Compatibility Determination

Station Name: Chincoteague NWR **Date Established:** May 13, 1943

Establishing Authority:

1. Migratory Bird Conservation Act
2. Refuge Recreation Act
3. Emergency Wetlands Resources Act of 1986

Purpose(s) for which Established:

1. For use as an inviolate sanctuary, or for any other management purpose for migratory birds.
2. 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.
3. The conservation of 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.

Description and History of Use Being Evaluated: Natural Resource Collection: Beachcombing and Pine Needles/Cones

For the purpose of measuring beach use, beachcombing on Assateague Island has been divided into four zones. The two areas north of the recreational beach are from D dike north and the area south of D dike. The other two areas are the first 1.5 miles of the ORV zone and the rest of the Toms Cove Hook. In 1993, beachcombing visits totaled 88,351 with July receiving the most use (21,292). Over eighty-seven percent of the use occurs in the first 1.5 miles of the ORV zone and the area from D dike south to the recreational beach. Surveys during the heavy beach use season revealed that less than four people per day were seen on the beach north of D-Dike. Additional areas that receive limited amounts of this use include the south end of Assawoman Island and the north end of Metompkin Island.

An average of ten letter permits are issued annually for people to collect pine needles, and only one permit in the last four years was issued to collect a few pine cones on the refuge. Collection is made along the public trails on Assateague Island.

Beachcombing and other wildlife oriented activities are covered in the 1992 Final Environmental Impact Statement for the Chincoteague National Wildlife Refuge Master Plan (FEIS) and the 1993 Chincoteague National Wildlife Refuge Master Plan. Additional information can also be found in the station's 1993 Public Use Plan and the 1990 Public Use Plan for Assawoman and Metompkin Divisions. These documents are appended.

The only public recreation that occurred on Chincoteague Refuge before the bridge was

constructed in 1962 was beach use. Visitors would drive down the beach from the Maryland end of Assateague Island. On June 17, 1957, Congress passed Public Law 85-57, Chincoteague National Wildlife Refuge, Virginia - Bridge and Road. This law authorized the Secretary of the Interior to permit the construction of a bridge and road across Chincoteague National Wildlife Refuge. The objective of this law was "to permit the controlled development of a portion of the seashore of the Chincoteague National Wildlife Refuge, Virginia for recreational purposes, ..." This law also authorized the Secretary to enter into agreements for the construction, maintenance, and operation "of a public beach, concession, parking areas, and other related public conveniences,..." The FWS, on April 1, 1959 entered into an agreement with the Chincoteague-Assateague Bridge and Beach Authority whereby certain refuge lands constituting what is known as Toms Cove Hook were assigned to the Authority for the purpose of developing a public beach and recreational facility. The deed of easement also provided for the construction of a bridge and access road to the Toms Cove Hook.

In 1965 the Assateague Island National Seashore (AINS) was established. Under a Memorandum of Understanding (MOU) completed in the summer of 1979 between the FWS and NPS, the AINS would provide and manage visitor contact and interpretive facilities and programs on a day-use basis for public recreation and interpretation including, but not limited to, swimming and associated beach uses. Also under that agreement, FWS would retain the primary responsibility for managing the wildlife resources within the "Assigned Area," with the understanding by both agencies that recreational use programs would be planned and carried out to minimize impacts on wildlife resources. In 1990, an Interagency Agreement replaced the MOU, with the new agreement allowing for the same uses as the MOU.

After the construction of the bridge in 1962, visitation steadily rose and by 1968 over 500,000 visits were recorded. During the next decade refuge visits increased by an average of 12% annually. In 1987 visitation peaked at over 1.5 million visits, with over 800,000 occurring during the summer season, June through August. In 1993 the refuge received 1,415,830 visits.

Anticipated Impacts on Refuge Purposes(s):

Beachcombing 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 studying 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 (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).

The majority of beachcombing takes place south of D-Dike with most occurring within the beach recreation zone and the off road vehicle area. Although some disturbance to migratory birds will occur, it should be minimal due to the location of the activity, the beach areas not impacted, and the closures in place to protect piping plovers and other shorebirds.

The collection of pine needles/cones on trails may impact shorebird, waterfowl, and other migratory bird populations feeding and resting near the Wildlife Loop, and to a lesser extent the Lighthouse Trail during certain times of the year. Use of the Woodland Trail is more likely to impact songbirds than other migratory birds.

Human disturbance to migratory birds has been documented in many studies in different locations. Conflicts arise when migratory birds and humans are present in the same areas (Boyle and Samson 1985). Response of wildlife to human activities includes: departure from site(Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschgen et al 1985, Henson and Grant 1991, Kahl 1991, Klein 1993), use of sub-optimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior (Burger 1981, Korschen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993), and increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). McNeal et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. Studying the effects of human visitation on waterbirds at J.N. "Ding" Darling NWR, Klein (1989) found resident waterbirds to be less sensitive to disturbance than migrants; she also found that sensitivity varied according to species and individuals within species. Ardeids were quite tolerant of people but were disturbed as they took terrestrial prey; great blue herons, tricolored herons, great egrets, and little blue herons were observed to be disturbed to the point of flight more than other birds. These birds are also found on Chincoteague Refuge, and Kushlan (1987) found that the need of these birds to move frequently while feeding may disrupt interspecific and intraspecific relationships. In addition, Batten (1977) and Burger (1981) found that wading birds were extremely sensitive to disturbance in the northeastern U.S. Kelin (1993) in a studying 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; Freddy et al. (1986) and Vaske (1983) also found the latter to be true. In regards to waterfowl, Klein (1989) found migratory dabbling ducks to be the most sensitive to disturbance and migrant ducks to be more sensitive when they first arrived, in the late fall, than later in winter. She also found that gulls and sandpipers to be apparently insensitive to human disturbance, with Burger (1981) finding the same to be true for various gull species.

For songbirds, Gutzwiller et. al. (1994) found that singing behavior of some species was

altered by low levels of human intrusion. Some studies have found that some bird species habituate to repeated intrusion; frequently disturbed individuals of some species have been found to vocalize more aggressively, have higher body masses, or tend to remain in place longer (Cairns 1980, Parsons and Burger 1982). Disturbance may affect the reproductive fitness of males by hampering territory defense, male attraction and other reproductory functions of song (Arrese 1987, Radesater et. al. 1987). Disturbance, which leads to reduced singing activity, would make males rely more heavily on physical deterrents in defending territories which are time and energy consuming (Gill and Wold 1975, Ewald and Carpenter 1978, Carlson and Morena, 1992).

Four of the refuge's fourteen impoundments are impacted to some degree by wildlife oriented public use on the trails; parts of these areas, as well as the trails through wooded areas, are subject to both visual and noise disturbance. When public use of this trail system is the highest (June, July, and August), water management within three of the four impoundments impacted is such that normally very little water is present and therefore, migratory bird use is low. Trail use is lower during the waterfowl migration period when impoundments water levels are more conducive to migratory bird use; however, trail use is relatively high during the peak shorebird migration in May. In determining compatibility, the cumulative effects of all public use on the trails is considered; the attached table depicts total trail use. Migratory bird use by impoundments is appended. As can be seen, migratory bird use in the impoundments affected is high, when water levels are suitable, although some disturbance is occurring and some species or individuals may be avoiding the area due to the disturbance. Since pine needle/cone collection is from trails, some disturbance is likely; however, since the needles and cones on the trails present safety hazards, refuge staff would be required to clean these trails anyway. Impacts are expected to be minimal due to the limited amount of this activity.

Determination: (Check One)

This use is compatible ___X___ This use is not compatible _____

The following stipulations will ensure compatibility:

Only wildlife oriented recreation will be permitted north of the recreational beach zone.

Areas important to nesting piping plovers and other shorebirds will continue to be closed to recreational use.

Portions of the remaining 1.5 mile ORV zone and sections of the wild beach will be subject to closure if piping plovers establish nesting territories in those areas.

Pine needle/cone collection will only be allowed along established public use trails.

Activities will only be permitted during open hours, to allow total wildlife use of the area from closing in the evening until opening the next morning.

Public use activities are monitored and if visits increase to a point where disturbance becomes a problem, additional access restrictions will be implemented.

Justification:

Wildlife oriented recreation is the only use permitted on the beach north of the recreational beach zone and the vast majority of beachcombers stay within the zones south of D dike. The limited use allows for periods of uninterrupted feeding by shorebirds, gulls, and terns present in the area. Closure of the 2.5 mile ORV zone from March 15 through August 31 provides maximum protection to prime nesting habitat for piping plovers and other nesting species. These restrictions are in place to assure the protection of the migratory shorebirds, and particularly the threatened piping plover, which use the refuge for nesting and feeding. The extremely light use on the lower islands allows for long periods of uninterrupted feeding by shorebirds, gulls and terns present in the area. The collection of pine needles/cones is very minor and will result in minimal disturbance. In addition, suitable migratory bird habitat, which is not subject to disturbance, is available on other parts of the refuge.

Project Leader John D. Schroer, Refuge Manager July 6, 1994
(Name/Title/Signature/Date)

Review and Concurrence _____
(Name/Title/Signature/Date)

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(Name/Title/Signature/Date)

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CHINCOTEAGUE NATIONAL WILDLIFE REFUGE
TRAIL USE - 1993
VISITS BY MONTH

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WILDLIFE LOOP												
VEHICLE	3430	3403	3903	9547	13138	20502	31952	31190	17208	10686	6561	4221
FOOT	1683	1673	1923	4669	6429	10026	15690	15364	8523	5276	3215	2067
BICYCLE	202	222	484	1109	1573	2399	4980	4879	2016	1250	807	262
TOTAL	5313	5298	6310	15325	21140	32927	52622	51433	27747	17212	10583	6550
WOODLAND TRAIL												
FOOT	1409	1388	1591	3956	5455	8452	13126	12805	7043	4336	2716	1750
BICYCLE	111	122	267	612	868	1324	2749	2693	1113	690	445	145
TOTAL	1520	1510	1858	4568	6323	9776	15875	15498	8156	5026	3161	1895
LIGHTHOUSE TRAIL												
FOOT	1586	1580	1808	4394	6032	9479	14755	14362	7899	4960	3016	1939

VEHICLES BY MONTH

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WILDLIFE LOOP												
VEHICLES	1071	1063	1219	2983	4105	6407	9985	9747	5377	3339	2050	1319