

June 3, 1994

Colonel Andrew M. Perkins, Jr.  
District Engineer  
Norfolk District, Corps of Engineers  
Fort Norfolk, 803 Front Street  
Norfolk, VA 23510-1096

ATTN: Mr. Nick Konchuba, Regulatory Branch

RE: CENAO-CO-R 93-9596-30, Peaceful Beach

Estates Property Owners Assoc.

Dear Colonel Perkins:

This responds to your January 12, 1994 letter (received January 19, 1994) requesting formal consultation under Section 7(a)(2) of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), regarding impacts of the Department of the Army (DOA) permit application CENAO-CO-R 93-9596-30, Peaceful Beach Estates Property Owners Association c/o Mr. William O'Leary, on the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), a Federally listed threatened species. This letter constitutes the U.S. Fish and Wildlife Service (Service) biological opinion on this permit application as required by Section 7(b) of the ESA.

#### PROJECT DESCRIPTION

The permit applicant, Peaceful Beach Estates Property Owners Association, is requesting authorization to construct eighteen 50-foot long groins, 100 feet apart, along approximately 1,647 feet of shoreline. The project site is located along the Chesapeake Bay at lots 7 through 14 of the Peaceful Beach Estates subdivision off State Route 183, south of Jamesville, Northampton County, Virginia. The permit applicant received a "no-permit-required" determination from the Corps of Engineers (Corps) on December 1, 1993 to construct a bulkhead landward of mean high water along the same 1,647 feet of shoreline. The groins will be connected to and extend channelward of the bulkhead.

#### CONSULTATION HISTORY

Consultation history regarding this project is provided in Appendix A.

#### BIOLOGY OF THE NORTHEASTERN BEACH TIGER BEETLE

The northeastern beach tiger beetle, a beach dwelling beetle of the family Cicindelidae, has white wing covers, often with several fine grayish-green lines, and a grayish-green head and thorax and measures 0.5 to 0.6 inches in length (Knisley 1991, USFWS 1993). Adult tiger beetles, present from mid-June through August, forage along the water's edge on small amphipods, flies, and other beach arthropods or scavenge on dead amphipods, crabs, and fish (Knisley et al. 1987, USFWS 1993). Larval tiger beetles dig 4 to 14 inch vertical burrows in the sand within and above the intertidal zone (Knisley et al. 1987, USFWS 1993). Larval tiger beetles pass through three developmental stages and emerge as adults two years following egg laying (Knisley et al. 1987, USFWS 1993). Northeastern beach tiger beetles are found on highly dynamic beaches with back beach vegetation and prefer long and wide beaches that have low human and vehicular activity, fine particle size, and a high degree of exposure (Knisley et al. 1987). Adult tiger beetles have a regular dispersal phase after peak numbers emerge in early July (Knisley and Hill 1989, USFWS 1993). Mark-recapture studies illustrate that tiger beetles may travel 5 to 12 miles (Knisley and Hill 1989) from sites where they were marked, and some individuals may disperse tens of miles (USFWS 1993).

#### DISTRIBUTION AND THREATS OF THE NORTHEASTERN BEACH TIGER BEETLE

The northeastern beach tiger beetle historically was a common inhabitant of coastal beaches from Cape Cod,

Massachusetts to central New Jersey, and along the Chesapeake Bay, from Calvert County, Maryland south. It is now extirpated from the Atlantic Coast except for one population on Martha's Vineyard, Massachusetts (Federal Register, Vol. 55, No. 152, August 7, 1990). A 1989-90 Virginia Department of Conservation and Recreation, Division of Natural Heritage (Natural Heritage) survey of all potential beach habitats in the Virginia portion of the Chesapeake Bay identified 55 sites that harbor the tiger beetle, with 12 sites in Northampton County (Buhlmann and Pague 1992).

The northeastern beach tiger beetle was initially discovered on the project site, identified within the Silver Beach site, during the 1989-90 Natural Heritage inventory (Buhlmann and Pague 1992). The Silver Beach site consists of approximately 5600 feet of contiguous shoreline. The project site is located within the northern third of the Silver Beach site. A high density of adult tiger beetles (400 adult tiger beetles per 100 meters) was observed at this beach. Out of four possible ranks ("A" being the highest and "D" being the lowest), the Silver Beach site was given an environmental ranking of "B" due to its high habitat quality but planned development. The Silver Beach site is considered one of the 20 most significant Chesapeake Bay northeastern beach tiger beetle localities (USFWS 1993).

In response to the Peaceful Beach Estates Property Owners Association permit application, the project site was resurveyed on November 8, 1993 by Dr. C. Barry Knisley, a professor of biology at Randolph-Macon College who specializes in the study of tiger beetles (Knisley 1993). Larval tiger beetles were identified and counted within two meter-wide transects across the width of the beach at 25-meter intervals along the entire length of the 1,600 foot project area and within 300 feet south of the project site. The results indicate that the whole length of shoreline provides suitable habitat for recruitment and development of northeastern beach tiger beetle larvae. Based on the presence of adults during the Natural Heritage inventory and the "abundant" larvae during this survey, Dr. Knisley indicated that "this site probably supports a good, stable population [of northeastern beach tiger beetles]." Future habitat appropriate for northeastern beach tiger beetle adults and larvae will be lost within the 1,647-foot project area as a result of the previous construction of a bulkhead at the project site. Previously permitted and/or constructed shoreline stabilization projects north of the Peaceful Beach Estates project site (Peaceful Lakes and Peaceful Shores, see attached subdivision map) have and will diminish the quality of the tiger beetle habitat by cutting off sand transport and causing erosion at the project site.

Threats to the northeastern beach tiger beetle include shoreline development, beach stabilization structures, high recreational use, off-road vehicular traffic, pollution and pesticides, and natural events, including winter beach erosion, flood tides, and hurricanes (Knisley et al. 1987, Knisley and Hill 1989, Knisley and Hill 1990, USFWS 1993). Populations of northeastern beach tiger beetles are highly variable from year to year. The beetle is subject to local population extinctions but is capable of dispersal and recolonization (USFWS 1993). The Service determined threatened status for this beetle because of its greatly reduced range and high susceptibility to natural and human threats (Federal Register, Vol. 55, No. 152, August 7, 1990).

#### EFFECTS OF THE FEDERAL ACTION ON THE NORTHEASTERN BEACH TIGER BEETLE AND ITS HABITATS

As defined in 50 CFR 402.02 "action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. 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. The action area for this biological opinion has been determined by the Service to be the entire length and width of beach within the 1,647-foot project area and within 200 feet of shoreline adjacent and south of the project area.

In evaluating the effects of the Federal action under consideration in this consultation, 50 CFR 402.02 and 402.14(g)(3) require the Service to evaluate both the direct and indirect effects of the action on the species, together with the effects of other activities that are interrelated or interdependent with the action. This project will result in the direct killing of an undetermined number of northeastern beach tiger beetle adults and larvae along the 1,647 feet of shoreline within the project area. Adult tiger beetles will be crushed by human activity, placement of equipment and materials on the beach, and actual construction of the groins. As they exist in burrows within and above the intertidal zone, larval tiger beetles will be particularly susceptible to loss. During these construction associated activities, larval

burrows will be compacted and larvae dislodged and crushed. Habitat appropriate for northeastern beach tiger beetle adults and larvae will be permanently lost within the footprint of the groins.

Within the project area, the natural interface between the upland and the beach has been replaced with the bulkhead. This hardened structure has eliminated the natural sloughing and erosion of sand from the banks and, subsequently, replenishment of sand to the beach. Once in place, the groins will act to trap longshore sand transport, and each groin will trap sand on one of its sides while starving sand to its opposite side. The natural beach will be altered in its width, profile, and distribution and amount of sand. As the specifications of its habitat requirements appear to be very limiting, the northeastern beach tiger beetle will not survive at the current population level at the project site. The exact extent of the northeastern beach tiger beetle population following completion of the project cannot be predicted. Seasonal and yearly variation in amounts and distribution of sand between the groins will continually displace adult tiger beetles and expose and displace larval tiger beetles.

The bulkhead and groins will stop or reduce longshore sand transport and, therefore, rob sand replenishment to the downdrift shoreline. Within an estimated 200 feet of shoreline south of the project site, beach habitat currently utilized by northeastern beach tiger beetle adults and larvae will be altered or displaced (Scott Hardaway, Virginia Institute of Marine Science, pers. comm.; Lee Hill, Virginia Department of Conservation and Recreation, Shoreline Erosion Advisory Service, pers. comm.). Erosion of the beach south of the project will render it unsuitable for the tiger beetle.

#### BIOLOGICAL OPINION

In rendering this opinion, there are several factors unique to this particular project that must be considered. Construction of the bulkhead at the project site has eliminated sand replenishment from the upland bank to the beach, increased reflected wave energy, and, therefore, accelerated erosion of the beach. Construction of the groins will prevent complete erosion and loss of northeastern beach tiger beetle habitat along 1647 feet of shoreline. Thus this project may function to preserve some tiger beetle habitat.

It is the Service's opinion that the Peaceful Beach Estates Property Owners Association shoreline stabilization project is not likely to jeopardize the continued existence of the northeastern beach tiger beetle. If northeastern beach tiger beetle habitat is completely eliminated at the project area, appropriate tiger beetle habitat will remain within the southern portion of the Silver Beach site. Opportunities for recolonization should continue between the Silver Beach population and the Sparrow Point population (Buhlmann and Pague 1992) approximately three miles north of the project site. It is the Service's opinion that the project will result in take, both of the species and its habitat, as addressed below.

#### INCIDENTAL TAKE

Section 4(d) and 9 of the ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without special exemption. Harm is further defined 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 as such 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. 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 a prohibited taking 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 incorporated by the Corps so that they become binding conditions of any permit issued to the applicant in order for the exemption in Section 7(o)(2) to apply.

Pursuant to 50 CFR 402.14(g)(7), the Service is to formulate a statement concerning the incidental take of a listed species. This statement must include the level of take that is anticipated to occur due to the Federal action. The Service is to develop, and the Federal agency and/or applicant is to implement, reasonable and prudent measures that will minimize the impacts of the action on the species. In addition, the Service must set the terms and conditions that must be complied with. If the level of incidental take is exceeded, formal consultation under Section 7 must be reinitiated.

The Corps has a continuing duty to regulate the activities that are covered by this incidental take statement. If the Corps 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. The measures described below are nondiscretionary and must be made a binding condition of any DOA permit issued to the Peaceful Beach Estates Property Owners Association.

The Service anticipates that incidental take of northeastern beach tiger beetles will occur in the form of direct killing of an unknown number of adults and larvae occupying approximately 28,000 square feet of suitable habitat (1,647 feet in length by an average 17 foot width) during project construction. The proposed project will also permanently eliminate tiger beetle habitat within the footprint of the groins. Northeastern beach tiger beetle habitat will be indirectly affected and potentially rendered unsuitable along the 1647 feet of shoreline within the project area and 200 feet of shoreline to the south as a result of modifications to the beach profile, width, and distribution and amount of sand.

#### REASONABLE AND PRUDENT MEASURES TO MINIMIZE TAKE

The incidental take statement provides measures that are necessary or appropriate to minimize take of the listed species. Such measures should decrease the level of take to the maximum extent possible or describe methods by which to replace the capability of the population or habitat to support preactivity levels. These measures are to be reasonable and prudent, meaning that the nature of the corrective action required is commensurate with the impact on the species/habitat. Such measures are to be within the authority or capability of the agency or applicant to perform, and should not alter the basic purpose, location, scope or duration of the Federally permitted action. The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize take:

- o Groins must be constructed so as to replicate, to the maximum extent possible, the current beach width (average beach width equals 17 feet from high tide to back beach). Determining the desired length of groin must take into account an expected nonlinear distribution of sand following beach stabilization.
- o Groins should be designed and constructed properly to withstand wave energy and ensure longevity. Construction materials should not, themselves, pose harm to tiger beetles.
- o Activity and materials/equipment on the beach must be minimized, to the maximum extent possible, to reduce the killing of tiger beetles.
- o To reduce erosion of downdrift areas, the southern-most groin must be constructed with a spur. The spur must be designed and constructed properly to withstand wave energy and ensure longevity.
- o Construction activities must be conducted during an appropriate time of year to minimize the killing of tiger beetles. The worst time of year for construction is June through October, when adults are active and egg laying and larval recruitment and development are taking place.

#### TERMS AND CONDITIONS

In order to be exempt from the prohibitions of Section 9 of the Endangered Species Act, Peaceful Beach Estates Property Owners Association should be made responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions must be incorporated as binding conditions of any DOA permit issued by the Corps.

1. Seventy foot-long low-profile groins will be constructed to create approximately 20 feet of beach above the mean high water line. The first section of each low-profile groin will extend 30 feet seaward of the bulkhead at one foot above mean high water. The second section of each low-profile groin will extend an additional 40 feet seaward at a 10 to one slope to one foot below mean low water. A total of 13 low-profile groins will be constructed 140 feet apart.
2. The groins will be designed by a professional engineer or experienced contractor, reviewed by the Virginia

Department of Conservation and Recreation Shoreline Erosion Advisory Service, and approved by the U.S. Fish and Wildlife Service. The groins will be constructed of salt-treated lumber. All hardware will be galvanized.

3. The groins will be constructed by hand. No vehicles or heavy machinery, other than a pump used to emplace the lumber, will be allowed on the beach. Human activity during construction will be kept to a minimum. No materials will be stockpiled on the beach. Materials will be transported to the beach only on an as-needed basis.

4. A spur will be constructed on the southern-most groin. The spur will be designed by a professional engineer or experienced contractor, reviewed by the Virginia Department of Conservation and Recreation Shoreline Erosion Advisory Service, and approved by the U.S. Fish and Wildlife Service. The spur will be constructed of salt-treated lumber. All hardware will be galvanized.

5. No construction will occur during the months of June through October of any year.

6. To address the success of the reasonable and prudent measures, the proposed project must be monitored to determine the exact extent of impact to tiger beetles and their habitat. Inventories of larval tiger beetles must be conducted along with assessment of beach characteristics. The permittee will fund two inventories of the project site per year for each of five years following construction. The inventories will assess use of the project site by adults (during July) and larvae (during October). The inventories must be conducted by an individual or individuals proficient in the identification, research, and biology of northeastern beach tiger beetles. The inventories will be conducted in sufficient detail to assess the value of the beach habitat to the tiger beetle population and will include detailed descriptions of the beach width and profile at set intervals along the entire length of shoreline. The area to be inventoried will include the 1647-foot project area. Observations will be made of the 200 feet of downdrift shoreline to estimate changes in the beach profile due to the bulkhead and groin construction. Initial design of the inventory plan must be approved by the U.S. Fish and Wildlife Service. For each of the five years, the permittee will submit to the U.S. Fish and Wildlife Service's Virginia Field Office a report documenting the surveyor and dates, methods, and results of the inventories and beach measurements, within 30 days following completion of the second inventory.

#### REPORTING AND MONITORING REQUIREMENTS

The terms and conditions of the incidental take statement require the Peaceful Beach Estates Property Owners Association to provide the Service with inventory reports. The contact for these reporting requirements is as follows:

Virginia Field Office  
U.S. Fish and Wildlife Service  
Mid-County Center, U.S. Route 17  
P.O. Box 480  
White Marsh, VA 23183  
(804) 693-6694

Upon locating a dead specimen, initial notification must be made to the following Service Law Enforcement office:

Division of Law Enforcement  
U.S. Fish and Wildlife Service  
P.O. Box 187  
Yorktown, VA 23690  
(804) 890-0003

Care should be taken in handling dead specimens to preserve biological material in the best possible state. In conjunction with the preservation of biological materials for a dead animal, the finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

#### REINITIATION OF FORMAL CONSULTATION

This concludes formal consultation on this Federal action. As required by 50 CFR 402.16, reinitiation of formal consultation by the Corps is required if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; (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, all activities that are causing such take must cease until such time as any necessary consultation is completed in order to avoid violation of Section 9 of the ESA.

The Service appreciates this opportunity to work with the Corps in fulfilling our mutual responsibilities under the ESA. Please contact Ann F. Jennings of this office at (804) 693-6694 if you require additional information or wish to discuss our comments further.

Sincerely,

Karen L. Mayne  
Supervisor  
Virginia Field Office

Attachments

cc: Mr. Gerry Tracy, Corps, Eastern Shore Field Office  
Mr. William O'Leary, Jamesville, VA Literature Cited

Buhlmann, K. A. and C. A. Pague. 1992. Natural heritage inventory of Cicindela dorsalis dorsalis (northeastern beach tiger beetle). Natural Heritage Technical Report #92-16. Department of Conservation and Recreation, Division of Natural Heritage. Richmond, VA. 41 pp.

Knisley, C. B. 1991. Northeastern beach tiger beetle. Pages 233-234 in K. Terwilliger, ed. Virginia's Endangered Species, Proceedings of a Symposium. McDonald and Woodward Publishing, Co., Blacksburg, VA.

Knisley, C. B. 1993. Survey for the northeastern beach tiger beetle, Cicindela dorsalis, at Peaceful Beach Estates, W. O'Leary property. Report to U.S. Fish and Wildlife Service, Virginia Field Office, White Marsh.

Knisley, C. B. and J. M. Hill. 1989. Human impact on Cicindela d. dorsalis on Flag Ponds, Maryland. Final Report to U.S. Fish and Wildlife Service, Annapolis Field Office, Maryland.

Knisley, C. B. and J. M. Hill. 1990. Studies of two endangered tiger beetles, Cicindela dorsalis dorsalis and Cicindela puritana, in Maryland, 1989. Part I. Human impact and biological studies in Calvert County. Final Report to Maryland Natural Heritage Program, Annapolis.

Knisley, C. B., J. I. Luebke, and D. R. Beatty. 1987. Natural history and population decline of the coastal tiger beetle, Cicindela dorsalis dorsalis say (Coleoptera: Cicindelidae). Va. J. Sci. 38: 293-303.

U.S. Fish and Wildlife Service. 1993. Northeastern beach tiger beetle (Cicindela dorsalis dorsalis Say) Recovery Plan/Agency Draft. Hadley, MA. 50pp.

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bcc: DARD-ES(FO), Region 5  
(Attn: Debbie Mignagno)