DEPARTMENT OF THE ARMY
MISSISSIPPI VALLEY DIVISION, CORPS OF ENGINEERS
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REPLY TO
ATTENTION OF:

August 11, 2000

Directorate of Planning and
Programs Management
Environmental Analysis Division

Mr. William Hartwig
Regional Director
U.S. Fish and Wildlife Service
Bishop Henry Whipple Building
1 Federal Drive
Fort Snelling, Minnesota 55111

Dear Mr. Hartwig:

This is the second letter describing how the Corps of Engineers proposes to proceed with the future operation and maintenance of the 9-foot Channel Navigation Project for the Upper Mississippi River System (UMRS) in light of its Endangered Species Act (ESA) obligations and the information provided to the Corps in the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BO) of May 15, 2000. Results of this voluntary formal consultation process also serve as the baseline for the ongoing UMRS navigation feasibility study. In the Corps' letter dated June 12, 2000, the Corps concurred in the Service's recommendations for five of the seven species involved in the consultation process for this project, including those related to the jeopardy finding for the Higgins' eye pearly mussel, a species possibly on the brink of extinction. The purpose of this letter is to advise how the Corps proposes to implement various actions to prevent jeopardy and minimize incidental take of the pallid sturgeon and the least tern.

The Corps is responsible for and required to operate and maintain the UMRS navigation project, as authorized and funded by Congress. In performing this significant responsibility, the Corps is committed to complying with the Endangered Species Act (ESA). In executing responsibilities under the ESA, the Corps recognizes that there is to be deference to the Service. Nevertheless, it is incumbent upon the Service to provide biological advice and guidance that allows the Corps to achieve compliance with the ESA within the Corps' statutory authorities and appropriations.

To aid both agencies in meeting their statutory obligations and to facilitate implementation of reasonable and prudent alternatives (RPA) and reasonable and prudent measures (RPM) for the pallid sturgeon and least tern, the Corps will establish an interagency implementation team (Team) consisting of Corps, Service, and State representatives. The Team will provide consensus-based technical recommendations to the Corps for implementing RPA/RPMs. The Team will also serve as the mechanism for the Service to provide oversight of the Corps' implementation of RPA/RPMs. The Corps will take the appropriate actions within its statutory authority to implement the RPA/RPM's, as described herein, and to incorporate recommendations made by the Service. Due to the Corps' statutory responsibility for the navigation project on the UMRS, the Corps will retain final approval over all actions for carrying out RPA/RPMs. This is consistent with the ESA at 16 U.S.C. Section 1536(a), which provides that the ultimate decision as to any action rests with the Federal agency (the Corps) who is carrying out its authorized, funded actions.

The Team will meet on an as needed basis, but at least annually, to review all operation and maintenance work items for the navigation project on the middle Mississippi River (MMR) to be carried out by the Corps in the coming year and to evaluate how to most effectively incorporate the RPA/RPMs for the pallid sturgeon and the least tern into the Corps' annual work plan. In addition, the Team will review and/or participate in the development of all scopes of work for the habitat needs study, habitat restoration pilot tests, and population and habitat monitoring. The Team will also participate in development of the Corps' habitat restoration program and the Conservation and Restoration Plan for the pallid sturgeon. In the event there is a disagreement between the Corps and FWS as to how to accomplish implementation of the RPAs/RPMs, the Corps would like to utilize the following process to resolve those disputes:

> The Service and the Corps agree to make every attempt to resolve disagreements concerning how RPAs and RPMs for the pallid sturgeon and the least tern are implemented at the staff level. In the event of a significant, continued disagreement, this disagreement will be elevated promptly to the St. Louis District Commander and the Service's Rock Island Field Office Supervisor for resolution. If the disagreement remains unresolved by the District Commander and

the Field Supervisor within 30 days, then the dispute will be elevated for final resolution to the Corps' Mississippi Valley Division Commander and the Regional Director of U.S. Fish and Wildlife Service Region 3.

The Corps is concerned about the Service's scientific basis and reasoning for the "jeopardy" opinion for the pallid sturgeon and the "incidental take" determination for least tern. In spite of our difference of opinion, the proposed actions described in this letter should help prevent jeopardy or unacceptable incidental take to the pallid sturgeon or the least tern. There needs to be the recognition that implementing specific measures recommended by the Service for preservation of the species may not be possible or necessary in every instance or at every project work site. Accordingly, the Corps looks forward to working with the Service to develop practicable solutions based on the best scientific, engineering, and economic information and judgment.

The Corps' Biological Assessment (BA) dated April 1999 concluded that based on the best scientific and commercially available data, future operation and maintenance of the UMRS navigation project may adversely affect the pallid sturgeon to some minor degree, but that any adverse effects would not be significant to the population as a whole. Therefore, any adverse effects would not "reasonably...be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of (the)... species in the wild," since the pallid sturgeon is widely distributed in the Mississippi River system. Existing scientific and commercial data do not support the analyses and reasoning of the Service's BO finding that "the most important affect (of the Corps project) is the loss and degradation of aquatic habitat which reduces spawning substrate, larval and juvenile rearing habitat, and seasonal refugia" for the pallid sturgeon. However, in deference to the Service, the Corps will implement actions for the preservation of the pallid sturgeon as follows:

1. Pallid Sturgeon Habitat Needs Study. The Corps strongly believes that any future efforts to improve habitat in the MMR to benefit the pallid sturgeon must be built upon an improved and documented understanding of the species' habitat needs and how the O&M of the navigation project may affect this habitat. This action may be considered the cornerstone of efforts to preserve the continued existence of the pallid sturgeon in the MMR. While the Service also recommends habitat studies, these would be done concurrently with habitat restoration planning and implementation. The Service's approach could lead to significant unnecessary expenditures for habitat restoration work that may or may not benefit pallid sturgeon or that are not linked to impacts of project operation and maintenance. Since the pallid sturgeon does not appear to be in imminent danger of extinction and ranges over 3,500 miles of river in the Mississippi basin, the Corps believes that the most prudent and scientifically valid approach is to better define habitat needs before conducting extensive habitat restoration.

The goals of the habitat needs study are to identify habitat requirements for the various life history stages of the pallid sturgeon and habitat variables and related factors that may be limiting population growth and distribution in the MMR. Study results will be useful for establishing site specific and system effects of O&M actions on key pallid sturgeon habitat needs and will be used as a basis for developing Corps habitat restoration projects and the Conservation and Habitat Restoration Plan. With assistance of the Team and the panel of consultants, a scope of work for the habitat needs study will be completed by May 2001, and study implementation will begin in Fiscal Year 2002. Progress reports will be prepared on an annual basis with the first report to be completed in June 2002. The study will be carried out for a period of 3-5 years.

2. Pallid Sturgeon Population Monitoring. The pallid sturgeon population will be monitored annually in the MMR to assess changes in numbers, age structure, distribution, reproductive success, and related population variables. A scope of work for this effort will be developed in Fiscal Year 2001 and monitoring will start in Fiscal Year 2002. Monitoring will be conducted annually as needed to ascertain the success of various pallid sturgeon recovery and habitat restoration efforts.

3. Pallid Sturgeon Stocking. A feasibility study of stocking pallid sturgeon in the MMR will be carried out in Fiscal Year 2002, in cooperation with the Pallid Sturgeon Recovery Team and the Technical Implementation Team. A scope of work for the feasibility study will be completed in Fiscal Year 2001. The goal of the study will be to determine if stocking pallid sturgeon is economically and technically feasible and would benefit recovery of the species. The techniques, procedures, standards, agency responsibilities, and cost of a stocking program will be developed, as appropriate. If determined to be feasible, cost effective, and beneficial to the pallid sturgeon in the MMR, the Corps will implement the stocking program in Fiscal Year 2003.

4. Habitat Restoration Pilot Tests. In Fiscal Year 2001, prior to completing the Habitat Needs Study, the Corps will begin pilot tests of selected aquatic habitat restoration measures that may reasonably be expected to benefit pallid sturgeon in the MMR. Measures such as side channel restoration, wing dam notching, gravel bar construction, and chevron dike construction will be considered for pilot tests. Since little is known concerning habitat requirements of the pallid sturgeon, it is difficult to determine what measures are needed to offset adverse impacts of Corps O&M actions. Available information and professional judgment of the Team and the consultant panel will be used to design the initial pilot tests. The effects of these measures on the pallid sturgeon will be monitored as part of the population monitoring effort.

5. Habitat Restoration. The Corps will design and implement aquatic habitat restoration projects comprised of measures to offset defined adverse effects of future navigation project O&M activities on the pallid sturgeon in the MMR. The composition of the habitat restoration work will be based on results of the habitat needs study, habitat restoration pilot tests, recommendations of the Service, the Team, the panel of consultants, and other information including the Pallid Sturgeon Conservation and Restoration Plan. The habitat restoration work will be managed adaptively based on results of monitoring and other information. Habitat restoration work will continue until such time as additional work is no longer warranted due to the cumulative beneficial effects of all habitat restoration work completed in MMR, or until the pallid sturgeon is considered recovered in the MMR. It is estimated that this restoration work

would be initiated in Fiscal Year 2005, but it could be started sooner, depending on results of the habitat needs study. Progress reports for the habitat restoration work will be completed at the close of each Fiscal Year.

In order to determine when sufficient habitat restoration has been accomplished, population or other criteria for pallid sturgeon recovery must be established for the MMR. The pallid sturgeon Recovery Plan did not specify any target population goals for the MMR, or elsewhere, indicating recovery of the species nor has any critical habitat been designated. In addition, no criteria for determining when an adequate amount of habitat restoration has been accomplished regarding effects of navigation project O&M are contained in the Service's BO. Therefore, not later than the end of Fiscal Year 2003 the Corps and the Service, in consultation with the pallid sturgeon Recovery Team, must establish population-based or other criteria for determining when adequate habitat restoration has been accomplished in the MMR with respect to this consultation.

It should be noted that a significant amount of habitat restoration work, much of which could be beneficial to the pallid sturgeon, is already planned for the MMR under various Corps authorities, including EMP-HREP, Section 1135 of the Water Resources Development Act of 1986 (Public Law 99-662), and Section 206 of the Water Resources Development Act of 1996 (Public Law 104-303). Some of these projects may be funded prior to completion of the habitat needs study and might fulfill a part of the need for future habitat restoration. The Conservation and Restoration Plan will be used to facilitate and coordinate actions under these and other authorities.

6. Pallid Sturgeon Conservation and Restoration Plan. The Corps will facilitate development of a pallid sturgeon Conservation and Restoration Plan (Plan) for the MMR with participants from state and Federal agencies and the private sector. The goal of this effort is to develop a comprehensive plan (subject to periodic revision as new information becomes available) for habitat restoration and other actions to benefit the pallid sturgeon that can be implemented by the Corps through its various authorities, the Service, the States of Illinois and Missouri, other agencies, and the private sector. The Plan will incorporate findings of the habitat needs study and results of the pallid sturgeon population monitoring and will include the habitat restoration work described herein.

The Plan would eventually become a "blueprint" for overall pallid sturgeon recovery efforts in MMR. Plan development will begin in Fiscal Year 2001, and the Plan will be completed in Fiscal Year 2005. The Plan will be revised periodically, based on availability of new data and information. The Team and the consultant panel will participate in Plan development.

There is a major consideration that the Corps believes is important to the implementation of the RPA for the pallid sturgeon in the MMR. Habitat restoration work to benefit the pallid sturgeon can succeed only if illegal take of pallid sturgeon and incidental sport and commercial harvest of pallid sturgeon from the MMR are halted concurrently with the Corps' preservation efforts. Therefore, the Corps strongly urges the Service to immediately begin efforts, through its law enforcement authorities and resources and in conjunction with the States of Missouri and Illinois, to investigate and stop illegal harvest, if any, of pallid sturgeon in the MMR. Stopping the removal of old females from the population is crucial to the ultimate recovery of the species. In the absence of these controls, the expensive habitat restoration work that is proposed herein could be rendered wholly or partially ineffective.

The Corps questions the validity of using very small changes in habitat as a surrogate for "incidental take" of pallid sturgeon. The amount of incidental take specified for pallid sturgeon in the Service's BO is 1.2 and 0.8 acres/river mile/year of main channel habitat and secondary channel habitat. Such small changes are well within the natural variability of river morphology among years and over an annual hydrograph and are not likely to cause "harm" to the species. Furthermore, it is not technically or economically feasible to develop maps of sufficient accuracy to detect such small habitat changes. The Corps will, however, develop a general habitat map of the MMR about every 5 years starting in Fiscal Year 2001, depending on availability of funds. From these maps, significant system-wide changes in habitats over time can be quantified and used to assess effects of habitat restoration efforts. These maps would also be used to assess temporal and spatial trends in sandbar habitat for the least tern.

The Corps agrees to implement all reasonable and prudent measures and terms and conditions for the pallid sturgeon contained in the Service's BO, as long as these do not "alter the basic design, location, scope, duration, or timing of the action and may involve only minor changes" to the navigation project and if they are necessary and appropriate in terms of costs and benefits to the pallid sturgeon. See 50 C.F.R. Sections 402.02 and 402.14(i)(v)(2). After careful consideration by the Team and the Corps in view of these criteria, it may be determined that implementation of some recommendations of the Service or others may not be possible or necessary in every instance or river location. Below are some of the details with regard to implementing the RPMs relative to these considerations.

RPM 2. The Corps will use dredged material from navigation channel maintenance to restore MMR habitat and for other beneficial uses, where feasible and appropriate. Use of thalweg disposal will be evaluated and implemented, on a case-by-case basis, since this disposal technique may not be desirable or feasible in every instance or dredging location and could in some cases increase downstream dredging requirements and adversely impact pallid sturgeon.

Term and Condition 5. The Corps will prepare a Biological Assessment for use as a basis of formal consultation on this matter during Fiscal Year 2001.

Term and Condition 6. The Corps will monitor effects of thalweg disposal on the aquatic environment and the navigation channel where this disposal technique is used and where such monitoring is necessary, appropriate, and would likely provide useful information for decision making.

The Corps is concerned that the Service's incidental take determination for the least tern is not based on the best available scientific data and reasoning. The ESA at 16 U.S.C. Section 1536(a)(2) requires agencies to "use the best scientific and commercial data available." The Corps prepared an exhaustive BA for this species based on 15 years of annual population census data for the Mississippi River, documentation of system-wide habitat trends over the past 60 years, studies of sandbar vegetation dynamics, effects of river stage on sandbar availability and reproductive success, and impacts of river engineering structures. Based on these findings, the Corps concluded in the Biological Assessment (BA) that the navigation

project on the Mississippi River was not likely to adversely affect the least tern. These studies clearly indicate that the least tern has met and exceeded by a factor of 2-3 the target population level given in the Recovery Plan for the lower Mississippi River (LMR). They also show that habitat is not a limiting factor and is, in fact, increasing in abundance at higher elevations and is greatly under utilized by least terns, that reproduction is sufficient to sustain the population, that river stage is not limiting nesting success, and that ample habitat is estimated to be present in the future. In short, recovery of the least tern on the Mississippi River and elsewhere is an endangered species success story. Therefore, investing scarce funds to create or restore habitat for least terns on the MMR is not prudent, and such resources could be better used to benefit other species, in particular the Higgin's eye pearly mussel and the pallid sturgeon.

In the Service's analysis of incidental take for the least tern, LMR temporal trends in sandbar amounts are applied to the MMR. This analysis is questionable due to the different hydrologic and geomorphic characteristics of these two river segments. Using the decrease in sandbar area between the 1960s and the 1990s to determine long-term temporal trends may be somewhat misleading. LMR sandbar area above the low water reference plane (LWRP) was 108,660 acres in the 1960s, rose to 115,501 acres in the 1970s, was 116,865 acres in the 1980s, and decreased to 105,798 acres in 1994. These relatively small changes are below the limits of accuracy of the habitat maps and are within the bounds of natural variation of a large dynamic alluvial river, like the LMR. More importantly, the amount of barren sandbar above LWRP+15 feet and LWRP+20 feet consistently increased (8 to 33 percent) over these three time periods on the LMR. These higher portions of sandbars were found to be most important for least terns due to the frequent continuous emergence of these areas during the nesting season for >50 days. Thus, inferring that sandbar habitat on the LMR has declined is contrary to the best available data, and applying this finding to the MMR is not valid. In addition, it was shown in the Corps' BA that the least tern uses just an estimated 25 to 50 percent of the LMR sandbar habitat in a given year.

The Corps is concerned about the use of very small changes in sandbar habitat as a surrogate for "harm" in the determination of "incidental take" for the least tern. These small changes in habitat are well within the natural variation of river habitats yearly or over an annual hydrograph and would not significantly affect the least tern. Moreover, it is not technically or economically feasible to measure or monitor the level of incidental take specified by the Service. The small amounts of habitat change (0.2 acres sandbar/river mile/year and 0.8 acres secondary channel/river mile/year) specified by the Service are not quantifiable within the spatial accuracy of reasonable habitat mapping techniques. The general habitat map described previously for the pallid sturgeon will be used to monitor general spatial and temporal trends in sandbar and secondary channel habitats for the least tern.

The Corps agrees to implement all reasonable and prudent measures and terms and conditions for the least tern contained in the Service's BO, as long as these do not "alter the basic design, location, scope, duration, or timing of the action and may involve only minor changes" to the navigation project and if they are necessary and appropriate in terms of costs and benefits to the least tern. See 50 C.F.R. Sections 402.02 and 402.14(i)(v)(2). After careful consideration by the Team and the Corps in view of these criteria, it may be determined that implementation of some recommendations of the Service or others may not be feasible or necessary in every instance or river location. Below are some of the details with regard to implementing the RPMs relative to these considerations.

RPM 1. The Corps will incorporate engineering measures into the stone dike maintenance work, where necessary and appropriate. It should be noted, however, that these measures are only marginally beneficial, since raptors are a major least tern predator and raccoons can readily swim to near-shore sandbars and prey on eggs and chicks.

Modification of channel training works to reduce the establishment of woody vegetation (mainly black willow) on sandbars is problematic. Sandbar elevation is the fundamental controlling factor for willow tree establishment and survival. Studies presented in the Corps' least tern BA show that along the LMR black willow and other woody vegetation are not found below the LWRP+10 foot elevation (mean = LWRP+15 feet). Black willow requires a very specific set of conditions for initial

establishment on a sandbar. A sandbar has to first be emergent and, if so, must have moist soil conditions at the time the wind-blown willow seeds settle to allow germination, i.e., the bar must have been emergent only a few days. The bar must stay above water 8 to 24 hours for the seeds to germinate. After germination, the young seedlings can survive brief periods (up to 32 days) of inundation but cannot remain flooded for a prolonged period until they reach 1-3 feet in height. This scenario seldom occurs. Consequently, a new sandbar may remain free of woody vegetation for years and vegetated sandbars often have several distinct, tiers of willows of widely different ages.

Once established, woody vegetation is difficult to remove and re-vegetation will most likely reoccur after removal. Mechanical removal with earth-moving equipment and herbicides could be used, but are undesirable measures. The real question, however, is whether or not sandbar vegetation is actually limiting least tern habitat on the MMR to the extent that reproduction and population numbers are adversely affected. The body of evidence presented in the Corps' least tern BA shows that there is ample sandbar habitat for least terns on the Mississippi River. Moreover, least terns inhabit only about 25 to 50 percent of the existing sandbar habitat in a given year on the LMR and only two bars on the MMR, and most of these bars are used sparsely. There are 51 major colony sites along the 600 miles of Mississippi River inhabited by the least tern, only one on the MMR. Also, the least tern has reached and far exceeded the Recovery Plan goal for the LMR of 2,200-2,500 birds annually for 10 years—no goals were specified for MMR. The Corps will continue to evaluate ways to reduce woody vegetation establishment on sandbars but proposes no action on this measure at this time.

RPM 2. The Corps will evaluate ways to use dredged material, possibly in combination with construction or maintenance of channel training structures, to restore or enhance sandbar habitat. As with the woody vegetation measure, the real issue, however, is whether or not habitat is actually limiting least terns along the MMR and whether habitat improvements are necessary or justified.

RPM 3. The Corps will use other authorities such as Section 1135 of the Water Resources Development Act of 1986 (Public Law 99-662) and Section 206 of the Water Resources Development Act of 1996 (Public Law 104-303) where appropriate to accomplish the Service's recommendations.

Term and Condition 3. The Corps will monitor general least tern habitat temporal and spatial trends for MMR, as described herein under the habitat mapping discussion for the pallid sturgeon.

As stated in the least tern BA, the Corps will continue to carry out the annual least tern population census on the Mississippi River and to conduct system-wide habitat studies.

The Corps anticipates allocating about 2 to 3 million dollars for Fiscal Years 2001-2002 to initiate implementation of RPA/RPMs for the seven endangered or threatened species involved in this consultation. Also, it is expected that in the future additional funds will be scheduled annually for this effort, the amount and length of time depending on identified needs and recovery of individual species. We look forward to continuing to work with the Service to fully implement the actions for endangered species conservation that have been jointly developed under the consultation process for operation and maintenance of the UMRS navigation project.

Sincerely,

Phillip R. Anderson
Major General, U.S Army
Division Engineer