



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061

April 28, 2005

Colonel Yvonne J. Prettyman-Beck
U.S. Army Corps of Engineers
Norfolk District
803 Front Street
Norfolk, Virginia 23510-1096

Attn: William N. McGlaun
Regulatory Branch

Re: Biological Opinion for A. Bernard
Driver, Permit Application # 04-
V2763, Northumberland County,
Virginia

Dear Colonel Prettyman-Beck:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed construction of two 72 foot timber low profile groins located in Northumberland County, Virginia and any effects on the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), federally listed threatened. This biological opinion is submitted 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.*). The Service received your February 7, 2005 request for formal consultation on February 7, 2005.

This biological opinion is based on information provided in the February 7, 2005 biological assessment, telephone conversations, field investigations, and other sources of information. A complete administrative record of this consultation is on file in this office.

Consultation History

- 02/07/05 The Service received the U.S. Army Corps of Engineers' (Corps) request to initiate formal consultation.
- 02/16/05 Letter from Service to the Corps stating that a biological opinion would be provided to the Corps by June 21, 2005.
- 03/09/05 The Service conducted a site visit with the Corps, and discovered that construction had been started and that possible "take" had occurred.

- 04/11/05 Letter from the Service to the applicant to inform them that this matter was referred to the Service's law enforcement division.
- 04/26/05 The Corps and Service discuss proceeding with formal consultation and issuance of an "after-the-fact" Department of the Army permit.

The applicant is currently under investigation for possible "take" of a federally listed species due to construction of groins without the proper authorization under the Endangered Species Act. The Corps indicated they would issue an "after-the-fact" permit so that this project could be completed before June 1, 2005, to avoid any further "take" of the species. This timeline would benefit the species, and the Service concurs with this approach. By permitting the applicant to complete the project before time-of-the-year restrictions will avoid impacts to adult tiger beetles. This in no way dissolves the applicant from any possible legal actions for this violation.

BIOLOGICAL OPINION

I. DESCRIPTION OF PROPOSED ACTION

The applicant, Mr. A. Bernard Driver, had proposed to replace two existing deteriorating groins with two 72 foot treated timber low profile groins 48 feet apart (Figure 1 - 2). The second groin will be tied into an existing bank and well curbs. The property is located in the Ophelia Beach area of Northumberland County, Virginia, on the Chesapeake Bay (Figure 3).

The applicant's shoreline is an approximately 175-foot long high energy, sandy beach with an average width of 30 feet at mean low water (MLW), depending upon winds and tides. Both north and south of the site the shoreline is a mixture of groins, bulkheads, and rip-rap. In 2003 Hurricane Isabel caused significant erosion of the Ophelia Beach area, but habitat does still remain for the beetle.

The applicant has finished construction of 40 feet of each of the groins from the primary dune bayward to 10 feet past MLW. There remains 32 feet to be constructed on each groin, all within the sub-tidal zone. Access for this construction will still require the contractor to access the same beach area used for the portions already constructed.

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 mean high water (MHW). The Service has determined that the action area for this project includes the area between MLW and the toe of the dune, this area measures 175 feet long by 30 feet wide and has a total area of approximately 5,250 square feet.

II. STATUS OF THE SPECIES

Please refer to the Status of Species provided in the Service's March 31, 2004, biological opinion for Project No. 03-V1185 (Baymark Construction Corporation's Shoreline Stabilization, Northampton County, Virginia). That information remains pertinent to this biological opinion.

III. ENVIRONMENTAL BASELINE

Status of the Species Within the Action Area - Knisley's 1998 and 2001 comprehensive northeastern beach tiger beetle survey of the Virginia western shoreline of the Chesapeake Bay (Bay) revealed beetles at beach 10 (Ophelia Beach). In 1998, Knisley and Hill counted 1,872 adult beetles for the whole reach. The numbers slightly decreased in 2001 to 1,556 adult beetles (Knisley 2001). In 2004, the Service conducted another survey of the site and the numbers dropped to 428 adult beetles (Knisley 2004). During the 2004 survey, it was noted that this beach had suffered loss of sand fronting the property and from the uplands area. The remaining beach still provides suitable foraging habitat for the adults but a slightly reduced larval area.

Factors Affecting Species Habitat Within the Action Area - The applicant's property is a 175 linear foot section of Ophelia Beach (a 9,185 foot site), with a mixture of shoreline modifications throughout. This beach receives the brunt of many northeastern storms and the continual lateral movement of sand along the coastline. Beach erosion and modifications affect the habitat in the action area. Sea level rise has hastened erosional forces throughout the Bay. While this beach suffers from continual erosion, the effects of Hurricane Isabel in 2003 removed a portion of the larval beetle habitat.

Sea level rise in the mouth of the Chesapeake Bay, currently 0.16 inch/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). As shoreline areas are hardened by bulkheads and revetments, there will be less beach habitat for the tiger beetle.

IV. EFFECTS OF THE ACTION

Direct Effects - Direct impacts to the tiger beetle will result from the entombment of larval beetles, crushing of both larval and 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) and for larval beetles (foraging) 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 extended groins and within the footprint of the riprap revetment.

The contractor has impacted the areas adjacent to the two groins for construction. Any “take” of beetle larvae has already occurred within this zone. To complete the groins, the contractor will be accessing the same areas around each groin for movement of materials and construction. Completion of the groins before the time-of-the-year restrictions start (June 1, 2005) will eliminate “take” of adult beetles, and any further “take” of larvae.

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.

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). In addition to dissipating wave action, stone revetments reduce sand supply. Depending on sand input and transport, revetments may result in the loss of beach channelward of the structure. The groins are designed to capture sand from alongshore movement and will help maintain a beach at this site. The Service does not expect the extension of the groins to change the pattern of sand movement occurring with the existing groins. It is the opinion of the Service that it is ultimately impossible to prevent stochastic impacts to this beach such as those that resulted from Hurricane Isabel in 2003.

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.

V. 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. In addition to natural forces, human use of the beach will have direct impact on the species through crushed larvae, compaction of sand, and interruption of feeding and breeding by the adult beetles. This project will result in increased shoreline hardening within an area that historically had high to moderate beetle numbers (Knisley and Hill 1998, Knisley 2001, Knisley 2004). Each section of shoreline modified through these actions slowly decreases the available habitat for this species.

VI. CONCLUSION

Regulations implementing Section 7(a)(2) of the ESA (50 CFR 402) require the Service to formulate its biological opinion as to whether a Federal action that is the subject of consultation, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or the adverse modification of critical habitat. Jeopardize the continued existence of is defined by this regulation as to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Destruction or adverse modification of critical habitat is defined as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

The northeastern beach tiger beetle's range runs from Cape Cod, Massachusetts to the mouth of the Chesapeake Bay, Virginia. Almost all extant tiger beetle sites occur in the Chesapeake Bay. In 2003, there were 807 beetles at Martha's Vineyard, Massachusetts, but the population at Westport appears to have been extirpated (S. vonOettingen, pers. comm. 2004). The one extant site in New Jersey is a reintroduction, and numbers have dropped to 43 in 2003 (A. Scherer, pers. comm. 2004). Therefore, the tiger beetle populations in the Chesapeake Bay are critical to the survival of this species. The Ophelia Beach population (beach 10) prior to impacts from Hurricane Isabel in 2003, consistently supported a mean of 1,400 adults.

Since 1994, this is the 61st non-jeopardy biological opinion anticipating take of northeastern beach tiger beetles that has been completed on the effects of shoreline stabilization activities in Virginia. This alteration of tiger beetle habitat shows no sign of slowing down. Furthermore, unpermitted activities may be contributing to the reduction of tiger beetle habitat in Virginia as there appear to be more groins and other structures than have been permitted (Knisley, pers. comm. 2004).

The 61 biological opinions have anticipated 9,801 linear feet of shoreline hardening; 150 groins (permanently covering 7,095 square feet of habitat); 12 piers; and several projects involving breakwaters, beach nourishment, concentrated human use, and unusually large piers and groins. In addition to permanent take of tiger beetle habitat, most of the projects have involved temporary take of individual beetles, sometimes at significant levels. For example, beach nourishment projects have large short-term impacts but may have small long-term impacts.

The impacts of the proposed project were evaluated within the context of the following: the large amount of remaining suitable habitat, the terms and conditions provided in the biological opinions that reduce the amount of take, and past and current comprehensive surveys in Virginia. Time-of-year restrictions have largely been successful in reducing impacts to adults, allowing

them to recolonize areas during the next breeding season. The comprehensive surveys have indicated a fairly stable population in Virginia overall, though some populations are experiencing major population fluctuations. These fluctuations may be the result of major storm events, but there may also be impacts related to habitat lost due to shoreline stabilization activities.

After reviewing the status of the northeastern beach tiger beetle, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the construction of the project, as proposed, is not likely to jeopardize the continued existence of the northeastern beach tiger beetle. No critical habitat has been designated for this species, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations 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 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 and/or become binding conditions of any permit, license, grant, or contract issued by the Corps 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 any applicant, licensee, grantee, or contractor to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, license, grant, or contract document, the protective coverage of Section 7(o)(2) may lapse.

AMOUNT OR EXTENT OF TAKE ANTICIPATED

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 groin construction 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 the areal extent of the habitat affected. This incidental take statement anticipates that construction activities and modifications to the beach profile associated with the groin construction will result in habitat alteration, temporary habitat loss, and death of both adult and larval tiger beetles.

The Service anticipates indirect take and temporary habitat loss within 4,680 square feet around the two groins. Within this area there will be a permanent loss of 120 square feet of habitat from the direct footprint of the groins. The Service further anticipates indirect take and temporary or permanent habitat loss resulting from the accretion and erosion of sand on alternate sides of the two groins. In time this shoreline hardening and artificial modification to long shore sand movements could render this 175 foot beach site (5,250 square feet) as unsuitable larval habitat for the beetle.

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.

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:

- C Construction activities must be conducted when adult beetles are not present.
- C Human activity, materials, and equipment on the beach must be minimized to reduce the impact to adult and larval tiger beetles.

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 materials or equipment will occur on the beach between June 1 and September 15 of any year.
2. No placement and operation of heavy equipment on the beach area for the purpose of maintenance of the groins or revetment between June 1 and September 15 of any year.
3. No refueling of equipment or vehicles will occur on the beach.

4. No use of pesticides on the beach.
5. The Corps (or the applicant) is required to notify the Service before initiation of construction and upon completion of the project at the address given below. Any other 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, VA 23061
Phone (804) 693-6694
Fax (804) 693-9032

6. 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, adult tiger beetle inventories must be conducted along with assessments of beach characteristics. The impacts from the groins are restricted to the applicant's property, thus the survey area shall cover the 175 feet of shoreline owned by the applicant. 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: 2005, 2007, 2009, and 2011.

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. 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 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 adult 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.

7. 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 individual tiger beetles within the action area (5,250 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 reduction in the numbers of larvae using the beach zone. 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. 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.

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.

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. 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 will be glad to

work with the Corps and the applicant to locate and preserve an appropriate compensation site.

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.

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 Michael Drummond of this office at (804) 693-6694, extension 114.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office

Enclosures

LITERATURE CITED

- Knisley, C.B. 2001. A survey of the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) along the western shoreline of the Chesapeake Bay, 2001. Report to the U.S. Fish and Wildlife Service, Virginia Field Office, Gloucester, VA.
- Knisley, C.B. 2004. A survey of the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) at all western and selected eastern shoreline sites of the Chesapeake bay, 2004. DRAFT Report to the U.S. Fish and Wildlife Service, Virginia Field Office, Gloucester, VA.
- Knisley, C.B. 2004. Personal communication. Randolph-Macon College, Ashland, VA.
- Knisley, C.B. and J.M. Hill. 1998. Distribution and abundance of *Cicindela dorsalis dorsalis*, the northeastern beach tiger beetle, along the western shoreline of the Chesapeake Bay in Virginia. Report to U.S. Fish & Wildlife Service, Virginia Field Office, Gloucester, VA.
- Scherer, A. 2004. Personal communication. U.S. Fish and Wildlife Service, New Jersey Field Office, Pleasantville, NJ.
- Virginia Institute of Marine Science. 2004. VIMS shoreline permit application report # 03-1185. Gloucester Point, VA.
- Von Oettingen, S. 2004. Personal communication. U.S. Fish and Wildlife Service, New England Field Office, Concord, NH.

(Michael Drummond: April 28, 2005)

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bcc: FWS, R5, ES, Hadley, MA (Glenn Smith)
FWS, LE, Richmond, VA (Rick Perry)
FWS, NJFO, Pleasantville, NJ (Annette Scherer)
FWS, NEFO, Concord, NH (Susi von Oettingen)
FWS, LIFO, Islip, NY (Steve Papa)
FWS, CBFO, Annapolis, MD (Mary Ratnaswamy)
VDACS, Richmond, VA (Keith Tignor)
VDCR, DNH, Richmond, VA (René Hypes)
Randolph-Macon College, Department of Biology, Ashland, VA 23005 (Barry Knisley)