

April 11, 2001

Mr. Alec Gould, Superintendent
National Park Service
Colonial National Historical Park
P.O. Box 210
Yorktown, Virginia 23690

Re: Current National Park Service
Operations at Jamestown Island, James
City County, Virginia

Dear Mr. Gould:

This document transmits the U.S. Fish and Wildlife Service's (FWS) biological opinion based on our review of the National Park Service's (NPS) current operations at Jamestown Island in James City County, Virginia and its effects on the bald eagle, *Haliaeetus leucocephalus*, in accordance with section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). Your March 9, 2001 request for formal consultation was received on March 12, 2001.

This biological opinion is based on information provided in the March 5, 2001 on-site meeting, electronic mail, telephone conversations, field investigations, and other sources of information. A complete administrative record of this consultation is on file in this office.

I. CONSULTATION HISTORY

- 03-01-01 NPS's Colonial National Historical Park notifies FWS's Virginia Field Office about new eagle nests on Jamestown Island.
- 03-02-01 FWS recommends an immediate meeting to discuss the new eagle nest at the entrance to Jamestown Island.
- 03-05-01 FWS, NPS, the Virginia Department of Game and Inland Fisheries (VDGIF), and the Association for the Preservation of Virginia Antiquities (APVA) meet on site.
- 03-09-01 NPS requests formal consultation.

II. BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

NPS proposes to continue the current operations at Jamestown Island. Specifically, NPS proposes to continue to allow vehicular access and to maintain NPS facilities on the Island. The enclosed map shows the location of the new eagle nest numbered VAJC-0101 (Figure 1).

NPS will delay mowing the grass within 1,320 feet of the nest, except for the road shoulder, until July 15 of each year or until FWS and VDGIF determine that the eaglets have fledged or that the nest is not active for that year.

NPS proposes to continue trash pick-up, storm debris clean-up, snow and ice prevention and removal, leaf removal, and other routine maintenance activities.

NPS will allow vehicular traffic and pedestrian visitation to the Island, as it has in the past. NPS will allow full use of the parking lot, though efforts will be made to keep vehicles as far from the nest as possible. This eagle nest is approximately 600 feet from the only road onto Jamestown Island, with a clear line of sight to the road. Furthermore, the nest is approximately 600 feet from the visitors parking lot, with a limited line of sight view of traffic in the parking lot. Even though there is not much vegetation to block the eagles' view of the traffic, a marsh does separate the nest tree from the road and the parking lot. This marsh will serve to prevent access on foot any closer than approximately 400 feet. The nest is approximately 200 feet from Back River, the waterway that separates Jamestown Island from the mainland. The Visitors Center is approximately 1,400 feet from the nest.

Table 1 details the numbers of visitors and buses that visited Jamestown Island from March 2000 through February 2001. According to NPS, approximately 50% of the bus traffic in April and May visit other areas of the Park but do not enter Jamestown Island. During the rest of the year, approximately 30% of the total bus traffic does not enter Jamestown Island. The numbers in the table do account for these estimations.

NPS proposes to perform the following planned construction activities during the spring of 2001 in preparation for tourist season. NPS proposes to complete the paving at the bridge and parking lot and to chip and seal the surface of the road between the bridge and parking lot. NPS proposes to stage timbers at the far end of the parking lot that will be used to repair/replace wooden bridges on Loop Road and the path to the Visitors Center. NPS also proposes to fill holes along the wooden sea wall at Isthmus Bridge.

The "action area" is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. FWS has determined that the action area for this project is the western tip of Jamestown Island from Isthmus Bridge to the Visitors Center. The action area includes all land, water, and airspace within 1,320 feet of eagle nest VAJC-0101.

STATUS OF THE SPECIES RANGEWIDE

Species Description – The bald eagle is a large bird of prey with a wing span of 6½ feet. It is found primarily near the coasts, rivers, and lakes of North America. The Chesapeake Bay bald eagle population was listed as endangered in 1978. The Chesapeake Bay recovery region encompasses Virginia, Delaware, Maryland, the eastern half of Pennsylvania, the panhandle of West Virginia, and the southern two-thirds of New Jersey. The Chesapeake Bay Recovery Team prepared a Recovery Plan that is pertinent to this opinion (USFWS 1990).

On August 11, 1995, the bald eagle population in the Chesapeake Bay was reclassified from endangered to threatened due to increasing numbers and range expansion (50 CFR Part 17 36000-36010). In the Chesapeake Bay Recovery Region, delisting requires (1) a nesting population of 300 to 400 pairs with an average productivity of 1.1 eaglets per active nest, sustained over 5 years and (2) permanent protection of sufficient nesting habitat to support 300 to 400 bald eagle pairs. Additionally, enough roosting habitat to accommodate population levels commensurate with increases throughout the Atlantic region resulting from increased productivity (USFWS 1990). Since 1992, the criteria of the number of breeding pairs and productivity per nest (300, 1.1, respectively) have been met. However, there has been very little permanent protection of nesting or roosting habitat within the Chesapeake Bay region. Over 80% of the bald eagle nests in Virginia and Maryland are located on private and corporate lands.

In Virginia, the breeding population has steadily increased from an estimated low of approximately 32 pairs in the late 1960s to 310 nesting pairs in 2001. Habitat loss now poses a greater threat to the bald eagle since its preferred habitat is where most of the human population growth is occurring in the United States.

The Service announced a nation-wide “Intent to Delist” proposal in July 1999, followed by a notice for public comment in the Federal Register (Proposed Rule, Volume 64, No. 128; Tuesday, July 6, 1999). No further action has been taken, and the species is still listed as of the date of this Biological Opinion.

Life History/Populations Dynamics – Unless otherwise noted, the information in this section was taken from VDGIF (1994) and Watts *et al.* (1994).

Bald eagles breed at four to five years of age, the same time they develop their white head and tail. Adult birds mate for life, establishing nesting territories that they return to each year. Nesting pairs may remain near their territory year-round, particularly toward the southern range of the species. In addition to the resident breeding population, Virginia has five bald eagle “concentration areas” where sub-adults and non-breeding adults congregate. These areas are used for foraging, perching, and roosting during one or more seasons of the year. There are no concentration areas near the action area.

During the day, eagles spend approximately 94% of their time perching (Gerrard *et al.* 1980, Watson *et al.* 1991). During the breeding season, 54% of that time is spent loafing, 23% scanning for food or eating, and 16% nesting (Watson *et al.* 1991). Eagles prefer high perches in trees that rise above the

surrounding vegetation to provide a wide view that faces into the wind (Gerrard *et al.* 1980). In Maryland, eagles used shoreline that had more suitable perch trees, more forest cover, and fewer buildings than unused areas at all times of the year (Chandler *et al.* 1995). Chandler *et al.* (1995) found that distance from the water to the nearest suitable perch tree was shorter for areas used by bald eagles than areas that did not receive eagle use. In their study, eagles tended to perch within 164 feet of the shore. They recommended that shoreline trees greater than 7.87 inches in diameter at breast height and dead trees not be removed. Eagles often locate prey from a shoreline perch, and hunting forays from perches appear to be more successful than those initiated from flight (Jaffee 1980). Gerrard *et al.* (1980) found that after a successful fishing trip, eagles flew to a low perch to feed; these perches were less than 33 feet above the water and were well below the level of neighboring tree tops. Clark (1992) observed that, within the Powell Creek concentration area, eagles perched in shoreline trees, flew out to pick up fish, and then returned to the perch to eat.

Bald eagles are opportunistic foragers, preying on fish, birds, and small mammals, as well as scavenging carrion. In the summer, fish are the primary component of the diet. Eagles in Virginia feed on shad, catfish, carp, menhaden, perch, and eels depending on their seasonal availability. In the fall and winter, eagles shift their foraging to waterfowl and supplement their diet to a greater extent with carrion. Because the main diet of bald eagles inhabiting the Chesapeake Bay and its tributaries during the summer is fish, the majority of birds are likely to be present along the shoreline at any given time (Wallin and Byrd 1984). Foraging is a key behavior that influences daily and seasonal activity budgets (Watson *et al.* 1991). Foraging patterns may be strongly influenced by tidal fluctuations. Several studies have found that eagles foraged much more than expected during low tides and less than expected at high tides (McGarigal *et al.* 1991, Watson *et al.* 1991). In King George County, Virginia, overall bald eagle foraging frequency was highest from 4:35 to 6:00 a.m., with a small decline from 6:00 to 10:00 a.m. At 10:00 a.m. foraging decreased further and then remained the same until 6:00 p.m. when it decreased rapidly (Jaffee 1980).

Watts and Whalen (1997) conducted boat and eagle observations from three pier locations within the Powell Creek eagle concentration area on the James River during the summer of 1997. Peak eagle foraging began at dawn and continued until 8:30 a.m. After 8:30 a.m., eagle foraging activity declined and remained fairly stable until 11:00 a.m., when the amount of foraging decreased rapidly and remained low for the rest of the day. Between 6:00 and 8:30 a.m., 55% of morning foraging was documented. By 9:30 a.m., 70% of foraging had occurred. By 10:00 a.m., 79% of foraging had occurred, and 95% of all morning foraging activities had occurred by 11:00 a.m.

During the late afternoon/early evening, bald eagles fly inland to roost for the night. Most summer eagle roosts in the Chesapeake Bay region were found in greater than 100-acre forest blocks and were further from human development than random sites (Buehler *et al.* 1991b). Ninety-five percent of the roosts were within 2,362 feet of water and 50% were at least 2,231 feet from the nearest building (Buehler *et al.* 1991b). Trees used for roosting were larger in diameter, taller, and more accessible from the air than other available trees (Keister and Anthony 1983, Buehler *et al.* 1991b). Another

important attribute of communal roosts is proximity to food sources (Keister and Anthony 1983). Because food for eagles occurs in the water, suitable habitat along rivers is important. Clark (1992) found that, within the Powell Creek concentration area, distance to the roost was the most important habitat factor that influenced eagle distribution along the shoreline. Buehler *et al.* (1991b) determined that on the Northern Chesapeake Bay “. . . fewer than 2% of the random trees met the minimum habitat values of roost trees, indicating that suitable roost trees are scarce relative to other trees. This relative scarcity suggests that if shoreline forest is removed indiscriminately, roost habitat could become limiting to the bald eagle population in the future.”

Status and Distribution – Historically, bald eagles were plentiful along major river systems and coastal areas in the United States and Canada. However, habitat loss associated with human settlement, and later, the use of persistent pesticides (such as DDT) for crop management, resulted in a dramatic decline in eagle populations. By the late 1960s, most breeding populations had been decimated by eggshell thinning and associated low productivity. Since the nationwide ban on most persistent pesticides, bald eagle populations have experienced gradual recovery in both productivity and total numbers.

Although the bald eagle has rebounded over the past 15 to 20 years, current patterns of habitat loss in the Chesapeake Bay region threaten to halt or even reverse this recovery. Shoreline development throughout the Chesapeake Bay is reducing available habitat and poses the single greatest threat to the eagle population. Nesting, roosting, and foraging habitat is being lost to shoreline development for housing, business, industry, recreational facilities, public utilities, and transportation. Conversion of woodlands to agricultural fields and timber harvesting is also resulting in the loss of eagle habitat. As the human population along these shoreline areas continues to grow, more undisturbed wooded habitat used by bald eagles will be permanently altered. Between 1978 and 2020, the developed area of the Chesapeake Bay watershed is predicted to increase by 74% and 80% in Maryland and Virginia, respectively (Gray *et al.* 1988). In addition, water-based recreation in the Chesapeake Bay region has increased dramatically since the 1970s, resulting in disturbance to eagles in breeding, roosting, and foraging areas. Between 1992 and 1995, the population in Virginia increased 1.5% each year and boat registration increased 7% during that time (J.R. Davy, Virginia Department of Conservation and Recreation, pers. comm. 1996).

Buehler *et al.* (1991b) stated, “We assume there is an upper limit to the number of eagles that can be supported by any stretch of undeveloped shoreline. Thus, as shoreline continues to be modified, we believe that the length of remaining undeveloped shoreline may become the limiting factor for some eagle populations, including the Chesapeake population.” Bald eagles in Virginia will survive and maintain sustainable numbers only if there is adequate habitat for nesting, roosting, and foraging free from human disturbance. Management to preserve and protect these shoreline areas is essential to the continued growth and recovery of the Chesapeake Bay’s nesting, summering, and wintering bald eagle population.

Chronic human activity may result in disuse of areas by eagles (USFWS 1989). Buehler *et al.* (1991b) found that bald eagle use of shoreline was inversely related to building density (magnitude of effect was greatest in summer) and directly related the development setback distance. Clark (1992) concluded that “increased numbers of waterfront buildings and decreased amounts of shoreline woodland . . . negatively affect eagle shoreline use.” Clark (1992) found that eagle numbers decreased with increased numbers of buildings and amount of medium duty roads. Buehler *et al.* (1991a) found that in the northern Chesapeake Bay, 76% of shoreline areas may now be unsuitable for eagle use because of the presence of development within 1,640 feet of the shoreline. Up to an additional 10% of the shoreline was found to be unsuitable at times because of boat and pedestrian traffic. When shoreline is developed, it is irretrievably lost as eagle habitat (Buehler *et al.* 1991b). Human activity resulting in even temporary disruption of the bird's environment represents a major source of potential disturbance in many eagle populations (McGarigal *et al.* 1991, Stalmaster and Kaiser 1998). Human activity in perching areas can interrupt feeding and cause birds to relocate (Fraser 1988, Stalmaster and Kaiser 1998). Watts and Whalen (1997) examined eagle density as a function of human presence and their results suggest that the presence of people had a negative effect on shoreline use by eagles. Watts and Whalen (1997) stated that “. . . it is clear that eagles avoid shoreline segments that regularly have people within 100 m [328 feet] of the water.” Buehler *et al.* (1991b) seldom observed eagles on the northern Chesapeake Bay within 1,640 feet of human activity and found that the birds rarely used developed areas or areas frequented by people on foot. During the summer, birds on the northern Chesapeake Bay flush, on average, when humans get within 577 feet (Buehler *et al.* 1991b). Once birds are disturbed, they do not return to the area until several hours after the disturbance has occurred and only when the disturbance no longer persists (Stalmaster and Newman 1978, Stalmaster and Kaiser 1998).

In addition to human activity, removal of shoreline vegetation results in disturbance to eagles and loss of habitat. Clark (1992) found that within the Powell Creek concentration area on the James River, eagle abundance increased with increases in woodland width (defined as maximum width of woodland in each sampling plot measured in meters inland from the shore), snags (defined as number of standing dead trees over five meters in height on the shore of each sampling plot), and woodland length (defined as maximum length of woodland in each sampling plot measured in meters along the shoreline), which are indicative of the amount of forest habitat available. These three variables indicated lack of development, presence of a vegetation screen from human activities, and the presence of perching habitat. Removal of tall, large diameter trees will decrease the amount of perching and roosting habitat available (Buehler *et al.* 1991b). Luukkonen *et al.* (1989) recommended maintaining shorelines with forested buffers at least 328 feet wide. In addition, the buffer should have a minimum of one tree per 820 feet of shoreline that is at least 15.7 inches in diameter at breast height, is accessible to eagles, and contains suitable perching limbs. They also recommended conserving trees greater than or equal to 23.6 inches in diameter at breast height.

It has been documented that eagles are more tolerant of sounds when the sources were partially or totally concealed from their view (*e.g.*, Stalmaster and Newman 1978, Wallin and Byrd 1984). Strips

of vegetation that reduce line-of-site will allow closer presence of humans and provide perching and roosting trees (Stalmaster and Newman 1978). Stalmaster (1980) recommended restricting land activities 820 feet from eagles perched in shoreline trees to protect 99% of the birds. He suggested that boundaries could be shortened to 246 to 328 feet in width if at least 164 feet of this zone contains dense, shielding vegetation.

Feeding behavior of bald eagles can be disrupted by the mere presence of humans (Stalmaster and Newman 1978, Stalmaster and Kaiser 1998). Early morning human activities are potentially the most disruptive to eagle foraging activity (McGarigal *et al.* 1991, Stalmaster and Kaiser 1998). Disturbance may result in increased energy expenditures due to avoidance flights and decreased energy intake due to interference with feeding activity (Knight and Knight 1984, McGarigal *et al.* 1991, Stalmaster and Kaiser 1998). “The difference between the presence of a species when food is available versus the ability of that species to utilize the food is important. Whereas scavengers might be present in an area and appear to be unaffected by human activity, closer inspection would be required to determine whether the individuals are actually able to feed on that food” (Knight *et al.* 1991). Camp *et al.* (1997) found that wildlife responds to disturbance physiologically before responding behaviorally. They stated that heart rate increases and attention is diverted to human activities at a distance greater than that which actually causes the wildlife to flush. Knight *et al.* (1991) examined winter bald eagle concentration areas in Washington and found that when anglers (not in boats) were present, fewer bald eagles were feeding and the eagles shifted their foraging from early morning to late afternoon. “. . . The presence of anglers disrupted feeding, which reduced energy intake and increased energy expenditure through avoidance flights. The ultimate effect of such disturbances on energy budgets and individual fitness is unknown” (Knight *et al.* 1991).

Clark (1992) found that within the Powell Creek eagle concentration area, eagle abundance decreased with increased numbers of “boat landings.” Boat landings were defined as “. . . piers, boat ramps, and sites where boats are regularly landed or anchored on the shore . . .” Wallin and Byrd (1984) had similar findings within the Caledon concentration area on the Potomac River. Clark (1992) recommended that additional boat landings within or adjacent to the Powell Creek concentration area be discouraged, including those on tributary creeks of the James River.

Boating activity is likely to adversely impact eagles because it disrupts feeding activity and affects large areas in short periods of time (Knight and Knight 1984). Activities of recreational boaters are not predictable and thus are especially disruptive to birds (Wallin and Byrd 1984). McGarigal *et al.* (1991) found that eagles usually avoided an area within 656 to 2,952 feet of a single stationary experimental boat, with an average avoidance distance of 1,300 feet. During this time, eagles spent less time foraging and made fewer foraging attempts. McGarigal *et al.* (1991) recommend a 1,312 to 2,624 foot wide buffer around high-use foraging areas. Knight and Knight (1984) studied wintering eagles in Washington and found that a 1,148 foot wide buffer would protect 99% of birds perched in shoreline trees from a single canoe. However, eagles feeding on the ground were more sensitive to disturbance and required larger buffers. A buffer of at least 1,476 feet would be required to protect

99% of eagles feeding on the ground from a single canoe.

Moving boats, as well as stationary boats, disrupt eagles. Buehler *et al.* (1991b) found that on the northern Chesapeake Bay, eagles were flushed by an approaching boat at an average distance of 575 feet. M.A. Byrd (College of William and Mary's Center for Conservation Biology, pers. comm. 1989) has observed that when eagles are flushed by recreational boats from perch sites along the James River, they usually fly inland and cease foraging for at least several hours. Watts and Whalen (1997) studied boats and eagles on the James River. They found that nearly 25% of eagles perched on the shoreline flushed when their survey boat was within 656 feet of the shoreline. When the boat was within 328 feet of the shoreline, nearly 80% of the birds flushed. During shoreline surveys, they found that nearly 50% of all boats observed were within 656 feet of the shoreline and more than 35% were within 328 feet. Jon boats, jet skis, and bass boats tended to be closer to the shoreline than sport boats (defined as v-hull type boats). "The general distribution of boats relative to the shoreline . . . in combination with the observed flushing probabilities . . . suggest that a large number of boats may directly influence shoreline use by eagles" (Watts and Whalen 1997). Their data analysis suggested that the presence of boats within 656 feet of the shoreline has a significant negative effect on shoreline use by bald eagles.

Stalmaster and Kaiser (1998) studied wintering eagles on the Skagit River in Washington and found that eagles foraging on the ground were intolerant of humans within 300 m, especially in the morning and that the ". . . manner in which eagles responded to motorboats demonstrated that this activity was extremely disruptive to the population, even though only a small number of human were involved." Luukkonen *et al.* (1989) studied non-breeding eagles in North Carolina and found "eagles and people tended to concentrate their activities on different portions of both lakes." They estimated that boat densities of more than 0.5 boats/km² altered eagle distribution patterns. "Disturbance by boaters or others may negatively affect eagle energy budgets by causing unnecessary eagle movements and by displacing eagles from foraging areas" (Luukkonen *et al.* 1989). Wood and Collopy (1995) studied breeding and non-breeding eagles on three lakes in Florida. They found a significant negative relationship between boat numbers and eagle numbers on one of the lakes. The other two lakes did not show this relationship, but did not receive as much boat traffic. Boat use was highest on weekends and eagle use was highest on weekdays. Moving boats seemed to be more disruptive than stationary boats. Boating activity reduced the number of eagles using the shoreline, increased the perching distance from the shoreline, and increased the flushing distance (mean flush distance was 174 feet).

Chemical poisoning and shooting are now less of a threat than in past years, but continue to cause loss of eagles. The Service, U.S. Environmental Protection Agency, and the states monitor pesticide-related eagle mortalities; restrictions on some types of pesticides have resulted from eagle mortalities. With increased petrochemical transport activities in the Chesapeake Bay region, the potential exists for eagles to come into contact with oil resulting from spills. Eagle deaths occasionally occur throughout the species' range due to collisions with power lines or electrocutions at power poles. In Virginia, power companies have voluntarily agreed to place "perch guards" on power poles that have a high risk of eagle electrocution.

ENVIRONMENTAL BASELINE

Status of the Species Within the Action Area – Bald eagles are proliferating in and around Jamestown Island. Nest VAJC-0101 is a new nest discovered during the annual nesting surveys in March 2001. During the fly-over, an adult eagle was observed sitting on the nest (Watts, College of William and Mary's Center for Conservation Biology, pers. comm. 2001). The eagle did not fly away when the aircraft flew over and was presumed to be incubating. While eggs themselves were not seen, there were probably eggs in the nest in March 2001 (Watts, pers. comm. 2001).

The eagles probably moved into this busy area during the late fall of 2000, when levels of human activity are relatively low. While the eagles are accustomed to some human disturbance, there will be a greater amount of disturbance in the vicinity of the nest during the spring and summer than when they arrived. According to the Bald Eagle Protection Guidelines for Virginia (USFWS & VDGIF 2000), eagles usually prefer much less nearby human activity than the level at Jamestown Island. The guidelines recommend a 1,320-foot protection zone with minimal human disturbance around nests. The guidelines warn of the negative effects of boat traffic and loud noises. This eagle nest is approximately 600 feet from the only road onto Jamestown Island, with a clear line of sight to the road. Furthermore, the nest is approximately 600 feet from the visitors parking lot, with a limited line of sight view of traffic in the parking lot. Even though there is not much vegetation to block the eagles' view of the traffic, a marsh does separate the nest tree from the road and the parking lot. This marsh will serve to prevent access on foot any closer than approximately 400 feet. The nest is approximately 200 feet from Back River, the waterway that separates Jamestown Island from the mainland. The visitors center is approximately 1,400 feet from the nest.

This particular pair of eagles appear to be used to some degree of human disturbance. In addition to the routine traffic, several NPS projects were completed during the winter of 2001. A water line replacement project was undertaken from September 2000 to February 2001, and equipment was staged in the parking lot approximately 600 feet from the nest. Many loud activities, such as the operation of dump trucks, excavators, backhoes, tractors, tampers, and jackhammers, were all used within 750 feet of the nest. Chain saws and payloaders were used to cut down and remove some trees around the parking lot in October 2000. Sewer lines were blown with an air compressor in October 2000. The Isthmus Bridge (approximately 1,400 feet from the nest but with a clear line of sight) was cleaned and painted during October and November 2000. Many trucks used to the road to complete other maintenance activities farther down the island throughout the fall and winter of 2000-2001.

Factors Affecting Species Habitat Within the Action Area – NPS only removes trees in the action area that are a threat to humans (trees that lean over the parking lot or the road). The proposed action will have minimal effect on eagle habitat.

Plans for celebrating the 400th anniversary of the Jamestown settlement (1607-2007) are ongoing. Depending on the alternative selected, there may be impacts to eagle habitat in this action area in the

future.

EFFECTS OF THE ACTION

Beneficial Effects – Beneficial effects are those effects that are wholly positive, without any adverse effects. As defined, there are no beneficial effects in the proposed action.

Direct Effects – High levels of human activities within the vicinity of an eagle nest may harass eagles to the point that the adults abandon the nest, or they may not spend enough time incubating eggs or chicks or feeding the young, causing the young to die. Young eaglets that cannot fly can be frightened to the point that they jump out of the nest and are injured or die.

A variety of human disturbances have occurred or will occur in the vicinity of nest VAJC-0101. Vehicles (cars, buses, and small trucks), boating activity, people, and helicopters will each add a level of disturbance. It is impossible to distinguish which, if any, of these activities may cause harassment of the eagles to the point of nest abandonment or injury/death to the eggs or young. Of the human activities within the vicinity of nest, boat activity will probably disturb the eagles the most (Watts, pers. comm. 2001).

First-year nesting pairs have a greater chance of abandoning a nest than pairs that have occupied a nest for several years (Watts, pers. comm. 2001). This pair was seen in the nest in late February 2001. Due to the investment already taken, it is unlikely that this pair will abandon the nest during the current nesting season. Based on the location of the nest, the Service does not believe that the current type and level of human disturbance will cause young eaglets to jump out of the nest. While it is possible that the increased level of human disturbance over the spring and summer may result in the adults choosing not to return to the nest site next winter, the Service believes that the proposed actions by NPS will not cause the eagles to abandon the nest.

Interrelated and Interdependent Actions – An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation. No activities that are interrelated to or interdependent with the proposed action are known at this time.

Indirect Effects – Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. There are no known indirect effects at this time.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate

consultation pursuant to section 7 of the ESA.

There are non-federal activities that affect the eagles nesting at VAJC-0101. There is private land on Jamestown Island owned by the Association for the Preservation of Virginia Antiquities (APVA). Almost all of APVA's land is outside the primary protective zone of 750 feet; their road connection to the main road is the only APVA land within the primary zone. As stated above, there is only one road onto Jamestown Island, and APVA traffic numbers are included in the NPS traffic numbers. Furthermore, the nest is concealed from view from almost all of the APVA land. Some activities, such as occasional individual tree clearing within 1,320 feet (but outside 750 feet) of the nest are prohibited during the nesting season, which runs from December 15 to July 15 in Virginia.

APVA maintains a helicopter pad approximately 1,300 feet from the nest. APVA estimates that helicopter flights occur about once a month. APVA has instructed the pilot to avoid coming any closer to the nest than the landing pad and to observe a 1,000-foot vertical clearance from the nest.

Boat traffic within the action area is expected to dramatically increase during the warmer months. Since the eagles probably established the nest in the late fall of 2000, there will be a marked increase in human disturbance to this new eagle nest, even though boat activity will probably be comparable to other summers. FWS has communicated with the owner of the *Jamestown Island Explorer*, a tour boat that circumnavigates the Island. The tour boat, which only operates from April to September/October, will be a source of disturbance to the eagles. In addition to the presence of the boat, the boat has a loudspeaker that points out historic and natural points of interest. The boat owner has agreed to refrain from using the loudspeaker within 500 feet of the nest. Since the eagles moved within 500 feet of the road, and the road does have year-round traffic, the eagles are tolerant of some human activity.

Other boat traffic on Back River and Sandy Bottom, most notably jet skis, will undoubtedly create noise and disturbances near the nest.

Plans for celebrating the 400th anniversary of the Jamestown settlement are ongoing. The "Jamestown 2007" proposals will likely result in formal consultation later this year, regarding this and other eagle nests and perhaps the sensitive joint-vetch, *Aeschynomene virginica*, as well.

CONCLUSION

After reviewing the status of the bald eagle, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is FWS's biological opinion that the current operations at Jamestown Island, as proposed, are not likely to jeopardize the continued existence of the bald eagle. No critical habitat has been designated for this species, therefore, none will be affected.

III. INCIDENTAL TAKE STATEMENT

Sections 9 of the ESA and federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by FWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by FWS as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are nondiscretionary, and must be undertaken by NPS so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in action 7(o)(2) to apply. NPS has a continuing duty to regulate the activity covered by this incidental take statement. If NPS (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, NPS must report the progress of the action and its impact on the species to FWS as specified in the incidental take statement.

AMOUNT OR EXTENT OF TAKE

FWS anticipates take associated with bald eagle nest VAJC-0101 as a result of this proposed action. The incidental take is expected to be in the form of harassment of the adult pair less than the level that would cause nest abandonment.

FWS will not refer the incidental take of the bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

FWS believes the following reasonable and prudent measures are necessary and appropriate to minimize take of bald eagles:

- o Minimize harassment of eagles by visitors.
- o Do not encourage boat traffic near the nest.
- o Establish a vegetative screen between the nest and the parking lot.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the ESA, NPS must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are nondiscretionary.

1. Do not allow picnics, parties, fireworks, or other loud sounds (other than traffic) within 750 feet of the nest during the breeding season (December 15 to July 15).
2. Patrol the area routinely during the breeding season to ensure that visitors are not harassing the eagles by making loud noises or by walking any closer to the nest than the edge of the parking lot or the edge of the road. All NPS employees should be briefed so that they can correct visitors on the spot if they see visitors harassing the eagles. As long as all NPS employees can identify improper activities and have the authority and confidence to correct visitors, no special patrols are required.
3. Do not allow boats to land on NPS property within 1,320 feet of the nest during the breeding season.
4. During the breeding season, do not cut timber within 750 feet of the nest (except for safety reasons).
5. Plant a vegetative screen to prevent line of sight between the nest and the parking lot. The plants must be evergreens, and FWS recommends native species. The objective is to prevent a view of the parking lot from the nest, even in the winter. Most woody plants are best planted in the fall. Plantings must be complete by December 15, 2001.
6. Delay road work within 1,320 feet of the nest until May 20, 2001.
7. Perform as much maintenance work as possible outside the breeding season.
8. Monitor the nest weekly from November 15 to July 15 from the parking lot or the road to

determine if the eagles are present. With binoculars or a spotting scope, look for the adult eagles standing in or on the nest or perching very close by. Monitor the nest for 15 minutes or until the nesting pair for nest VAJC-0101 is observed. The report should state that eagles were present or absent. Submit this report to FWS no later than July 31, for the years 2001 through 2003. This and any additional information to be sent to FWS should be sent to the following address:

Virginia Field Office
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, Virginia 23061
Phone (804) 693-6694
Fax (804) 693-9032

9. Care must be taken in handling any dead specimens of listed species that are found in the project area to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. The finding of dead specimens does not imply enforcement proceedings pursuant to the ESA. The reporting of dead specimens is required to enable FWS to determine if take is reached or exceeded and to ensure that the terms and conditions are appropriate and effective. Upon locating a dead specimen, notify FWS at the address provided.

FWS believes that two adult eagles may be harassed at a level less than nest abandonment as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures. NPS must immediately provide an explanation of the causes of the take, and review with FWS the need for possible modification of the reasonable and prudent measures and the terms and conditions.

IV. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to further minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. FWS has no conservation recommendations.

V. REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the initiation request. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

For this Biological Opinion, the level of incidental take is harassment of the adult pair. Any take greater than that level requires reinitiation. Some examples include the death of any eagles from the nest, the adults leaving the nest prior to eaglet fledging, or the adults failing to return by December 15, 2001.

FWS appreciates this opportunity to work with NPS in fulfilling our mutual responsibilities under the ESA. If you have any questions, please contact Mr. Eric Davis of this office at (804) 693-6694, extension 104.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office

Enclosures

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Table 1. Estimated Visitation at Jamestown Island, Colonial National Historical Park (March 2000-February 2001). Numbers of visitors are rounded to the nearest hundred.

	<u>total #</u> <u>of visitors</u>	<u># of visitors</u> <u>on buses</u>	<u># of buses</u>
March	21,622	8,000	182
April	31,800	11,200	275
May	26,200	8,000	196
June	36,200	6,700	171
July	43,100	700	23
August	32,500	300	10
September	22,700	1,000	31
October	29,600	5,400	131
November	21,700	6,100	142
December	11,500	1,400	36
January	5,400	500	15
February	8,600	1,500	32