DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
WANAMAKER BUILDING, 100 PENN SQUARE EAST
PHILADELPHIA, PENNSYLVANIA 19107-3390

REPLY TO ATTENTION OF

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HISTORIC PRESERVATION OFFI

Planning Division

FEB 15 2006

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Ms. Dorothy P. Guzzo, Administrator
New Jersey Historic Preservation Office
New Jersey Department of Environmental Protection
CN 404
Trenton, New Jersey 08625

Dear Ms. Guzzo:

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, we are requesting your review comments on the proposed Oyster Bed Shell Planting Project's potential effect to significant cultural resources. The enclosed environmental assessment report entitled: "*Delaware Bay Oyster Restoration Project, Delaware and New Jersey – draft Environmental Assessment*" evaluates the potential environmental impacts of a proposal to continue a multi-year effort to provide habitat restoration to existing oyster beds within Delaware Bay in both the states of New Jersey and Delaware.

The Delaware Estuary is an ecologically valuable area. The Philadelphia District U.S. Army Corps of Engineers seeks to address the habitat degradation and the ensuing significant losses to an indigenous natural resource – the Eastern oyster. The condition of the oyster resource has deteriorated despite careful management and a limited controlled fishery, increasing the urgency for establishing a recruitment and enhancement program based on shell planting. Recognizing the problem, the New Jersey Legislature passed a joint resolution (SJR-19, 1996) establishing the "Oyster Industry Revitalization Task Force" (OIRTF) to develop recommendations that could lead to revitalization of the oyster industry and its associated economic benefits in the Delaware Bay. In 2001, representatives from both Delaware and New Jersey, including state regulatory agencies, the Delaware River and Bay Authority, the Delaware River Basin Commission, and interested citizens developed an oyster revitalization initiative based on the OIRTF. The primary goal was to enhance recruitment by enhancing natural seed supply through the planting of shell (cultch) to provide habitat for recruitment of juvenile oysters (spat). The planting of clean shell and transplant of oyster seed/broodstock will increase oyster habitat, expand oyster abundance, and revitalize the natural resource with concomitant improvements in bay habitat quality from increased habitat complexity as well as increased water clarity brought about by the increased filtration by an abundant shellfish resource.

The 2006 shell-planting and oyster transplanting project would take place in portions of the natural oyster beds of Delaware Bay in the states of Delaware and New Jersey, as well as the leased beds off the New Jersey Cape Shore of Delaware Bay. These areas will be selected by the New Jersey Department of Environmental Protection (NJDEP) and Delaware's Department of

No response required.

Natural Resources and Environmental Control (DNREC) based on bottom surveys to be carried out at the inception of the project. The project proposes to plant approximately 500,000 bushels of oyster, ocean quahog, and surf clam shell in plots approximately 25-acres in size on existing oyster beds in both states (approximately 50,000 bushels of shell per plot). The first substrate placed will be oyster shell, if available, but if not available in sufficient quantities, clamshell will be used. Local clam companies generate large quantities of ocean quahog and surf clam shells and these shells provide an adequate substitute for oyster shell. Hence, the project will recycle a waste product into a useful commodity, thereby alleviating present storage and disposal issues.

In 2003, as part of a pilot shell planting program, the NJDEP planted shell in the Bay and transplanted just 16,000 bushels one month later. Preliminary monitoring results indicate that these 16,000 bushels increased bed abundance of market size oysters in 2005 by more than half. Further demonstration of high success rates of the shell planting program shows in the monitoring results of the initial 2005 shell planting conducted by the U.S. Army Corps of Engineers. In 2005, the Philadelphia District planted approximately 288,000 bushels of shell. The 2005 shell planting program raised bay-wide recruitment by an impressive 54% in areas planted (<150 acres). The 2006 project proposes to double the scale of last year's planting program. Preliminary monitoring results show a long-term (> 4 years) reduction in native cultch on most beds due to low abundances, and as a consequence, low addition rates of native shell will result in the destruction of the 3-dimensional footprint of the beds essential for habitat complexity in the bay. In essence, the shell planting program serves multiple benefits that extend beyond the oysters.

There are no known shipwrecks or deeply buried prehistoric or historic archaeological deposits in the project area. Shallow archaeological deposits, if they ever existed, would likely have been removed by past oyster harvesting. Pursuant to 36 CFR 800.4(d)(1) we request your concurrence within thirty days that there will be no adverse effects to significant cultural resources.

If you have any questions regarding the Environmental Assessment, please contact Ms. Barbara Conlin of the Environmental Resources Branch at (215) 656-6557. Cultural resources related questions should be addressed to our District Archaeologist Mr. Robert Dunn at (215) 656-6556.

Sincerely,

for Stan Laskey

Minas M. Arabatzis
Chief, Planning Division

Enclosure

I concur with your finding that there are no historic properties affected within the project's area of potential effects. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

Dorothy P. Guzzo — 2/27/06

Dorothy P. Guzzo
Deputy State Historic Preservation Officer

Date

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

March 8, 2006

Mr. Milke Arabatzis
U.S. Army Corps of Engineers
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390

Attn: Environmental Resources Branch

RE: Delaware Bay Oyster Restoration Project

Dear Mr. Arabatzis:

We have reviewed Public Notice CENAP-PL-06-02 dated February 10, 2006, and the draft environmental assessment (EA) for the Delaware Bay Oyster Restoration Project. The current project is a substantial expansion of last year's shell planting program and consists of the following components for 2006:

1) Approximately 700,000 bushels of shell purchased from private sources, if available, would be deposited over approximately 350 acres of public and leased oyster grounds. If insufficient quantity of shell is available from private sources, oyster shell would be obtained by using a suction dredge to remove shell from "some downbay natural oyster beds that regularly support very low oyster abundances due to Dermo disease."
2) Previously planted shell with attached spat will be transplanted from public and leased grounds to public grounds located further upbay where survival is higher. The quantity of spat that would be relocated is not known at this time.
3) Approximately 50,000 bushels of seed oysters from downbay leased grounds would be purchased and transplanted to upbay public grounds where survival is higher and where they may enhance recruitment.
4) Slow growing, stunted oysters would be transplanted from some of the most upbay reaches of the natural seed beds and from the lower reaches of some of the Bay tributaries such as the Murderkill and Mispillion Rivers. Approximately 8,000 bushels from the Delaware side and an as yet unspecified quantity from the New Jersey side would be transplanted to Bay public grounds where they would contribute to the fishery through enhanced growth and their potential to augment recruitment.

No response required.

The EA notes that the project will seek to continue the program for a period of five years.

We believe the EA is too narrowly focused on simply justifying the project in terms of its effects on increasing the oyster stock for commercial harvest purposes. Consequently, it fails to adequately consider the broader environmental effects. For example, the proposed use of the traditional oyster dry dredge and suction dredge on the non-target benthic organisms is not addressed. The EA relies on the studies by Powell et al. (2001 and 2004), which only addressed the effects on the oysters. Suction dredging removes the top few inches of the bottom and transports it to the vessel where the oysters are sorted out and the balance is discharged overboard. A study by Ismail (1985) showed that suction dredging in Delaware Bay caused substantial reduction in the numbers of benthic organisms and species, and that recovery took from 3 to 10 months depending on whether the dredging was conducted during the spring or the fall. Robinson and Richardson (1998) reported that razor clams (*Ensis arcuatus*) that were returned to the bottom during a suction dredging operation had a low rate of survival. The traditional dry dredge probably has less effect on the benthic community per unit area, but would require a larger area of the bottom to be disturbed to achieve the same volume of oyster shell collected. Since the current program includes a substantial amount of dredging to transplant shell, seed oysters, and adult oysters from a variety of locations, the potential impact to nontarget organisms needs to be examined.

Of particular concern to us is the proposal to suction dredge adult oysters from the lower portions of some tributaries such as the Murderkill and Mispillion Rivers so they can be transplanted to more productive public beds in the Delaware Bay. The EA states the study of Powell et al. (2001) found that "no significant effects could be discerned on oyster growth, disease pressure, and mortality from repeated dredging." However, this study only examined the effects on harvested beds. Due to lack of harvesting pressure these tributary oyster populations are likely to exist in much more natural reef communities than the harvested grounds in the Bay. The dredging of these more natural reefs would likely have more severe impacts that could result in a long term decline in their habitat value. Natural reefs tend to have a higher vertical profile that would be reduced by the dredging. As the profile is diminished, the conditions for oyster growth and recruitment are reduced (Lenihan and Peterson 1998; Hargis and Haven 1999; Rothschild et al. 1994). It seems quite possible that the environmental impacts of dredging these oysters could exceed the benefits that would be produced by their transfer to the Bay public grounds.

Another concern is the proposal to transplant oyster spat from downbay locations as far south as the Cape Shore to upbay lower salinity locations where mortality is less. This could facilitate the spread of disease, especially Dermo, into the lower salinity areas. The EA needs to acknowledge this risk and state what precautions will be taken to avoid it. We suggest that the transplant oysters be monitored for disease prior to transplanting and that consideration be given to not transplanting substantially infected oysters into low disease areas.

The Corps will revise paragraphs to emphasize the project objective to improve the overall health of the Delaware Bay and the benefits to the ecosystem through the restoration of its critical resource-the Eastern oyster. However, the draft EA contained discussion of the benefits of the proposed project on the bay's ecological health (i.e. habitat complexity, species diversity, water clarity, etc.) and the cultural significance of oyster beds within the bay (see pages: 3, 4, 5, 6, 9, 11, 31, 34, 43, 44, 45)

The primary focus of the studies by Powell *et al*., 2001 and 2004 was on the differing dredging efficiencies and impacts of repeated dredging on oysters but also evaluated impacts of dredging to "habitat complexity" which indirectly includes impacts to species utilizing oyster beds other than the oysters themselves, as well as addressed impacts to the physical structure of the reefs.

The Ismail (1985) study was conducted on leased grounds to address the efficacy of hydraulic dredging to control oyster drills and inconsequential to the proposed project. The Robinson and Richardson (1998) study addressed the effects of suction dredging on razor clams in a mud habitat. The suction dredge utilized on an oyster bed does not cause significant adverse impact to the bottom in removing the top few inches of oyster shell from the bed.

Approximately 70,000-80,000 bushels of shell is proposed to be transplanted in the project. The areas proposed for transplant of oyster cultch/spat are exclusively those that have undergone repeated dredging for many decades. No pristine/untouched/ never been dredged oyster beds will be dredged. This applies to both traditional dredge methods as well as suction dredging on leased grounds.

Additional discussion has been added to the EA to address the potential impacts of transplanting shell on benthic organisms.

The Lenihan and Peterson (1998) study addressed impacts on a constructed reef and would not apply to this project. The Hargis and Haven (1999) study was conducted in Chesapeake Bay under differing fishery regulations. Other studies within Delaware Bay and Galveston Bay have not shown evidence that dredging influences reef vertical relief. We believe vertical relief of oyster reefs is directly attributed to shell input and natural shell loss and the proposed project serves to enhance relief of oyster beds by raising recruitment of natural seed supply.

Since this project is primarily funded with federal funds, it is somewhat surprising to us that the plan is so strongly focused on enhancing the commercial fishery rather than more broadly on the recovery of the oyster populations and their habitat. The oyster restoration programs of the Baltimore and Norfolk Districts for Chesapeake Bay are required to have an emphasis on the creation of oyster sanctuaries. Sanctuaries can have multiple benefits such as: 1) providing a source of larvae to improve recruitment on the harvest grounds; 2) providing protection to older individuals that may be developing resistance to disease; and 3) providing a controlled naturally functioning area where monitoring and research can be conducted on a variety of issues affecting oyster restoration (Breitburg et al. 2000). It would certainly seem desirable to include a sanctuary component in the Delaware Bay oyster restoration plan.

We appreciate the opportunity to comment. If there are any questions, please contact George Ruddy at (410) 573-4528.

Sincerely,

for John P. Wolflin
Supervisor

cc: Steve Mars, NJFO

[continued from previous page:] It is not possible that environmental impacts of dredging oyster shell (approximately 40 acres) could exceed benefits produced when the proposed project has shown in previous years to be successful in increasing recruitment of this keystone species. The benefits to the oyster in turn result in a myriad of benefits to the overall health of the system, its water quality, circulation, estuarine food web and biogenic habitat/structure for other organisms, and increased biodiversity within Delaware Bay.

Oyster disease, including Dermo is ubiquitous in the system., although more oysters incur infection in higher salinity waters where oyster growth is accelerated. Natural transmission rates of disease far exceed a proportionately smaller positive effect on survival due to transplanting. The movement of oysters does not influence disease in any area where generations of oysters have been exposed. Oyster disease is monitored in the entire bay annually at multiple sites (see Haskin Shellfish Research Laboratory Annual Stock Assessment Report, 2006).

As previously stated, the EA has been amended to include additional discussion on the ecological improvements to the overall health of the Delaware Bay through the restoration efforts for the American oyster.

Currently the benefits of oyster sanctuaries has not been determined. The Delaware Bay differs from the Chesapeak Bay in that it is considerably smaller with fewer river estuaries entering it. There is only one salinity gradient within Delaware Bay and the productive area for oysters is currently regulated for fishing and habitat restoration goals (one location). The critical issue within Delaware Bay for the Eastern oyster is habitat (cultch loss and poor setting). The proposed project addresses this. Adequate natural seed source is not the issue of concern. Enhanced abundance of successful set should stabilize natural mortality (HSRL, 2005). The recruitment enhancement program is needed to minimize the impacts of disease on oyster population dynamics and thereby stabilize stock abundance that will maintain reef structure through natural mortality and permit the oyster to fulfill its keystone ecological role in the estuary as a filterer.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office
Ecological Services
927 North Main Street, Building D
Pleasantville, New Jersey 08232
Tel: 609/646 9310
Fax: 609/646 0352
http://njfieldoffice.fws.gov

In Reply Refer to:

PL-P-06/061

MAR 1 3 2006

Mike Arabatzis
Philadelphia District
U.S. Army Corps of Engineers
Wanamaker Building
100 Penn Square East
Philadelphia, Pennsylvania 19107-3390
Attn: Environmental Resources Branch

Dear Mr. Arabatzis:

The U.S. Fish and Wildlife Service (Service) has reviewed the Philadelphia District, U.S. Army Corps of Engineers (Corps) proposal to continue oyster restoration identified in CENAP-PL-E-06-02, dated February 10, 2006. The Corps and its partners propose to conduct shell-planting and oyster transplanting to improve the oyster population in the Delaware Bay. Specifically the Corps proposes to plant shell and transplant oysters on portions of natural oyster beds in the Delaware Bay in the states of Delaware and New Jersey.

AUTHORITY

These comments are provided pursuant to the National Environmental Policy Act of 1969 as amended (83 Stat. 852; 42 U.S.C. 4321 *et seq.*) (NEPA), the Fish and Wildlife Coordination Act (48 Stat. 401, 16 U.S.C. 661 *et seq.*) and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA), and are consistent with the intent of the Service's Mitigation Policy (Federal Register, Vol. 46, No. 15, Jan. 23, 1981). These comments do not preclude separate review and comments pursuant to these statutes on any forthcoming NEPA document or Corps Public Notice.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES

Except for an occasional transient bald eagle (*Haliaeetus leucocephalus*), no other federally listed or proposed threatened or endangered flora or fauna under Service jurisdiction are known to occur in the project areas. Therefore, the Service concurs with the Corps determination that

No response required.

the proposed projects are not likely to adversely affect federally listed threatened or endangered species under Service jurisdiction or their critical habitats. No further consultation pursuant to Section 7(a)(2) of the Endangered Species Act is required by the Service. If project plans change, this determination may be reconsidered.

SERVICE POSITION

The Service supports the Corps and its partners' efforts to restore oysters as a component of the natural ecology of the Delaware Bay. The proposed project has minimal adverse impacts to fish and wildlife resources and has the potential to provide habitat for oysters and other marine-dependent fish and wildlife. The Service recommends that the Corps consult with the National Marine Fisheries Service pursuant to Section 7 of the ESA. Please contact Eric Schrading of my staff at (609) 646-9310 extension 46 if you have any questions regarding the Service's comments.

Sincerely,

Clifford G. Day
Supervisor

cc: NJFO (2)
NOAA, Karen Greene
LURP, Mark Mauriello

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
DIVISION OF SOIL AND WATER CONSERVATION
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

DELAWARE COASTAL
MANAGEMENT PROGRAM

TELEPHONE: (302) 739-9283
FAX: (302) 739-2048

March 13, 2006

Minas Arabatzis
Philadelphia District, Corps of Engineers
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390

RE: Delaware Coastal Management Federal Consistency Certification
Delaware Bay Oyster Restoration Project Draft Environmental Assessment

Dear Mr. Arabatzis:

The Delaware Coastal Management Program (DCMP) has received and reviewed your consistency determination for the above referenced project. Based upon our review and pursuant to National Oceanic & Atmospheric Administration regulations (15 CFR 930), the DCMP concurs with your consistency determination for the continuation of the Delaware Bay Oyster Restoration Project and supporting Draft Environmental Assessment. Our concurrence is based upon the restrictions and/or conditions placed on any and all permits issued to you for this project.

If you have any questions please feel free to contact me or Tricia Arndt of my staff at (302) 739-9283.

Sincerely,

Sarah W. Cooksey, Administrator
Delaware Coastal Programs

File: 06.042
Roy Miller-DFW

No response required.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Habitat Conservation Division
James J. Howard Marine
Sciences Laboratory
74 Magruder Road
Highlands, NJ 07732

March 21, 2006

Minas M. Arabatzis, Chief, Planning Division
Department of the Army
Philadelphia District, Corps of Engineers
Wanamaker Building, 100 Penn Square East
Philadelphia, PA 19107-3391

SUBJECT: Delaware Bay Oyster Restoration Project, Delaware and New Jersey

ATTN: Ms. Barbara Conlin

Dear Mr. Arabatzis:

We have reviewed the essential fish habitat assessment (EFH) for the above referenced project that is contained in the Draft Environmental Assessment, February 2006. The project would continue oyster restoration and includes a shell-planting and oyster transplanting program in order to improve the oyster populations in Delaware Bay.

The 2006 shell-planting and transplanting project would take place in portions of the natural oyster beds of Delaware Bay in the states of Delaware and New Jersey, as well as the leased beds off the New Jersey Cape Shore of Delaware Bay, as selected by the New Jersey Department of Environmental Protection and Delaware's Department of Natural Resources and Environmental Control, based on bottom surveys to be carried out at the inception of the project. The project proposes to plant approximately 500,000 bushels of oyster, ocean quahog and surf clam shell in plots approximately 25-acres in size on existing oyster beds in both states (approximately 50,000 bushels of shell per plot). The first substrate placed will be oyster shell, if available, but if not available in sufficient quantities, clamshell will be used.

We concur with the essential fish habitat assessment that the project would have no adverse impact to essential fish habitat and we have no conservation recommendations to offer.

If you wish to discuss this matter further, please contact Anita Riportella at 732-872-3116 or anita.riportella@noaa.gov

Sincerely,

Stanley W. Gorski
Field Offices Supervisor

Ar/Delaware Bay Oyster Restoration Project

No response required.

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Land Use Regulation
P.O. Box 439, Trenton, NJ 08625-0439
Fax # (609) 292-8115
Fax # (609) 777-3656
www.state.nj.us/landuse

JON S. CORZINE
Governor

LISA P. JACKSON
Commissioner

APR 12 2006

Minas M. Arabatzis
Chief, Planning Division
Department of the Army
Philadelphia District, Corps of Engineers
Wanamaker Building
100 Penn Square East
Philadelphia, Pennsylvania 19107-3391

RE: Federal Consistency Determination and Section 401 Water Quality Certification for
Delaware Bay Oyster Bed Shell Planting, Delaware And New Jersey
Division File No. 0000-05-0017.1 CDT 060001

Dear Mr. Arabatzis:

The New Jersey Department of Environmental Protection, Land Use Regulation Program, acting under Section 307 of the Federal Coastal Zone Management Act (P.L. 92-583) as amended, has determined that the proposed project is consistent with New Jersey's Coastal Zone Management Rules at N.J.A.C. 7:7E-1.1 et. seq., and the applicable Rules guiding issuance of a Section 401 Water Quality Certificate.

The proposed project is continuation of a project to implement a resource revitalization program within the Delaware Bay and will take place in portions of the natural oyster beds of Delaware Bay in the states of Delaware and New Jersey. The objective is to plant approximate up to 500,000 bushels of shell in areas of approximately 25 acres in size in order to provide the habitat required for recruitment of juvenile oysters (spat) and to allow for the transplant of oyster set/broodstock to increase oyster habitat and oyster abundance.

Should you have any questions or wish to discuss this matter further, please do not hesitate to contact Andrew Heyl at the above address or at 609-984-0288.

Sincerely,

Kevin J. Broderick, Manager
Bureau of Coastal Regulation

c. Jim Joseph, DFW
Kim Springer, Planning

No response required.