COMMENT:**

This compatibility determination will have a 30-day review period with the final Chincoteague NWR CCP/EIS, and the record of decision published in the Federal Register. We will also inform the public through local media releases and our website.

**DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

- Only low or no-impact projects are covered under this determination. Low impact projects, as indicated under (a) above, are those that would only have a minimal potential to impact cultural resources, water, soils, or native wildlife and plants. No project should result in long-term negative alterations to wildlife behavior (e.g. result in wildlife leaving previously occupied areas for a long term; modifying their habitat use within their range; or, causing nest or young abandonment). No project should degrade wildlife habitat, including vegetation, soils, and water. Nest, dens, and burrows must not be harmed. No research activities should result in soil compaction or erosion, degrade water quality,

remove or destroy vegetation, involve off-road vehicle use, or result in collection and removal of animals or whole native plants.

- Research would only be conducted in USFWS-approved locations, using approved modes of access, and conducted only after the timing, season, duration, numbers of researchers, and areas open and closed is approved. Sensitive wildlife habitat areas will be avoided unless sufficient protection, approved by the USFWS, is implemented to limit the area and/or resources potentially impacted by the proposed research.
- If a research project occurs during the refuge hunting season, special precautions will be required and enforced to ensure public health and safety, and otherwise reduce conflicts with other compatible refuge uses.
- The USFWS will require modifications to research activities, including temporarily closing areas, or changing methods, when warranted, to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise.
- All researchers will be required to submit a detailed research proposal following the refuge's study proposal guidelines (attachment 1) and USFWS Policy (FWS Refuge Manual Chapter 4 Section 6). The refuge must be given at least 45 days to review proposals before initiation of research. Proposals will include obligations for regular progress reports and a final summary document including all findings.
- The criteria for evaluating a research proposal, outlined in the "Description of Use" section (a) above, will be used when determining whether a proposed study will be approved on the refuge. Projects could be denied if they:
  - Will adversely affect native fish, wildlife, and habitats or cultural, archaeological, or historical resources beyond the low or no-impact standard.
  - Materially interfere with or detract from fulfilling the refuge's purposes or conflicts with refuge goals and objectives.
  - Cause public health or safety concerns.
  - Conflict with other compatible refuge uses.
  - Are not manageable within the refuge's available staff or budget time.
- Proposals will be prioritized and approved based on need, benefit to refuge resources, and the level of refuge funding required. USFWS experts, State agencies, or academic experts may be asked to review and comment on proposals.
- If proposal is approved, a SUP will be issued. The SUP will contain this determination's stipulations as well as project-specific terms and conditions that the researcher(s) must follow relative to the activities planned (e.g., location, duration, seasonality, etc.).

- Researchers must comply with all state and Federal laws and follow all refuge rules and regulations. All necessary State and Federal permits must be obtained before starting research on the refuge (e.g., permits for capturing and banding birds). Any research involving federally listed species may require Section 7 consultation under the Endangered Species Act. Any research involving ground disturbance may require historic preservation consultation with the Regional Historic Preservation Officer and/or State Historic Preservation Officer.
- Researchers will mark any survey routes, plots, and points in as visually unobtrusive a manner as practical. No permanent markers or infrastructure can be left on the refuge.
- Researchers will use every precaution and not conduct activities that would cause damage to refuge property or present hazards or significant annoyances to other refuge visitors. Any damage should be reported immediately to the refuge manager.
- Researchers must not litter, or start or use open fires on refuge lands.
- Prior to initiating the project, all researchers handling wildlife must be properly trained to minimize the potential for harm to individual animals. In addition, a review of the U.S. Department of Agriculture's Animal Welfare Information Center website must be documented by the researcher with identification of practices that will be followed to help further minimize stress, injury, and mortality of wildlife. The website is reached at: <https://awic.nal.usda.gov/research-animals/wildlife-field-studies>.
- Researchers may not use any chemicals (e.g., herbicides to treat invasive plants) or hazardous materials without prior written consent of refuge manager (e.g., the type of chemical, timing of use, and rate of application). All activities will be consistent with USFWS policy and an approved refuge Pesticide Use Plan.
- Researchers will be required to take steps to ensure that invasive species and pathogens are not inadvertently introduced or transferred to the refuge and surrounding lands (e.g., cleaning equipment).
- Refuge staff will monitor research activities for potential impacts to refuge resources. The refuge manager may determine that previously approved research and SUPs be modified or terminated due to observed impacts that are more severe or extensive than originally anticipated. The refuge manager will also have the ability to cancel a SUP if the researcher is not in compliance with the stated conditions.

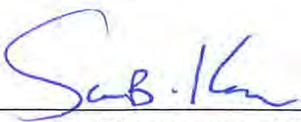
- Researchers must have the SUP in their possession when engaged in research activities and will present it to refuge officials and State and Federal law enforcement agents upon their request.
- Researchers will submit a final report to the refuge upon completion of their work. For long-term studies, interim progress reports may also be required. The refuge also expects that research findings will be published in peer-reviewed publications. The contribution of the refuge and the USFWS should be acknowledged in any publications. The SUP will identify a schedule for annual progress reports and the submission of a final report or scientific paper.

**JUSTIFICATION:**

The USFWS encourages quality, scientific research because it provides critical baseline information on Federal trust and other refuge resources and helps evaluate the management effects on those resources. Research results will also help inform, strengthen, and improve future refuge management decisions, as well as inform management decisions on other ownerships in the Delmarva Peninsula and possibly elsewhere in the Northeast Region. Due to its proximity to other federal research facilities and its secure location, Chincoteague NWR provides a unique setting to conduct other nationally significant scientific research in support of other federal agencies' missions.

Given the stipulations above, and given that only low or no-impact research projects would be conducted under this determination, we do not anticipate this activity will have greater than minor impact on refuge resources. Impacts, if they occur, would be confined in area, duration, and magnitude, with no long-term consequences predicted. Therefore, research conducted by non-USFWS personnel on Chincoteague NWR will not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was established.

Signature: Refuge Manager:  10/26/15  
(Signature and Date)

Concurrence: Regional Chief:  11/3/15  
(Signature and Date)

Mandatory 10-year re-evaluation date: November 2025  
(Date)

**LITERATURE CITED**

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### Attachment 1. Chincoteague National Wildlife Refuge Complex Study Proposal Guidelines

A study proposal is a justification and description of the work to be done, and includes cost and time requirements. Proposals must be specific enough to serve as "blueprints" for the investigative efforts. Step-by-step plans for the actual investigations must be spelled out in advance, with the level of detail commensurate with the cost and scope of the project and the needs of management. Please submit proposals electronically as a Microsoft Word document or hardcopy to the refuge manager.

The following list provides a general outline of first order headings/sections for study proposals.

- Cover Page.
- Table of Contents (for longer proposals).
- Abstract.
- Statement of Issue.
- Literature Summary.
- Objectives/Hypotheses.
- Study Area.
- Methods and Procedures.
- Quality Assurance/Quality Control.
- Specimen Collections.
- Deliverables.
- Special Requirements, Concerns, Necessary Permits.
- Literature Cited.
- Peer Review.
- Budget.
- Personnel and Qualifications.

#### Cover Page

The cover page must contain the following information:

- Title of Proposal.
- Current Date.
- Investigator(s): name, title, organizational affiliation, address, telephone and fax numbers, and e-mail address of all investigators or cooperators.
- Proposed starting date.
- Estimated completion date.
- Total Funding Support Requested from the U.S. Fish and Wildlife Service (USFWS).
- Signatures of Principal Investigator(s) and other appropriate institutional officials.

### Abstract

The abstract should contain a short summary description of the proposed study, including reference to major points in the Statement of Issue, Objectives, and Methods and Procedures sections.

### Statement of Issue

Provide a clear, precise summary of the problem to be addressed and the need for its solution. This section should include statements of the importance, justification, relevance, timeliness, generality, and contribution of the study. Describe how any products will be used, including any anticipated commercial use. What is the estimated probability of success of accomplishing the objective(s) within the proposed timeframe?

### Literature Summary

This section should include a thorough but concise literature review of current and past research that pertains to the proposed research, especially any pertinent research conducted within the Delmarva Peninsula, and specifically, on refuge units. A discussion of relevant legislation, policies, and refuge planning and management history, goals, and objectives should also be included.

### Objectives/Hypotheses

A very specific indication of the proposed outcomes of the project should be stated as objectives or hypotheses to be tested. Project objectives should be measurable. Provide a brief summary of what information will be provided at the end of the study and how it will be used in relation to the problem. These statements should flow logically from the statement of issue and directly address the management problem.

Establish data quality objectives in terms of precision, accuracy, representativeness, completeness, and comparability as a means of describing how good the data need to be to meet the project's objectives.

### Study Area

Provide a detailed description of the geographic area(s) to be studied and include a clear map delineating the proposed study area(s) and showing specific locations where work will occur.

### Methods and Procedures

This section should describe as precisely as possible how the objectives will be met or how the hypotheses will be tested. Include detailed descriptions and justifications of the field and laboratory methodology, protocols, and instrumentation. Explain how each variable to be measured directly addresses the research objective/ hypothesis. Describe the experimental design, population, sample size, and sampling approach (including procedures for sub-sampling). Summarize the statistical and other data analysis procedures to be used. List the response

variables and tentative independent variables or covariates. Describe the experimental unit(s) for statistical analysis. Also include a detailed project time schedule that includes initiation, fieldwork, analysis, reporting, and completion dates.

#### Quality Assurance/Quality Control

Adequate quality assurance/quality control (QA/QC) procedures help insure that data and results are: credible and not an artifact of sampling or recording errors; of known quality; able to stand up to external scientific scrutiny; and accompanied by detailed method documentation. Describe the procedures to be used to insure that data meet defined standards of quality and program requirements, errors are controlled in the field, laboratory, and office, and data are properly handled, documented, and archived. Describe the various steps (e.g., personnel training, calibration of equipment, data verification and validation) that will be used to identify and eliminate errors introduced during data collection (including observer bias), handling, and computer entry. Identify the percentage of data that will be checked at each step.

#### Specimen Collections

Clearly describe the kind (species), numbers, sizes, and locations of animals, plants, rocks, minerals, or other natural objects to be sampled, captured, or collected. Identify the reasons for collecting, the intended use of all the specimens to be collected, and the proposed disposition of collected specimens. For those specimens to be permanently retained as voucher specimens, identify the parties responsible for cataloging, preservation, and storage and the proposed repository.

#### Deliverables

The proposal must indicate the number and specific format of hard and/or electronic media copies to be submitted for each deliverable. The number and format will reflect the needs of the refuge and the refuge manager. Indicate how many months after the project is initiated (or the actual anticipated date) that each deliverable will be submitted. Deliverables are to be submitted or presented to the refuge manager.

Deliverables that are required are as follows:

#### *Reports and Publications*

Describe what reports will be prepared and the timing of reports. Types of reports required in fulfillment of natural and social science study contracts or agreements include:

- (1) Progress report(s) (usually quarterly, semiannually, or annually): may be required
- (2) Draft final and final report(s): always required

A final report must be submitted in addition to a thesis or dissertation (if applicable) and all other identified deliverables. Final and draft final reports should follow refuge guidelines (see attachment).

In addition, investigators are encouraged to publish the findings of their investigations in refereed professional, scientific publications and present findings at conferences and symposia. The refuge manager appreciates opportunities to review manuscripts in advance of publication.

#### *Data Files*

Provide descriptions of any spatial (Geographic Information Systems; GIS) and non-spatial data files that will be generated and submitted as part of the research. Non-spatial data must be entered onto Windows CD-ROMs in Access or Excel. Spatial data, which includes GPS (Global Position System)-generated files, must be in a format compatible with the refuge's GIS system (ArcGIS 10.1 or later, or e00 format).

#### *Metadata*

For all non-spatial and spatial data sets or information products, documentation of information (metadata) describing the extent of data coverage and scale, the history of where, when, and why the data were collected, who collected the data, the methods used to collect, process, or modify/transform the data, and a complete data dictionary must also be provided as final deliverables. Spatial metadata must conform to USFWS (Federal Geographic Data Committee; FDGC) metadata standards.

#### *Oral Presentations*

Three types of oral briefings should be included: pre-study, annual, and closeout. These briefings will be presented to refuge staff and other appropriate individuals and cooperators. In addition, investigators should conduct periodic informal briefings with refuge staff throughout the study whenever an opportunity arises. During each refuge visit, researchers should provide verbal updates on project progress. Frequent dialogue between researchers and refuge staff is an essential element of a successful research project.

#### *Specimens and Associated Project Documentation*

A report on collection activities, specimen disposition, and the data derived from collections, must be submitted to the refuge following refuge guidelines.

#### *Other:*

Researchers must provide the refuge manager with all of the following:

1. Copies of field notes/ notebooks/ datasheets.
2. Copies of raw data (in digital format), including GIS data, as well as analyzed data.

3. Copies of all photos, slides (digital photos preferred), videos, and films.
4. Copies of any reports, theses, dissertations, publications or other material (such as news articles) resulting from studies conducted on refuge.
5. Detailed protocols used in study.
6. Aerial photographs.
7. Maps.
8. Interpretive brochures and exhibits.
9. Training sessions (where appropriate).
10. Survey forms.
11. Value-added software, software developed, and models.

Additional deliverables may be required of specific studies.

#### Special Requirements, Permits, and Concerns

Provide information on the following topics where applicable. Attach copies of any supporting documentation that will facilitate processing of your application.

#### *Refuge Assistance*

Describe any refuge assistance needed to complete the proposed study, such as use of equipment or facilities or assistance from refuge staff. It is important that all equipment, facilities, services, and logistical assistance expected to be provided by the USFWS be specifically identified in this section so all parties are in clear agreement before the study begins.

#### *Ground Disturbance*

Describe the type, location, area, depth, number, and distribution of expected ground-disturbing activities, such as soil pits, cores, or stakes. Describe plans for site restoration of significantly affected areas.

Proposals that entail ground disturbance may require an archeological survey and special clearance prior to approval of the study. You can help reduce the extra time that may be required to process such a proposal by including identification of each ground disturbance area on a U.S. Geological Survey (USGS) 7.5-minute topographic map.

#### *Site Marking and/or Animal Marking*

Identify the type, amount, color, size, and placement of any flagging, tags, or other markers needed for site or individual resource (e.g., trees) identification and location. Identify the length of time it is needed and who will be responsible for removing it. Identify the type, color, placement of any tags placed on animals (see SUP for requirements on marking and handling of animals).

#### *Access to Study Sites*

Describe the proposed method and frequency of travel to and within the study site(s). Explain any need to enter restricted areas. Describe duration, location, and number of participants, and approximate dates of site visits.

#### *Use of Mechanized and Other Equipment*

Describe any vehicles, boats, field equipment, markers, or supply caches by type, number, and location. You should explain the need to use these materials and if or how long they are to be left in the field.

#### *Safety*

Describe any known potentially hazardous activities, such as electro-fishing, scuba diving, whitewater boating, aircraft use, wilderness travel, wildlife capture or handling, wildlife or immobilization.

#### *Chemical Use*

Identify chemicals and hazardous materials that you propose using within the refuge. Indicate the purpose, method of application, and amount to be used. Describe plans for storage, transfer, and disposal of these materials and describe steps to remediate accidental releases into the environment. Attach copies of Material Safety Data Sheets.

#### *Animal Welfare*

If the study involves vertebrate animals, describe your protocol for any capture, holding, marking, tagging, tissue sampling, or other handling of these animals (including the training and qualifications of personnel relevant to animal handling and care). If your institutional animal welfare committee has reviewed your proposal, please include a photocopy of their recommendations. Describe alternatives considered, and outline procedures to be used to alleviate pain or distress. Include contingency plans to be implemented in the event of accidental injury to or death of the animal. Include state and Federal permits. Where appropriate, coordinate with and inform state natural resource agencies.

#### Literature Cited

List all reports and publications cited in the proposal.

#### Peer Review

Provide the names, titles, addresses, and telephone numbers of individuals with subject-area expertise who have reviewed the research proposal. If the reviewers are associated with the investigator's research institution or if the proposal was not reviewed, please provide the names, titles, addresses, and telephone numbers of three to five potential subject-area reviewers who are not associated with the investigator's institution. These individuals will be asked to provide reviews of the proposal, progress reports, and the draft final report.

### Budget

The budget must reflect both funding and assistance that will be requested from the USFWS and the cooperator's contributions on an identified periodic (usually annual) basis.

#### *Personnel Costs*

Identify salary charges for principal investigator(s), research assistant(s), technician(s), clerical support, and others. Indicate period of involvement (hours or months) and pay rate charged for services. Be sure to include adequate time for data analysis and report writing and editing.

#### *Fringe Benefits*

Itemize fringe benefit rates and costs.

#### *Travel*

Provide separate estimates for fieldwork and meetings. Indicate number of trips, destinations, estimated miles of travel, mileage rate, air fares, days on travel, and daily lodging and meals charges. Vehicle mileage rate cannot exceed standard government mileage rates. Charges for lodging and meals are not to exceed the maximum daily rates set for the locality by the Federal Government.

#### *Equipment*

Itemize all equipment to be purchased or rented and provide a brief justification for each item costing more than \$1,000. Be sure to include any computer-related costs. For proposals funded under USFWS agreement or contract, the refuge reserves the right to transfer the title of purchased equipment with unit cost of \$1,000 or more to the Federal Government following completion of the study. These items should be included as deliverables.

#### *Supplies and Materials*

Purchases and rentals under \$1,000 should be itemized as much as is reasonable.

#### *Subcontract or Consultant Charges*

All such work must be supported by a subcontractor's proposal also in accordance with these guidelines.

#### *Specimen Collections*

Identify funding requirements for the cataloging, preservation, storage, and analyses of any collected specimens that will be permanently retained.

#### *Printing and Copying*

Include costs for preparing and printing the required number of copies of progress reports, the draft final report, and the final report. In general, a minimum of two (2) copies of progress reports (usually due quarterly, semiannually, or as specified in agreement), the draft final report, and the final report are required.

#### *Indirect Charges*

Identify the indirect cost (overhead) rate and charges and the budget items to which the rate is applicable.

#### *Cooperator's Contributions*

Show any contributing share of direct or indirect costs, facilities, and equipment by the cooperating research institution.

#### *Outside Funding*

List any outside funding sources and amounts.

#### Personnel and Qualifications

List the personnel who will work on the project and indicate their qualifications, experience, and pertinent publications. Identify the responsibilities of each individual and the amount of time each will devote. A full vita or resume for each principal investigator and any consultants should be included here.

### DRAFT AND FINAL REPORT GUIDELINES

Draft final and final reports should follow Journal of Wildlife Management format and should include the following sections:

Title Page  
Abstract  
Introduction/ Problem statement  
Study Area  
Methods (including statistical analyses)  
Results  
Discussion  
Management Implications  
Management Recommendations  
Literature Cited

**COMPATIBILITY DETERMINATION**

**USE:** Shell Collection

**REFUGE NAME:** Chincoteague National Wildlife Refuge

**DATE ESTABLISHED:** May 13, 1943

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) Refuge Recreation Act {16 U.S.C. 460 K-1, K-2}
- 3) Emergency Wetlands Resources Act of 1986 {16 U.S.C. 3901(b)}
- 4) Fish and Wildlife Act of 1956 {16 U.S.C 742f (a)(4), (b)(1)}
- 5) Consolidated Farm and Rural Development Act {7 U.S.C. 2002}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... 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 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).
- “... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986).
- “... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956).
- “... for conservation purposes ...” 7 U.S.C. § 2002 (Consolidated Farm and Rural Development 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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

This use allows the collection of non-inhabited shells and beach debris for personal enjoyment. This use would be authorized only in areas open to public use, where it would not interfere with other public use activities. This is not a priority public use; however people participating in this activity are likely to experience other priority public uses like observing wildlife.

**(b) Where would the use be conducted?**

The majority of shell collecting will take place along the beachfront of Assateague Island. Collection will be focused in the area directly in front of the parking lots but will extend the entire length of the island. Limited collection may occur on the Southern Islands as well in conjunction with other wildlife dependent recreation. Shell availability is totally dependent upon the ocean currents, tides, and storm events.

**(c) When would the use be conducted?**

The activity occurs throughout the calendar year during normal operational hours.

**(d) How would the use be conducted?**

Shell collection will be limited to 1 gallon of shells/person/day for non-commercial use and only in areas open to the general public.

**(e) Why is this use being proposed?**

Allowing visitors to pick up shells and beach debris and take home a small amount of shells from the refuge will encourage an appreciation for the beach and marine environment. Shell collection has a long history on Assateague Island. It has historically taken place on the refuge since Native Americans used the area. Mollusks were used for food, their shells for tools and/or as currency. Since refuge establishment, visitors have wandered the beachfront in search of these treasures from the sea.

**AVAILABILITY OF RESOURCES:**

Permitting shell collecting is within the resources available to administer our visitor services program. The funding received by the refuge is adequate to continue to administer this program and to ensure that the use remains compatible with the refuge purposes.

#### **ANTICIPATED IMPACTS OF THE USE:**

Impacts to refuge resources from the activity of shell collecting will likely be minimal if conducted in accordance with refuge regulations. Shell collecting may intermittently interrupt the feeding habits of a variety of shorebirds, gulls and terns. Numerous studies have documented that migratory birds are disturbed by human activity on beaches. Erwin (1989) documented disturbance of common terns and skimmers and recommended that human activity be restricted a distance of 100 meters around nesting sites. Klein (1993) in a study of waterbird response to human disturbance found that as intensity of disturbance increased, avoidance response by the birds increased and found that out of vehicle activity to be more disruptive than vehicular traffic. Pfister et al. (1992) found that the impact of disturbance was greater on species using the heavily disturbed front side of the beach, with the abundance of the impacted species being reduced by as much as 50 percent. Roberson et al. (1980) discovered, in studying the effects of recreational use of shorelines on nesting birds, that disturbance negatively impacted species composition. Piping plovers which use the refuge heavily are also impacted negatively by human activity. Pedestrians on beaches may crush eggs (Burger 1987, Hill 1988, Shaffer and Laporte 1992, Cape Cod National Seashore 1993, Collazo et al. 1994). Other studies have shown that if pedestrians cause incubating plovers to leave their nests, the eggs can overheat (Berstrom 1991) or the eggs can cool to the point of embryo death (Welty 1982). Pedestrians have been found to displace unfledged chicks (Strauss 1990, Burger 1981, Hoopes et al. 1992, Loegering 1992, Goldin 1993).

Although some disturbance to migratory birds will occur, it will be minimal due to the activity taking place on or near the recreational beach. Additionally, there are existing seasonal closures in place to protect piping plovers and other coastal nesting birds.

#### **PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague National Wildlife Refuge (NWR) Comprehensive Conservation Plan (CCP/EIS). Public notification and review included a notice of availability published in the Federal Register, a 90-day comment period for the draft CCP/EIS during which public meetings were held, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

**DETERMINATION (CHECK ONE BELOW):**

\_\_\_\_\_ Use is not compatible

X  Use is compatible, with the following stipulations

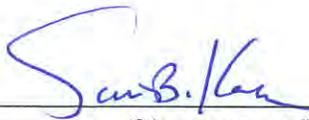
**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

- Visitors are limited to one gallon/person/day.
- No commercial collection will be permitted.
- Only non-occupied shells may be collected.
- Visitors are not permitted to collect any item prohibited by Federal law, such as historic artifacts.
- Access south of OSV parking area will be closed from March 15 to September 15 or until the last shorebird fledges.

**JUSTIFICATION:**

**This activity will not materially interfere with or detract from the mission of the Refuge System or purposes for which the refuge was established.**

Signature: Refuge Manager: \_\_\_\_\_  10/26/15  
 (Signature and Date)

Concurrence: Regional Chief: \_\_\_\_\_  11/3/2015  
 (Signature and Date)

Mandatory 10-year re-evaluation date: \_\_\_\_\_ November 2025  
 (Date)

**LITERATURE CITED:**

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**COMPATIBILITY DETERMINATION**

**USE:** Big Game Hunting

**REFUGE NAME:** Wallops Island National Wildlife Refuge

**DATE ESTABLISHED:** March 11, 1971

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) An Act Authorizing the Transfer of Certain Real Property for Wildlife {16 U.S.C. § 667b}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... particular value in carrying out the national migratory bird management program.” 16 U.S.C. § 667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife).

**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.

**DESCRIPTION OF USE:**

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

The use is the public hunting of white-tailed deer. Hunting was identified as one of six priority public uses by Executive Order 12996 (March 25, 1996) and by the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57).

**(b) Where would the use be conducted?**

Public hunting for white-tailed deer will be allowed on the entire 373-acre refuge except for designated safety zones and closed areas.

**(c) When would the use be conducted?**

The use would be conducted in designated areas of the refuge in accordance with Federal and Commonwealth regulations. Hunting would take place within the open hunting seasons

established by Virginia Department of Game and Inland Fisheries (VDGIF). This is normally between mid-November through the first week of January.

**(d) How would the use be conducted?**

Hunting will be conducted within the framework of the Commonwealth of Virginia regulations (including hunt days and hunting hours), and Federal regulations published in Title 50 of the Code of Federal Regulations (50 CFR 32), pertaining to the Refuge System Administration Act, as well as existing, refuge-specific regulations. The refuge manager may, upon annual review of the hunting program and in coordination with VDGIF, impose further restrictions on hunting. Hunting at the refuge is at least as restrictive as the Commonwealth of Virginia, and in some cases, more restrictive. The refuge coordinates with VDGIF annually to maintain regulations and programs that are consistent with the State's management programs. Hunting restrictions may be imposed if hunting conflicts with other higher priority refuge programs, endangers refuge resources, or public safety. Specific hunt details will be outlined in the annual hunt program.

Hunters will be selected for the opening week(s) of the Commonwealth's firearms deer season through a lottery selection system similar to the one currently used at the Chincoteague National Wildlife Refuge (NWR). For the remainder of the deer season, each hunter will pay and obtain a refuge hunting permit online.

Further refuge-specific regulations applicable to deer hunting at Wallops Island NWR are detailed in this Compatibility Determination under the section "Stipulations Necessary to Ensure Compatibility."

**(e) Why is this use being proposed?**

Hunting is one of six priority public uses encouraged on national wildlife refuges as long as they are deemed compatible. Hunting will be used primarily as a management tool for reducing the impacts of white-tailed deer on forested habitats important to migratory birds and other wildlife. The public hunt will also reduce the threat of deer-aircraft strikes at the adjacent NASA/Goddard Space Flight Center/Wallops Flight Facility (WFF), and deer-automobile strikes on the adjacent Virginia State Route 175. Finally, the proposed hunt will provide limited public hunting opportunities on Wallops Island NWR.

The objectives for the Wallops Island NWR hunt program are to (1) reduce deer and vehicle collisions that occur along State Route 175 and the refuge boundary, (2) reduce the potential for increased deer/aircraft collisions at NASA WFF, (3) manage the deer population at levels that minimize negative effects upon the natural ecosystems at Wallops Island NWR, including native vegetation and wildlife communities, (4) provide a wildlife-dependent recreational activity.

**AVAILABILITY OF RESOURCES:**

An estimated 30 staff days will be required to plan and manage the hunt, including: handling public inquiries and law enforcement. This use is routine in nature and may be accomplished with approved staffing and funding.

**ANTICIPATED IMPACTS OF THE USE:**

Deer hunting will occur on the refuge within the designated firearms deer season established by VDGIF. This is normally between mid-November through the first week of January and occurs during the fall migration and wintering period for many migratory bird species, including waterfowl that use the tidal creeks on and adjacent to the refuge. Morton (1987) found that the increased presence of humans and vehicles associated with the refuge hunting program on Chincoteague NWR was contributing to movements of black ducks off the refuge at a time when these birds need the isolation of the refuge. Laskowski et al. (1993) documented human disturbance to representative species of waterfowl, wading birds, and shorebirds by the visiting public on Back Bay NWR, Virginia. Disturbance elicited behavioral changes ranging from increase alertness to flying to other parts of the refuge. Klein (1993) found that approaching birds on foot was the most disruptive of usual visitor activities at J.N. "Ding" Darling NWR, Florida. Morton (1993) summarizes research on the impacts of human disturbance and its effects on waterfowl and proposes management actions that could reduce the frequency or effects of disturbance. Some of the disturbances listed will occur on the refuge with waterfowl being the major category of birds impacted, due to the time of year that hunting occurs.

We anticipate there will be limited disturbance to waterfowl, raptors, or wading birds in the area on the days hunters will be on the refuge. Disturbance will be minimized because: hunting activities will take place outside nesting and brood-rearing periods for most wildlife species; hunter numbers will be limited; the number of hunting days will be limited; hunters will not be permitted to enter the hunting area with motor vehicles, all-terrain vehicles or hunting dogs. Harassment of waterfowl will be limited because the hunting zones will restrict hunter activities to the upland/woodland habitats. The large acreage of saltmarsh and woodland in the vicinity of the refuge will provide adequate space and habitat for temporarily displaced birds. Escape cover for smaller mammals is available and disturbance by hunters should not adversely affect them. A 330-foot closed area around any active eagle nest will be maintained.

Positive effects on the vegetation are anticipated from a reduction in the white-tailed deer population at Wallops Island NWR. The impacts of dense deer populations on forest regeneration and the composition and diversity of the herbaceous understory have been well documented (Tilghman, 1989). Reducing the size of the deer population will prevent further degradation due to over browsing. Well-managed hunting can effectively control deer and produce striking changes in the forest vegetation (Behrend, et al., 1970). The impact of deer hunting on the vegetation would likely result in better recruitment of forest canopy species and an increase in the diversity of

shrubs and the herbaceous understory. This will increase the quality of forage areas, escape cover, and nesting habitat for neotropical songbirds and other forest-floor or mid-canopy wildlife species at Wallops Island NWR.

The sea level fen on the refuge will not be open to deer hunting activities. Therefore, there are no anticipated adverse impacts to this rare ecosystem.

The refuge delineates small, limited-use parking areas for hunters; however, such parking is adjacent to State Route 175, and does not result in clearing any forested areas. We anticipate slight benefits to human health and safety adjacent to the refuge. By reducing the number of deer on the refuge, we will reduce the potential for deer-vehicle collisions on State Route 175 and deer-aircraft collisions at the WFF.

VDGIF, under the direction of a Governor-appointed Board of Directors, is specifically charged by the General Assembly with the management of the State's wildlife resources. The Virginia Deer Management Plan, first completed in 1999 and revised in 2006, guides management of deer habitat, deer populations, damage caused by deer, and deer-related recreation in the Commonwealth. In 2012, 213,597 deer were reported killed by hunters in Virginia. This total included 96,712 antlered bucks, 18,061 button bucks, 98,781 does (46.3 percent), and 43 "unknown" deer. It is also 8 percent below the last 10-year average of 232,573. In Accomack County, an average of 3,056 deer per year are killed (see Table, 2008-2012 data).

Accomack County Deer Kills, 2008-2012

Year	Antlered Males	Male Fawns	Females	% Female	Unknown	Total
2008	1412	371	1924	51.9%	0	3707
2009	1225	249	1614	52.3%	0	3088
2010	1246	307	1740	52.8%	0	3293
2011	1007	263	1535	54.7%	2	2807
2012	923	212	1249	52.4%	0	2384

<http://www.dgif.virginia.gov/wildlife/deer/harvest/index.asp>

Population reconstruction computer models indicate that Virginia's Statewide deer population has been relatively stable over the past decade, fluctuating between 850,000 and 1,050,000 animals (mean = 945,000).

<http://www.dgif.virginia.gov/wildlife/deer/management-plan/virginia-deer-management-plan.pdf>

Hunting resident game species, such as deer, on Chincoteague NWR and Wallops Island NWR will result in negligible impacts on their populations because of their restricted home ranges. The refuges also contribute negligibly to the State's total harvest for resident game species.

Chincoteague NWR white-tailed deer harvest

2008/2009 – 23

2009/2010 - 20

2010/2011 - 15

2011/2012 - 27

2012/2013 - 26

Wallops Island NWR white-tailed deer harvest

2008 - 13

2009 - 15

2010 - 15

2011- 8

2012 – 11

The refuges harvested a total of 173 white-tailed deer over the past 5 years, with 37 in 2012. Given the exceptionally low numbers of animals harvested from the refuges in respect to the total Statewide harvest and deer population, no cumulative impacts to local, regional, or Statewide populations of white-tailed deer are anticipated from hunting of the species on the refuges.

Several management strategies identified by Klein (1989) can be used to control the negative effects of recreation (including hunting) on wildlife; these include: permits, user fees, zoning (Cullen 1985), travel ease, public education (Purdy et al. 1987), limiting number of visitors present, and periodic closing. Chincoteague NWR currently employs many of these measures to lessen the disturbance and impact to wildlife of existing deer hunt programs.

Cumulative effects on the environment result from incremental effects of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. While cumulative effects may result from individually minor actions, they may, viewed as a whole, become substantial over time. The hunt plan has been designed to be sustainable through time given relatively stable conditions.

The cumulative impact of hunting white-tailed deer at the refuge is negligible. The proportion of the refuge's harvest of deer is negligible when compared to local, regional, and State populations and harvest. Because of the ability of individual refuge hunt programs to adapt refuge-specific hunting regulations to changing local conditions, we anticipate no direct or indirect cumulative effects on resident wildlife, migratory birds, or non-hunted wildlife on Wallops Island NWR.

**PUBLIC REVIEW AND COMMENT:**

This compatibility determination is part of the Chincoteague and Wallops Island NWRs Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS). Public notification and review included a notice of availability published in the Federal Register, a 90-day

comment period for the draft CCP/EIS during which public meetings were held, a 30-day review period for the final CCP/EIS, and the record of decision published in the Federal Register. We also inform the public through local media releases and our website.

**DETERMINATION: (CHECK ONE BELOW)**

Use is not compatible

Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

Deer hunting will be permitted in the refuge except within small safety zones and designated closed areas. The deer hunt program will be evaluated annually to ensure it meets hunt plan objectives.

Persons possessing, transporting, or carrying firearms on national wildlife refuges must comply with all provisions of State and local law. Persons may only use (discharge) firearms in accordance with refuge regulations (50 CFR 27.42 and specific refuge regulations in 50 CFR Part 32).

*Wallops Island NWR Refuge Specific Regulations:*

- All Federal and State hunting regulations apply.
- State requirements for hunting licenses and stamps apply.
- State requirements on the use of firearms, muzzleloaders and bows apply.
- Hunters must have permits in possession prior to entering the refuge to scout or hunt.
- Reporting all harvested animals must comply with State requirements for check-in and also be indicated on check-in/out sheet (see below for additional information).
- A sign-in/out box is located at the kiosk in parking area one (see map). Each hunter must sign in immediately before entering and sign out after exiting the hunt zone.
- All harvests must be reported on the sign-in/out sheet.
- 330-foot closed area around eagle's nests.
- Hunters must park in designated parking areas.
- All hunters must make a reasonable effort to recover wounded animals.
- Discharging any weapon within 50 feet of the center line of any road or on/from/into a safety zone is prohibited.
- The boundaries of the hunt zone are recognized in the field by prominent signs. Each hunter is responsible for knowing the boundaries of the hunt zone.
- Federal government worksites may be staffed during the hunt. The zone around these sites is posted closed to hunting (see map). Hunters may enter this zone strictly for the purpose of accessing the hunting area and must have their weapons unloaded. There shall be no loitering in areas closed to hunting.

- Hunters may pursue downed or crippled deer into the safety zone (area closed to hunting around worksites). Contact refuge headquarters for assistance if needed to dispatch wounded animal.
- Tree stands permanently attached by nails, wire, screws, or in any other way is prohibited. Portable stands are permitted and may remain installed for the duration of the season. All stands must be removed at the close of the season. U.S. Fish and Wildlife Service (USFWS) is not responsible for any personal property left unattended.
- The use of a boat, ATV, bicycle or saddled animal is prohibited.
- The minimum age allowed to hunt on the refuge is 12.
- Hunters must reach the age minimum by the date of their assigned hunt and the child must meet Virginia State licensing requirements.
- Hunters between the ages of 12 and 17 must be accompanied and directly supervised by a mentor over 18 who has on their person a valid Virginia hunting license and refuge permit from Chincoteague NWR headquarters.
- Scouters must be in possession of their hunt permit while scouting.
- Scouters and hunters must sign-in and out at the refuge kiosk.
- Any hunters who require assistance with retrieving or dressing harvested animals may apply for 1 or 2 non-hunting permits. This permit will allow an assistant to be present only during retrieval and dressing of harvested animals. Non-hunting assistant permits must be requested prior to November 16th.
- Camping and fires are prohibited.

**JUSTIFICATION:**

Hunting is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife (Executive Order 12996, March 25, 1996 and the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57)). USFWS 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 seasons and bag limits are established by the Commonwealth of Virginia and generally adopted by the refuge. These restrictions ensure the continued well-being of overall populations of game animals. Hunting does result in the taking of many individuals within the overall population, but restrictions are designed to safeguard an adequate breeding population from year to year. Specific refuge regulations address equity and quality of opportunity for hunters, and help safeguard refuge habitat. Disturbance to other fish and wildlife does occur, but this disturbance is generally short-term and adequate habitat occurs in adjacent areas. Loss of plants from foot traffic is minor, or temporary, since hunting occurs mainly after the growing season.

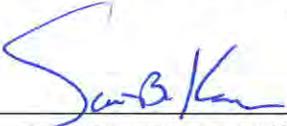
Conflicts between hunters are localized and are addressed through law enforcement, public education, and continuous review and updating to State and refuge hunting regulations. Conflicts

between other various user groups are minor given the season of the year for hunting, the location of most hunting away from public use facilities, and seasonal area closures.

Recreational hunting of white-tailed deer will be subject to the stipulations listed, and will not interfere with the primary purposes for which the refuge was established. A public deer hunt on Wallops Island NWR is considered a feasible and cost effective means of improving habitat quality, especially for forest understory, migratory songbirds, and for maintaining structural and species diversity on the refuge. In addition, it is believed that by instituting a deer hunt, incidences of vehicle-deer and aircraft-deer strikes on the neighboring State Route 175 and WFF will be reduced over time.

**This activity will not materially interfere with or detract from the mission of the Refuge System or purposes for which the refuge was established.**

Signature: Refuge Manager:  10/26/15  
(Signature and Date)

Concurrence: Regional Chief:  11/3/2015  
(Signature and Date)

Mandatory 15-year re-evaluation date: November 2030  
(Date)

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**COMPATIBILITY DETERMINATION**

**USE:** Research and Studies Conducted by non-USFWS Staff

**REFUGE NAME:** Wallops Island National Wildlife Refuge

**DATE ESTABLISHED:** March 11, 1971

**ESTABLISHING AND ACQUISITION AUTHORITY(IES):**

- 1) Migratory Bird Conservation Act {16 U.S.C. 715d}
- 2) An Act Authorizing the Transfer of Certain Real Property for Wildlife {16 U.S.C. § 667b}

**REFUGE PURPOSE(S):**

- “... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. § 715d (Migratory Bird Conservation Act).
- “... particular value in carrying out the national migratory bird management program.” 16 U.S.C. § 667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife).

**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.

**DESCRIPTION OF USE:****(a) What is the use? Is the use a priority public use?**

The use is research conducted by agencies, organizations, and other research entities other than U.S. Fish and Wildlife Service (USFWS) staff on the refuge. Research is the planned, organized, and systematic gathering of data to discover or verify facts.

This determination covers low or no-impact research projects; namely, those projects with methods that only have a minimal potential to adversely impact cultural resources, water, soils, or native wildlife and plants. This is not an all-inclusive list, but examples of the types of research that may be allowed include: mist-netting for banding or tagging birds, point count surveys, fish and amphibian tagging, electrofishing, radio-telemetry tracking, use of cameras and recorders, use of live or other passive traps, or non-destructive searches of nests, dens, or burrows.

Research activities allowed under this determination must not result in long-term, negative alterations to wildlife behavior (e.g. result in wildlife leaving previously occupied areas for long periods; modifying their habitat use; or, causing nest or young abandonment). No project may degrade wildlife habitat, including vegetation, soils, and water. Research associated activities that would generally not be allowed include, but are not limited to, those that would result in soil compaction or erosion, degrade water quality, remove or destroy vegetation, involve off-road vehicle use, collect and remove animals or whole native plants, cause public health or safety concerns, or result in conflicts with other compatible refuge uses.

Refuge support of research directly related to refuge goals and objectives may take the form of funding, in-kind services such as housing or use of other facilities, vehicles, boats, or equipment, direct staff assistance with the project in the form of data collection, provision of historical records, conducting of management treatments, or other assistance as appropriate.

While we will actively promote research projects that directly relate to knowledge and management of refuge resources, we also recognize that Chincoteague National Wildlife Refuge (NWR) and Wallops Island NWR lie in a unique geographic location and its secure nature offers significant opportunities to other federal agencies to fulfill their missions. Although these agencies' interests are not always closely aligned with the refuge's purposes or the Refuge System mission, the National Aeronautics and Space Administration (NASA), U.S. Geological Survey (USGS), United States Coast Guard (USCG), National Oceanic and Atmospheric Administration (NOAA), and the Department of the Navy each have an interest in conducting nationally important research on the refuge. This research typically involves space exploration, geologic or atmospheric studies, or is important for national defense or homeland security operations. For these reasons, research proposals from these federal agencies will be considered by the refuge manager even if they do not contribute directly to refuge needs. Research proposals from these agencies are subject to all the same considerations and stipulations found in this determination, such as the condition that all research have low or no-impact to refuge resources and that there be no conflicts with other compatible refuge uses. Non-wildlife or habitat research proposals from agencies other than those mentioned above will be evaluated separately.

Research conducted by non-USFWS staff is not a priority public use of the National Wildlife Refuge System (Refuge System) under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee) and the Refuge System Improvement Act of 1997 (Public Law 105-57).

**(b) Where would the use be conducted?**

Wallops Island National Wildlife Refuge (NWR) encompasses 373 acres of which 195 acres are salt marsh, 121 acres are forest, and 57 acres are old-field/early successional forests. Loblolly pine is the dominant species in the forest habitat, secondary components include: tulip poplar, red maple, southern red oak, wild cherry, dogwood sassafras, and sweet gum. Understory includes: American holly, spicebush, Devil's walking stick and greenbrier. Transition zones between the

marsh and woodland are dominated by groundsel tree and wax myrtle. The salt marsh is dominated by cordgrasses.

A Simoneaston Bay sea level fen, named the Lucky Boy Fen, is found on Wallops Island NWR. Sea level fens are nutrient-poor, maritime seepage wetlands, confined to a few sites with an unusual combination of environmental conditions for the mid-Atlantic (Virginia Department of Conservation and Recreation (VDCR) 2001). The sea level fen is a globally significant (G1) community type (Fleming and Patterson 2010); only four occur in Virginia, all of them in Accomack County (VDCR 2001). Lucky Boy Fen is located just above highest tide levels, at the base of a slope where abundant groundwater discharges. It is less than one-half acre in size, but supports six rare plant species.

Research locations will vary depending on the individual research project that is proposed. A specific research project is usually limited to a particular location, habitat type, plant, or wildlife species. On occasion, research projects will encompass an assemblage of habitat types, plants, or wildlife. The research location will be limited to those areas of the refuge that are absolutely necessary to conduct the research project. The refuge may limit areas available to research as necessary to ensure the protection of Federal trust resources, or to reduce conflict with other compatible refuge uses. The methods and routes of access to study locations will be identified by refuge staff.

**(c) When would the use be conducted?**

The timing of the research may depend entirely on the individual research project that is being conducted. Scientific research will be allowed to occur on the refuge throughout the year. An individual research project could be short-term in design, requiring only one or two visits over the course of a few days, or be a multiple year study that may require regular visits to the study site. The timing of each individual research project will be limited to the minimum required to complete the project. If a research project occurs during the refuge hunting season, special precautions will be required and enforced to ensure safety. The refuge manager would approve the timing (e.g., project length, seasonality, time of day) of the research prior to the start of the project to minimize impacts to wildlife and habitats, ensure safety, and reduce conflicts with other compatible refuge uses.

**(d) How would the use be conducted?**

The objectives, methods, and approach of each research project will be carefully scrutinized by the refuge manager before it will be allowed on the refuge. Only low or no-impact research activities, such as those listed under section (a) above, are covered under this determination.

Research projects must have a USFWS-approved study plan and protocol. A detailed research proposal that follows the refuge's study proposal guidelines (see attachment 1) is required from parties interested in conducting research on the refuge. Each research proposal request will be considered, and if determined appropriate and compatible, will be issued a special use permit

(SUP) by the refuge manager that includes the stipulations in this determination. The refuge manager will use sound professional judgment and ensure that the request will not materially interfere with or detract from the fulfillment of the Refuge System mission or the purpose(s) of the refuge. Before initiating a research project that involves federally listed endangered or threatened species, an interagency Section 7 consultation should be completed.

If approved, multi-year research projects will be reviewed annually to ensure that they are meeting their intended design purposes, that reporting and communicating with refuge staff is occurring, and that projects continue to be consistent with the mission of the Refuge System and purposes for which the refuge was established.

If the refuge manager decides to deny, modify, or halt a specific research project, the refuge manager will explain the rationale and conclusions supporting their decision in writing. The denial or modification to an existing study will generally be based on evidence that the details of a particular research project may:

- Negatively impact water, soils, native fish, wildlife, and habitats or cultural, archaeological, or historical resources beyond the low or no-impact standard.
- Detract from fulfilling the refuge's purposes or conflict with refuge goals and objectives.
- Raise public health or safety concerns.
- Conflict with other compatible refuge uses.
- Not be manageable within the refuge's available staff or budget time.
- Deviate from the approved study proposal such that impacts to refuge resources are more severe or extensive than originally anticipated.

This determination makes clear that research should not materially interfere with or detract from the refuge's purposes or the Refuge System mission.

**(e) Why is this use being proposed?**

Scientific research, including inventory and monitoring projects, are an integral part of refuge management. Quality research provides critical information for establishing baseline information on refuge resources and evaluating management effects on wildlife and habitat. Research findings can inform, strengthen, and improve future refuge management decisions, as well as inform management decisions on other ownerships with Federal trust resources in the Delmarva Peninsula and possibly elsewhere in the Northeast Region. For example, past projects on the refuge have studied federally listed species, such as piping plover, red knot, Delmarva Peninsula fox squirrel, loggerhead sea turtle, and other species of conservation concern, such as American oystercatcher and saltmarsh sparrow. Research projects may also include evaluating habitat management treatments and the associated wildlife community response, as well as, measures of impacts from public uses on refuge lands.

The refuge manager would particularly encourage research supporting approved refuge goals and objectives that clearly improves land management decisions related to Federal trust resources, helps evaluate or demonstrate state-of-the art techniques, and/or helps address or adapt to changing climate and land use impacts. Research conducted by other federal agencies that is not refuge resource based may be allowed for instances of national significance to space exploration, geologic or atmospheric studies, or because it is important for national defense or homeland security operations.

### **AVAILABILITY OF RESOURCES:**

The resources necessary to provide and administer this use are available within current and anticipated refuge budgets. The bulk of the cost for research is incurred in staff time to review research proposals, coordinate with researchers, and write SUPs. In some cases, a research project may only require 1 day of staff time to write a SUP. In other cases, a research project may take many weeks, as the refuge staff must coordinate with students and advisors and accompany researchers' onsite visits. This refuge is managed as a satellite of Chincoteague NWR. Therefore, all funding and staff time spent reviewing research proposals and issuing permits is administered by Chincoteague NWR. These responsibilities are accounted for in budget and staffing plans. We estimate the annual costs associated with the administration of this use.

#### *Review proposals, coordinate with researchers*

(Refuge Biologist): \$6,000

#### *Review proposals, issue SUPs*

General coordination (Refuge Manager): \$4,000

#### *Vehicle, equipment, housing maintenance*

(Maintenance Worker): \$3,000

Total Annual Cost of Program: \$13,000

We do not anticipate charging fees.

### **ANTICIPATED IMPACTS OF THE USE:**

Disturbance to wildlife, vegetation, water, soils, or cultural resources could occur while researchers are accessing study sites on vehicles or by foot, or while they are engaged in their project. The presence of researchers could also indirectly disturb wildlife. Potential impacts include:

- Trampling, damage, and killing of vegetation from walking off-trail (Kuss 1986, Roovers et al. 2004, Hammitt and Cole 1998).

- Soil compaction, soil erosion, and changes in hydrology from hiking on and off trail (Kuss 1986, Roovers et al. 2004).
- Disturbance to wildlife that causes shifts in habitat use, abandonment of habitat, increased energy demands on affected wildlife, changes in nesting and reproductive success, and singing behavior (Knight and Cole 1991, Miller et al. 1998, Shulz and Stock 1993, Gill et al. 1996, Arrese 1987, Gill et al. 2001).

Overall, we expect that these impacts would be negligible because of the low number of researchers and because, under this determination, only low or no-impact projects would be allowed. As indicated under (a) above, low impact projects are those that would only minimally impact cultural resources, water, soils, or native wildlife and plants, and would not result in long-term, negative alterations to species' behavior, or their habitat, including vegetation, soils, and water. Research would only be conducted in approved locations and at approved times of day and season to minimize impacts to sensitive habitats and wildlife.

Animals may be temporarily disturbed during direct or remote observation, telemetry, capture (e.g., mist-netting), or banding. In rare cases, direct injury or mortality could result as an unintended result of research activities. Mist-netting and banding, which are common research methods, can cause stress, especially when birds are captured, banded, and weighed. In very rare cases, birds have been injured or killed during mist netting, or killed when predators reach the netted birds before researchers (Spotswood et al. 2012). To minimize the potential for injuries, researchers should be properly trained (Fair et al. 2010, Spotswood et al. 2012).

The U.S. Department of Agriculture's Animal Welfare Information Center maintains a website with resources to help minimize stress, injury, and mortality of wildlife in field studies at: <https://awic.nal.usda.gov/research-animals/wildlife-field-studies>.

Researchers may also inadvertently damage plants (e.g. via trampling or equipment use) during the research project. To minimize impacts, the SUP will outline how researchers are allowed to access their study sites and use equipment to minimize the potential for impacts to refuge vegetation, soils, and water. We would not allow the collection and removal, or permanent damage, of any native plants under this determination.

Overall, allowing well-designed, properly reviewed, low or no-impact research to be conducted by non-USFWS personnel is likely to have very little negative impact on cultural resources, water, soils, or wildlife populations and habitats. We anticipate research will only have negligible to minor impacts to refuge wildlife and habitats because it will only be carried out after the refuge approves a detailed project proposal and issues a SUP including the stipulations in this determination to ensure compatibility. These stipulations are designed to help ensure each project minimizes impacts to refuge cultural resources, wildlife, vegetation, soils, and water.

We also anticipate only minimal impacts because USFWS staff will supervise this activity, and it will be conducted in accordance with refuge regulations. In the event of persistent disturbance to refuge resources, the activity will be further restricted or discontinued. If the research project is conducted with professionalism and integrity, potential temporary or minor adverse impacts are likely to be outweighed by the knowledge contributed to our understanding of refuge resources and our management effects on those resources, as well as the opportunity to inform, strengthen, and improve future refuge management decisions.

**PUBLIC REVIEW AND COMMENT:**

This compatibility determination will have a 30-day review period with the final Chincoteague and Wallops Island NWRs CCP/EIS, and the record of decision published in the Federal Register. We will also inform the public through local media releases and our website.

**DETERMINATION (CHECK ONE BELOW):**

Use is not compatible

Use is compatible, with the following stipulations

**STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:**

- Only low or no-impact projects are covered under this determination. Low impact projects, as indicated under (a) above, are those that would only have a minimal potential to impact cultural resources, water, soils, or native wildlife and plants. No project should result in long-term negative alterations to wildlife behavior (e.g. result in wildlife leaving previously occupied areas for a long term; modifying their habitat use within their range; or, causing nest or young abandonment). No project should degrade wildlife habitat, including vegetation, soils, and water. Nest, dens, and burrows must not be harmed. No research activities should result in soil compaction or erosion, degrade water quality, remove or destroy vegetation, involve off-road vehicle use, or result in collection and removal of animals or whole native plants.
- Research would only be conducted in USFWS-approved locations, using approved modes of access, and conducted only after the timing, season, duration, numbers of researchers, and areas open and closed is approved. Sensitive wildlife habitat areas will be avoided unless sufficient protection, approved by the USFWS, is implemented to limit the area and/or resources potentially impacted by the proposed research.

- If a research project occurs during the refuge hunting season, special precautions will be required and enforced to ensure public health and safety, and otherwise reduce conflicts with other compatible refuge uses.
- The USFWS will require modifications to research activities, including temporarily closing areas, or changing methods, when warranted, to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise.
- All researchers will be required to submit a detailed research proposal following the refuge's study proposal guidelines (attachment 1) and USFWS Policy (FWS Refuge Manual Chapter 4 Section 6). The refuge must be given at least 45 days to review proposals before initiation of research. Proposals will include obligations for regular progress reports and a final summary document including all findings.
- The criteria for evaluating a research proposal, outlined in the "Description of Use" section (a) above, will be used when determining whether a proposed study will be approved on the refuge. Projects could be denied if they:
  - Will adversely affect native fish, wildlife, and habitats or cultural, archaeological, or historical resources beyond the low or no-impact standard.
  - Materially interfere with or detract from fulfilling the refuge's purposes or conflicts with refuge goals and objectives.
  - Cause public health or safety concerns.
  - Conflict with other compatible refuge uses.
  - Are not manageable within the refuge's available staff or budget time.
- Proposals will be prioritized and approved based on need, benefit to refuge resources, and the level of refuge funding required. USFWS experts, State agencies, or academic experts may be asked to review and comment on proposals.
- If proposal is approved, a SUP will be issued. The SUP will contain this determination's stipulations as well as project-specific terms and conditions that the researcher(s) must follow relative to the activities planned (e.g., location, duration, seasonality, etc.).
- Researchers must comply with all state and Federal laws and follow all refuge rules and regulations. All necessary State and Federal permits must be obtained before starting research on the refuge (e.g., permits for capturing and banding birds). Any research involving federally listed species may require Section 7 consultation under the Endangered Species Act. Any research involving ground disturbance may require historic preservation consultation with the Regional Historic Preservation Officer and/or State Historic Preservation Officer.

- Researchers will mark any survey routes, plots, and points in as visually unobtrusive a manner as practical. No permanent markers or infrastructure can be left on the refuge.
- Researchers will use every precaution and not conduct activities that would cause damage to refuge property or present hazards or significant annoyances to other refuge visitors. Any damage should be reported immediately to the refuge manager.
- Researchers must not litter, or start or use open fires on refuge lands.
- Prior to initiating the project, all researchers handling wildlife must be properly trained to minimize the potential for harm to individual animals. In addition, a review of the U.S. Department of Agriculture's Animal Welfare Information Center website must be documented by the researcher with identification of practices that will be followed to help further minimize stress, injury, and mortality of wildlife. The website is reached at: <https://awic.nal.usda.gov/research-animals/wildlife-field-studies>.
- Researchers may not use any chemicals (e.g., herbicides to treat invasive plants) or hazardous materials without prior written consent of refuge manager (e.g., the type of chemical, timing of use, and rate of application). All activities will be consistent with USFWS policy and an approved refuge Pesticide Use Plan.
- Researchers will be required to take steps to ensure that invasive species and pathogens are not inadvertently introduced or transferred to the refuge and surrounding lands (e.g., cleaning equipment).
- Refuge staff will monitor research activities for potential impacts to refuge resources. The refuge manager may determine that previously approved research and SUPs be modified or terminated due to observed impacts that are more severe or extensive than originally anticipated. The refuge manager will also have the ability to cancel a SUP if the researcher is not in compliance with the stated conditions.
- Researchers must have the SUP in their possession when engaged in research activities and will present it to refuge officials and State and Federal law enforcement agents upon their request.
- Researchers will submit a final report to the refuge upon completion of their work. For long-term studies, interim progress reports may also be required. The refuge also expects that research findings will be published in peer-reviewed publications. The contribution of the refuge and the USFWS should be acknowledged in any publications. The SUP will identify a schedule for annual progress reports and the submission of a final report or scientific paper.



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### Attachment 1. Chincoteague National Wildlife Refuge Complex Study Proposal Guidelines

A study proposal is a justification and description of the work to be done, and includes cost and time requirements. Proposals must be specific enough to serve as "blueprints" for the investigative efforts. Step-by-step plans for the actual investigations must be spelled out in advance, with the level of detail commensurate with the cost and scope of the project and the needs of management. Please submit proposals electronically as a Microsoft Word document or hardcopy to the refuge manager.

The following list provides a general outline of first order headings/sections for study proposals.

- Cover Page.
- Table of Contents (for longer proposals).
- Abstract.
- Statement of Issue.
- Literature Summary.
- Objectives/Hypotheses.
- Study Area.
- Methods and Procedures.
- Quality Assurance/Quality Control.
- Specimen Collections.
- Deliverables.
- Special Requirements, Concerns, Necessary Permits.
- Literature Cited.
- Peer Review.
- Budget.
- Personnel and Qualifications.

#### Cover Page

The cover page must contain the following information:

- Title of Proposal.
- Current Date.
- Investigator(s): name, title, organizational affiliation, address, telephone and fax numbers, and e-mail address of all investigators or cooperators.
- Proposed starting date.
- Estimated completion date.
- Total Funding Support Requested from the U.S. Fish and Wildlife Service (USFWS).
- Signatures of Principal Investigator(s) and other appropriate institutional officials.

### Abstract

The abstract should contain a short summary description of the proposed study, including reference to major points in the Statement of Issue, Objectives, and Methods and Procedures sections.

### Statement of Issue

Provide a clear, precise summary of the problem to be addressed and the need for its solution. This section should include statements of the importance, justification, relevance, timeliness, generality, and contribution of the study. Describe how any products will be used, including any anticipated commercial use. What is the estimated probability of success of accomplishing the objective(s) within the proposed timeframe?

### Literature Summary

This section should include a thorough but concise literature review of current and past research that pertains to the proposed research, especially any pertinent research conducted within the Delmarva Peninsula, and specifically, on refuge units. A discussion of relevant legislation, policies, and refuge planning and management history, goals, and objectives should also be included.

### Objectives/Hypotheses

A very specific indication of the proposed outcomes of the project should be stated as objectives or hypotheses to be tested. Project objectives should be measurable. Provide a brief summary of what information will be provided at the end of the study and how it will be used in relation to the problem. These statements should flow logically from the statement of issue and directly address the management problem.

Establish data quality objectives in terms of precision, accuracy, representativeness, completeness, and comparability as a means of describing how good the data need to be to meet the project's objectives.

### Study Area

Provide a detailed description of the geographic area(s) to be studied and include a clear map delineating the proposed study area(s) and showing specific locations where work will occur.

### Methods and Procedures

This section should describe as precisely as possible how the objectives will be met or how the hypotheses will be tested. Include detailed descriptions and justifications of the field and laboratory methodology, protocols, and instrumentation. Explain how each variable to be measured directly addresses the research objective/ hypothesis. Describe the experimental design, population, sample size, and sampling approach (including procedures for sub-sampling). Summarize the statistical and other data analysis procedures to be used. List the response

variables and tentative independent variables or covariates. Describe the experimental unit(s) for statistical analysis. Also include a detailed project time schedule that includes initiation, fieldwork, analysis, reporting, and completion dates.

#### Quality Assurance/Quality Control

Adequate quality assurance/quality control (QA/QC) procedures help insure that data and results are: credible and not an artifact of sampling or recording errors; of known quality; able to stand up to external scientific scrutiny; and accompanied by detailed method documentation. Describe the procedures to be used to insure that data meet defined standards of quality and program requirements, errors are controlled in the field, laboratory, and office, and data are properly handled, documented, and archived. Describe the various steps (e.g., personnel training, calibration of equipment, data verification and validation) that will be used to identify and eliminate errors introduced during data collection (including observer bias), handling, and computer entry. Identify the percentage of data that will be checked at each step.

#### Specimen Collections

Clearly describe the kind (species), numbers, sizes, and locations of animals, plants, rocks, minerals, or other natural objects to be sampled, captured, or collected. Identify the reasons for collecting, the intended use of all the specimens to be collected, and the proposed disposition of collected specimens. For those specimens to be permanently retained as voucher specimens, identify the parties responsible for cataloging, preservation, and storage and the proposed repository.

#### Deliverables

The proposal must indicate the number and specific format of hard and/or electronic media copies to be submitted for each deliverable. The number and format will reflect the needs of the refuge and the refuge manager. Indicate how many months after the project is initiated (or the actual anticipated date) that each deliverable will be submitted. Deliverables are to be submitted or presented to the refuge manager.

Deliverables that are required are as follows:

#### *Reports and Publications*

Describe what reports will be prepared and the timing of reports. Types of reports required in fulfillment of natural and social science study contracts or agreements include:

- (1) Progress report(s) (usually quarterly, semiannually, or annually): may be required
- (2) Draft final and final report(s): always required

A final report must be submitted in addition to a thesis or dissertation (if applicable) and all other identified deliverables. Final and draft final reports should follow refuge guidelines (see attachment).

In addition, investigators are encouraged to publish the findings of their investigations in refereed professional, scientific publications and present findings at conferences and symposia. The refuge manager appreciates opportunities to review manuscripts in advance of publication.

#### *Data Files*

Provide descriptions of any spatial (Geographic Information Systems; GIS) and non-spatial data files that will be generated and submitted as part of the research. Non-spatial data must be entered onto Windows CD-ROMs in Access or Excel. Spatial data, which includes GPS (Global Position System)-generated files, must be in a format compatible with the refuge's GIS system (ArcGIS 10.1 or later, or e00 format).

#### *Metadata*

For all non-spatial and spatial data sets or information products, documentation of information (metadata) describing the extent of data coverage and scale, the history of where, when, and why the data were collected, who collected the data, the methods used to collect, process, or modify/transform the data, and a complete data dictionary must also be provided as final deliverables. Spatial metadata must conform to USFWS (Federal Geographic Data Committee; FDGC) metadata standards.

#### *Oral Presentations*

Three types of oral briefings should be included: pre-study, annual, and closeout. These briefings will be presented to refuge staff and other appropriate individuals and cooperators. In addition, investigators should conduct periodic informal briefings with refuge staff throughout the study whenever an opportunity arises. During each refuge visit, researchers should provide verbal updates on project progress. Frequent dialogue between researchers and refuge staff is an essential element of a successful research project.

#### *Specimens and Associated Project Documentation*

A report on collection activities, specimen disposition, and the data derived from collections, must be submitted to the refuge following refuge guidelines.

#### *Other:*

Researchers must provide the refuge manager with all of the following:

1. Copies of field notes/ notebooks/ datasheets.
2. Copies of raw data (in digital format), including GIS data, as well as analyzed data.

3. Copies of all photos, slides (digital photos preferred), videos, and films.
4. Copies of any reports, theses, dissertations, publications or other material (such as news articles) resulting from studies conducted on refuge.
5. Detailed protocols used in study.
6. Aerial photographs.
7. Maps.
8. Interpretive brochures and exhibits.
9. Training sessions (where appropriate).
10. Survey forms.
11. Value-added software, software developed, and models.

Additional deliverables may be required of specific studies.

#### Special Requirements, Permits, and Concerns

Provide information on the following topics where applicable. Attach copies of any supporting documentation that will facilitate processing of your application.

#### *Refuge Assistance*

Describe any refuge assistance needed to complete the proposed study, such as use of equipment or facilities or assistance from refuge staff. It is important that all equipment, facilities, services, and logistical assistance expected to be provided by the USFWS be specifically identified in this section so all parties are in clear agreement before the study begins.

#### *Ground Disturbance*

Describe the type, location, area, depth, number, and distribution of expected ground-disturbing activities, such as soil pits, cores, or stakes. Describe plans for site restoration of significantly affected areas.

Proposals that entail ground disturbance may require an archeological survey and special clearance prior to approval of the study. You can help reduce the extra time that may be required to process such a proposal by including identification of each ground disturbance area on a U.S. Geological Survey (USGS) 7.5-minute topographic map.

#### *Site Marking and/or Animal Marking*

Identify the type, amount, color, size, and placement of any flagging, tags, or other markers needed for site or individual resource (e.g., trees) identification and location. Identify the length of time it is needed and who will be responsible for removing it. Identify the type, color, placement of any tags placed on animals (see SUP for requirements on marking and handling of animals).

#### *Access to Study Sites*

Describe the proposed method and frequency of travel to and within the study site(s). Explain any need to enter restricted areas. Describe duration, location, and number of participants, and approximate dates of site visits.

#### *Use of Mechanized and Other Equipment*

Describe any vehicles, boats, field equipment, markers, or supply caches by type, number, and location. You should explain the need to use these materials and if or how long they are to be left in the field.

#### *Safety*

Describe any known potentially hazardous activities, such as electro-fishing, scuba diving, whitewater boating, aircraft use, wilderness travel, wildlife capture or handling, wildlife or immobilization.

#### *Chemical Use*

Identify chemicals and hazardous materials that you propose using within the refuge. Indicate the purpose, method of application, and amount to be used. Describe plans for storage, transfer, and disposal of these materials and describe steps to remediate accidental releases into the environment. Attach copies of Material Safety Data Sheets.

#### *Animal Welfare*

If the study involves vertebrate animals, describe your protocol for any capture, holding, marking, tagging, tissue sampling, or other handling of these animals (including the training and qualifications of personnel relevant to animal handling and care). If your institutional animal welfare committee has reviewed your proposal, please include a photocopy of their recommendations. Describe alternatives considered, and outline procedures to be used to alleviate pain or distress. Include contingency plans to be implemented in the event of accidental injury to or death of the animal. Include state and Federal permits. Where appropriate, coordinate with and inform state natural resource agencies.

#### Literature Cited

List all reports and publications cited in the proposal.

#### Peer Review

Provide the names, titles, addresses, and telephone numbers of individuals with subject-area expertise who have reviewed the research proposal. If the reviewers are associated with the investigator's research institution or if the proposal was not reviewed, please provide the names, titles, addresses, and telephone numbers of three to five potential subject-area reviewers who are not associated with the investigator's institution. These individuals will be asked to provide reviews of the proposal, progress reports, and the draft final report.

### Budget

The budget must reflect both funding and assistance that will be requested from the USFWS and the cooperator's contributions on an identified periodic (usually annual) basis.

#### *Personnel Costs*

Identify salary charges for principal investigator(s), research assistant(s), technician(s), clerical support, and others. Indicate period of involvement (hours or months) and pay rate charged for services. Be sure to include adequate time for data analysis and report writing and editing.

#### *Fringe Benefits*

Itemize fringe benefit rates and costs.

#### *Travel*

Provide separate estimates for fieldwork and meetings. Indicate number of trips, destinations, estimated miles of travel, mileage rate, air fares, days on travel, and daily lodging and meals charges. Vehicle mileage rate cannot exceed standard government mileage rates. Charges for lodging and meals are not to exceed the maximum daily rates set for the locality by the Federal Government.

#### *Equipment*

Itemize all equipment to be purchased or rented and provide a brief justification for each item costing more than \$1,000. Be sure to include any computer-related costs. For proposals funded under USFWS agreement or contract, the refuge reserves the right to transfer the title of purchased equipment with unit cost of \$1,000 or more to the Federal Government following completion of the study. These items should be included as deliverables.

#### *Supplies and Materials*

Purchases and rentals under \$1,000 should be itemized as much as is reasonable.

#### *Subcontract or Consultant Charges*

All such work must be supported by a subcontractor's proposal also in accordance with these guidelines.

#### *Specimen Collections*

Identify funding requirements for the cataloging, preservation, storage, and analyses of any collected specimens that will be permanently retained.

#### *Printing and Copying*

Include costs for preparing and printing the required number of copies of progress reports, the draft final report, and the final report. In general, a minimum of two (2) copies of progress reports (usually due quarterly, semiannually, or as specified in agreement), the draft final report, and the final report are required.

#### *Indirect Charges*

Identify the indirect cost (overhead) rate and charges and the budget items to which the rate is applicable.

#### *Cooperator's Contributions*

Show any contributing share of direct or indirect costs, facilities, and equipment by the cooperating research institution.

#### *Outside Funding*

List any outside funding sources and amounts.

#### Personnel and Qualifications

List the personnel who will work on the project and indicate their qualifications, experience, and pertinent publications. Identify the responsibilities of each individual and the amount of time each will devote. A full vita or resume for each principal investigator and any consultants should be included here.

### DRAFT AND FINAL REPORT GUIDELINES

Draft final and final reports should follow Journal of Wildlife Management format and should include the following sections:

Title Page  
Abstract  
Introduction/ Problem statement  
Study Area  
Methods (including statistical analyses)  
Results  
Discussion  
Management Implications  
Management Recommendations  
Literature Cited