

# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
6669 Short Lane  
Gloucester, VA 23061

March 7, 2003

Colonel David L. Hansen  
U.S. Army Corps of Engineers  
Norfolk District  
803 Front Street  
Norfolk, Virginia 23510-1096

Attn: Gerry Tracey  
Regulatory Branch

Re: Biological Opinion for Sugar Hill  
Property Owners, Permit Application #  
02-V1449, Northampton County,  
Virginia

Dear Colonel Hansen:

This document transmits the U.S. Fish and Wildlife Service's biological opinion based on our review of the above referenced groin and bulkhead project located in Northampton County, Virginia and its effects on the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), Federally listed threatened, 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.). This biological opinion is based on information provided in the permit application, telephone conversations, field investigations, and other sources of information. The U.S. Army Corps of Engineers' (Corps) proposed action is to issue a Department of the Army permit to the applicant for the proposed construction activity. A complete administrative record of this consultation is on file in this office.

### I. CONSULTATION HISTORY

- 10/24/02      The Service received the Corps' request to initiate formal consultation.
- 10/28/02      Letter from Service to the Corps stating that a biological opinion would be provided to the Corps by March 8, 2003.
- 02/27/02      The Service conducted a site visit.

## II. BIOLOGICAL OPINION

### DESCRIPTION OF PROPOSED ACTION

This project is located north of County Route 1901 in the Sugar Hill subdivision (lots 13-16 and 18-26) along the Chesapeake Bay, in Northampton County, Virginia (Figure 1). Lot 17 has an existing bulkhead and groins and is not included in the project. The applicant proposes to construct 14 low profile groins, spaced approximately 100 feet apart, extending 50 feet landward from mean low water (MLW). The applicant further proposes to construct 1,517 linear feet of bulkhead with backfill and a 2-foot rip-rap toe, and then place 700 cubic yards of sand between the bulkhead and mean high water (MHW). The applicant also proposes to construct 12 recessed open-pile stairways at lots 13-15 and 18-26. A project modification discussed on site with the Corps indicates that the vegetated wetlands on lot 26 will not be impacted.

At this site the Corps previously received a permit application (97-1949-30) for lots 25-27 to construct 431 linear feet of bulkhead with backfill and seven 40-foot long groins. The application was coordinated with the Service under formal consultation of Section 7 of the ESA. On April 6, 1998, the Service issued its biological opinion on the impacts of that project on the northeastern beach tiger beetle. On April 15, 1998, the Corps issued a Regional Permit (93-RP-19) for the work containing the biological opinion's terms and conditions with an expiration date of September 2, 1998. On March 26, 2002, the Service requested information regarding the status of the required monitoring reports. An on-site inspection revealed that no work had been done, so no monitoring reports were overdue. Authorization to do the work has now expired.

The applicants' shoreline is an approximately 1,520-foot long sandy beach with an average width of 43 feet, depending upon winds and tides, abutting a 4-10-foot high vegetated bank. The area to the north of the project consists of a narrow beach with a swale behind it and the area to the south consists of a wider sandy beach.

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. Groins will accrete sand on one side while causing sand to erode away from the other side to various extent, based on the amount of sand in the system and the direction and strength of wave action. One can estimate the area affected by the groin as approximately the same distance on each side of the groin as the groin extends out into the waterway from MHW (L. Hill, Virginia Department of Conservation and Recreation, 2002). These proposed groins extend channelward to MLW, which is approximately 20 feet from MHW. The Service has determined that the action area for this project includes the area between MLW and the toe of the bank and between 10 feet south of the southern-most groin and 10 feet north of the northern-most. This area

measures 1,540 feet long by 43 feet wide and has a total area of approximately 66,220 square feet.

### STATUS OF THE SPECIES RANGEWIDE

Information on the status of the northeastern beach tiger beetle was provided to the Corps in a biological opinion dated August 23, 2001 for permit application 00-V1662. That information remains pertinent. The most recent surveys show that Picketts Harbor is one of 29 sites in the Chesapeake Bay supporting more than 500 adult beetles (considered a large, and probably viable population (U.S. Fish and Wildlife Service, 1994)) and one of 10 sites supporting more than 2000 adults (Knisely 2001 and 2002).

### ENVIRONMENTAL BASELINE

Status of the Species Within the Action Area - In 2002, Dr. Barry Knisley documented 293 adults and 217 larval tiger beetles in this approximately 1500 foot long section of the beach he refers to as Picketts Harbor (Knisley 2002). Picketts Harbor has been identified as a priority conservation site in the recovery of the northeastern beach tiger beetle (U.S. Fish and Wildlife Service, 1994). According to survey data from 5 different years, this approximately 10,000 foot long site of natural, mostly unmodified shoreline has supported a stable population of an average 2000 adults for eight years (Knisely 1997, 1999, and 2002). Additionally, surveys in 2002 showed 795 larval beetles versus the between 72 and 241 reported in the four prior surveys (Knisely 1997, 1999, and 2002). The applicant has declined to have a survey performed and is willing to assume the presence of the northeastern beach tiger beetle.

Factors Affecting Species Habitat Within the Action Area - Beach erosion and modification, from natural and anthropogenic modifications, affects the habitat at the project site. The beach to the north of the property is narrower and to the south wider. The beach to the south of the action area is undisturbed, and about ½ a mile south is the Virginia Department of Conservation and Recreation's William B. Trower Natural Area Preserve. No man-made structures are visible from the property to the north, but lot 17 has 2 existing groins and a bulkhead. It is unclear what impact these groins and revetment have had on this beach strand in the past.

### EFFECTS OF THE ACTION

Direct Effects - Direct impacts to the tiger beetle will result from the crushing of adult beetles, and subsequent injury or death, during construction from use/placement/stockpiling of equipment and materials on the beach and foot traffic within the construction area. Construction will also result in temporary loss of habitat for adults through disruption of their daily activity patterns (*i.e.*, foraging,

mating, basking, egg-laying). Larval tiger beetles may be directly affected through crushing, dislodging, and entombment, resulting in death or injury, during construction by use/stockpiling of equipment, materials, and sand on the beach and heavy foot traffic within the construction area. Larval beetles may also be prevented from feeding during that time due to their sensitivity to vibrations, movements, and shadows, resulting in injury and potentially death. Existing habitat for adult and larval beetles will be permanently lost within the footprint of the groins between MLW and MHW and further existing habitat for adult beetles will be lost in the footprint of the bulkhead with rip-rap toe and the portion of the groins that extend landward of MHW.

Indirect Effects - Indirect effects are defined as those that are caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02). Groins are designed to capture sand from long shore movement to help ensure that a beach continues to exist, though typically sand accretes on one side of the groins and erodes from the other. The proposed groins only extend channelward to MLW, so while the higher than average erosion documented at this beach (Knisely 1997) continues, these groins will not capture sand beyond the current MLW.

Sea level rise in the mouth of the Chesapeake Bay, currently 4mm/year and higher than the worldwide average, continues to accelerate as our climate warms and the Mid-Atlantic coast subsides following the disappearance of the massive glacier from the North-Atlantic coast thousands of years ago (U.S. Geological Survey, 1998). While determining the exact time frame is problematic, the Service believes that the presence of an immovable bulkhead with rip-rap toe will ensure that all tiger beetle habitat within the 1,500 foot long project site will be lost within the foreseeable future.

Future maintenance of the proposed shoreline stabilization structures may not require Corps' authorization. These activities may result in injury or death to adult and larval tiger beetles through heavy foot traffic on beach areas, use/stockpiling of equipment, and stockpiling/ placement of materials. Maintenance activities may also result in temporary or permanent habitat loss. These activities may result in further impacts to the tiger beetle population at this site.

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 interrelated to and interdependent with the proposed action are known 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. The Service believes that the subdivision development anticipated to occur subsequent to the installation of shoreline stabilization structures will cause an

increase in human recreational use, which will potentially harm or harass the tiger beetle and significantly reduce the quality of the remaining habitat.

### CONCLUSION

After reviewing the current status of northeastern beach tiger beetle throughout its range and in the action area, the environmental baseline for the action area, the effects of the proposed groins, bulkhead, rip-rap, and sand placement, and the cumulative effects, it is the Service's biological opinion that the issuance of a Department of the Army permit for this project, as proposed, is not likely to jeopardize the continued existence of the northeastern beach tiger beetle. However, Picketts Harbor is one of 12 priority conservation sites identified for the recovery of the northeastern beach tiger beetle in the Chesapeake Bay, and one of three large priority sites identified for the macrosite on the eastern shore of the Chesapeake Bay, and the Service believes this project will permanently remove approximately 15% of available habitat within this site, which supports approximately 27% of the larvae currently utilizing the site. The Service believes a limited number of permanent impacts to the habitat of the northeastern beach tiger beetle of the size of this project may be sustained before the continued existence of this species is jeopardized. No critical habitat has been designated for this species, therefore, none will be affected.

### III. INCIDENTAL TAKE STATEMENT

Section 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 the Service 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 the Service 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 of 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 the Corps so that they become binding conditions of any permit issued to the applicant, as appropriate, for the exemption in Section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (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, the Corps or applicant must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement.

#### AMOUNT OR EXTENT OF TAKE

The Service anticipates incidental take of the northeastern beach tiger beetle will be difficult to quantify and detect because any beetles (adult or larvae) that are killed during project construction, stockpiling of equipment and materials, and habitat loss will be difficult to observe or locate due to their coloring, small body size, and tendency for larvae to remain beneath the surface. However, the level of take of this species can be anticipated by areal extent of the habitat affected. The applicant's 1,520 foot long shoreline (plus 10 feet to the north of northern-most groin and 10 feet to south of southern-most groin) contains appropriate habitat for the northeastern beach tiger beetle in an area approximately 43 feet wide, totaling 66,220 square feet. This incidental take statement anticipates the direct taking of northeastern beach tiger beetles, including death of both adult and larval beetles, and permanent loss of habitat in the footprint of the groins, the bulkhead, the backfill, and the rip-rap toe, totaling 11,648 square feet. Beach renourishment between the bulkhead and MHW and construction activities, including stockpiling of materials and equipment, and modifications of the beach profile and distribution of sand within this area will result in habitat alteration, temporary habitat loss, and death of adult and larval tiger beetles during the construction year, potentially in the entire extent of the applicant's property, minus above calculated footprint, which equals approximately 54,172 square feet. The Service believes over 200 tiger beetle larvae could be lost in the construction year. The Service further anticipates the eventual loss of the entire 66,220 square feet as suitable habitat for the tiger beetle.

#### REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of the northeastern beach tiger beetle:

- o Construction activities must be conducted when adult beetles are not present.
- o Human activity, materials, and equipment on the beach must be minimized to reduce the impact to adult and larval tiger beetles.
- o Sand used for beach renourishment should resemble the existing substrate to the greatest extent possible.

#### TERMS AND CONDITIONS

To be exempt from the prohibitions of Section 9 of the ESA, the Corps and the applicant 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. No construction, earth-moving, or placement of sand, materials or equipment will occur on the beach between June 1 and September 15 of any year.
2. No maintenance of groins between June 1 and September 15 of any year.
3. Applicant must submit specifications of sand to be used in renourishment to the Corps to verify that grains are fine to medium in size and as close to the size of sand currently existing at the project site as possible. Coarse sand or silty material may not be used.
4. No ground disturbance or use of vehicles or heavy equipment will occur on the beach outside of the applicant's property boundaries.
5. During construction, equipment must remain on the vegetated bank above the beach or in the water whenever practicable.
6. Staging of materials and equipment must occur off of the beach.
7. No refueling of equipment or vehicles will occur on the beach.
8. No use of pesticides on the beach.
9. The applicant is required to notify the Service before initiation of construction and upon completion of the project at the address given below. All additional information to be sent to the Service 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

10. Pursuant to 50 CFR 402.14(i)(3), in order to monitor the impacts of incidental take, the federal agency or the applicant must report the impact of the action on the species to the Service. To meet this requirement, tiger beetle inventories (adult and larval) must be conducted along with assessments of beach characteristics. The survey area shall extend the length of the applicant's property, for a total of 1,520 feet. Surveys shall be performed by a Service-approved

surveyor. A list of pre-approved tiger beetle surveyors is enclosed. The applicant is not required to select someone from this list, but if someone else is selected, the proposed surveyor's qualifications must be sent to the Service for review at least 60 days prior to the survey. Surveys shall be conducted during the following years: 2003, 2005, 2007, 2009, 2011, and 2013.

Adult tiger beetles shall be inventoried on warm, sunny days between July 1 and July 25. The total number of adults observed on the applicant's beach will be recorded. Larval inventories shall be conducted between October 10 and 30 during low tide on cool and/or cloudy days. The number of larval burrows present within 2 m wide transects that extend from the edge of the water at the time of the survey to the back of the beach will be recorded. Transects will be separated by 50m and the mean number of burrows per transect will be calculated. An attempt to identify instar stage of larva shall be made. The inventories shall be conducted in sufficient detail to assess the value of the beach habitat to the tiger beetle population and shall include detailed descriptions of the beach width and profile at 50m intervals along the entire length of shoreline. The Corps or the applicant shall submit to the Service a report documenting the surveyor and dates, methods, and results of the inventories and beach measurements within 30 days following completion of the larval inventory each year. Capture and/or collection of beetles is not authorized under this requirement of the incidental take statement, except as permitted by appropriate federal and state regulatory agencies.

As part of the monitoring, photographs shall be taken to document changes to the beach over time. Photographs, at least 4 x 6 inches in size, shall be taken from five different fixed points in the action area. These photographs shall be included in the monitoring reports.

11. Care must be taken in handling any dead specimens of northeastern beach tiger beetle 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 the Service 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 the Service at the address provided above.

The Service believes that an unquantified number of individuals of the northeastern beach tiger beetle within the action area (66,220 square feet) will be incidentally taken as a result of the proposed action. Due to the variability in numbers of adults and larvae from year to year, it is difficult to quantify incidental take; however, the Service anticipates a 27% reduction in the numbers of larvae using Picketts Harbor, and an eventual permanent loss of the entire 1,520 foot long, 66,220 square feet of suitable tiger beetle habitat. The reasonable and prudent measures, with their implementing terms and

conditions, are designed to minimize the immediate impact of incidental take that might otherwise result from the proposed action, but cannot prevent the long term loss of habitat. 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. The Corps must immediately provide an explanation of the causes of the take, and review with the Service 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.

The Service recommends the applicant consider construction of a gapped breakwater system to stabilize the property in lieu of groins, bulkhead and rip-rap revetment. A breakwater system would avoid direct impacts to tiger beetle habitat and would most likely create a wide beach the tiger beetles could utilize, as well as provide protection for the upland property. A second alternative, not as beneficial to tiger beetles as a breakwater, but far less harmful than bulkhead and revetment, is to construct only groins, but have them extend farther out which may potentially allow them to catch more sand. The absence of the immovable bulkhead will ensure that some beach habitat remains for the tiger beetles to utilize.

Due to the amount of shoreline stabilization/alteration taking place along the shoreline of the Chesapeake Bay, the Service recommends that compensation for adverse impacts to and loss of northeastern beach tiger beetle habitat be undertaken. Since its listing in 1990, the Service has written biological opinions for 49 projects adversely impacting tiger beetle sites in Virginia. As the Corps continues to issue permits for shoreline alteration, the amount of habitat available for the continued existence of this species is decreasing. For recovery and delisting of the tiger beetle within the Chesapeake Bay area of Maryland and Virginia, at least 26 populations must be permanently protected at extant sites (U.S. Fish and Wildlife Service 1994). In Virginia, 4 large (>500 adults) populations and 4 other (100 to 499 adults) populations must be protected on the Eastern Shore; 3 large populations and 3 others must be protected on the western shore of the Chesapeake Bay north of the Rappahannock River; and 3 large populations and 3 others must be protected on the western shore of the Bay south of the Rappahannock River. Presently, there are 6 large (2 protected) and 6 other (3 protected) populations on the Eastern Shore; 9 large (2 protected) and 12 (1 protected) others on the

western shore north of the Rappahannock; and 6 large (2 protected) and 6 (1 protected) others on the western shore south of the Rappahannock.

The Service is concerned that in the future, projects proposed in areas critical to the continued existence of the tiger beetle may result in jeopardy to the species. Therefore, the Service recommends that the Corps require compensation for this project. Alteration of tiger beetle sites that support more than 500 adult beetles should be compensated at a ratio of 3:1. Areas that support less than 500 adult beetles should be compensated at a ratio of 2:1. As the Service receives additional information on the location and status of tiger beetles, the relative importance of a given tiger beetle site may change.

Because the proposed project would be located within a site supporting more than 500 adult tiger beetles, compensation at an areal replacement ratio of 3:1 is recommended. That is, 4,560 linear feet of shoreline with an appropriate upland buffer should be permanently protected via a permanent conservation easement. The Service will be glad to work with the Corps and the applicant to locate and preserve such an area.

For the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

#### IV. REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the 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.

The Service appreciates this opportunity to work with the Corps in fulfilling our mutual responsibilities under the ESA. If you have any questions, please contact Jolie Harrison of this office at (804) 693-6694, extension 208.

Sincerely,

Colonel David L. Hansen

Page 11

Karen L. Mayne  
Supervisor  
Virginia Field Office

Enclosures

## LITERATURE CITED

- Hill, L. 2002. Personal Communication. Shoreline Erosion Advisory Service, Virginia Department of Conservation and Recreation, Richmond, VA.
- Knisley, C.B. 2002. A survey of *Cicindela dorsalis dorsalis* along the eastern shoreline of the Chesapeake Bay, 2002. Report to the U.S. Fish and Wildlife Service, Gloucester, VA.
- Knisely, C.B. 1999. A survey of the eastern shore of Virginia for the northeastern beach tiger beetle, *Cicindela dorsalis dorsalis*, 1999. Report to the U.S. Fish and Wildlife Service, Gloucester, VA.
- Knisely, C.B. 1997. Distribution and abundance of the northeastern beach tiger beetle, *Cicindela dorsalis dorsalis*, in relation to shoreline modifications, in Virginia. Report to Virginia Department of Agriculture and Consumer Affairs, Office of Plant Protection, Richmond, Virginia.
- U.S. Fish and Wildlife Service. 1994. Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis* Say) recovery plan. Hadley, MA. 60 pp.
- U.S. Geological Survey. 1998. Fact Sheet 102-98. Reston, Virginia.

bcc: Program Supervisor-ES-South, Region 5 (Jeff Underwood)  
Endangered Species Coordinator, Region 5 (Paul Nickerson)  
FWS, New Jersey Field Office (Annette Scherer)  
FWS, New England Field Office (Susi von Oettingen)  
FWS, Long Island Field Office (Steve Mars)  
FWS, Chesapeake Bay Field Office (Mary Ratnaswamy)  
Law Enforcement, Richmond, VA (Rick Perry)  
VDCR, DNH, Richmond, VA (Tom Smith)  
VDACS, Richmond, VA (Keith Tignor)  
Randolph-Macon College, Department of Biology, Ashland, VA 23005 (Barry Knisley)

(filename:C:\Documents and Settings\millers\Local Settings\Temp\C.Lotus.Notes.Data\02-v1449.wpd)  
(JHarrison: 3-7-03)