

**FINAL ENVIRONMENTAL ASSESSMENT  
AND  
FINDING OF NO SIGNIFICANT IMPACT  
FOR INTERMEDIATE  
ENDANGERED SPECIES HABITAT IMPROVEMENT  
BY VEGETATION REMOVAL IN  
NORTH DAKOTA, SOUTH DAKOTA, AND NEBRASKA  
SEGMENTS OF THE MISSOURI RIVER**



**U.S. ARMY CORPS OF ENGINEERS  
OMAHA DISTRICT  
JULY 2005**

**FINDING OF NO SIGNIFICANT IMPACT  
INTERIOR LEAST TERN AND PIPING PLOVER  
FY05 HABITAT IMPROVEMENT  
NORTH DAKOTA, SOUTH DAKOTA, AND NEBRASKA  
SEGMENTS OF THE MISSOURI RIVER**

In accordance with the National Environmental Policy Act (NEPA) and implementing regulations, an environmental assessment (EA), incorporated by reference herein, has been prepared. The U.S. Army Corps of Engineers (Corps) proposes to remove vegetation on 76 sandbars located within three stretches of the Missouri River in order to increase least tern and piping plover habitat. The proposed project would clear vegetation using herbicides approved for aquatic application by the U.S. Environmental Protection Agency (EPA), using either a imazapyr-based or a glyphosate-based product, followed by monitoring and evaluation of the usefulness of this clearing method of habitat creation for terns and plovers.

The sandbars are located between River Miles (RM) 756 and 805 in the 59-mile stretch of the Missouri National Recreational River (MNRR) between South Dakota and Nebraska; RM 832 and 870 in Lewis and Clark Lake and the 39-mile area of the MNRR between South Dakota and Nebraska; and RM 1284 and 1380 in North Dakota downstream from Garrison Dam. Approximately 1248 acres of land will be treated on these sandbars.

The interior least tern and the piping plover are listed as federally endangered and threatened species, respectively. These birds nest on bare sandbars in the Missouri River and along reservoir shorelines. Their nesting habitat has been reduced due to the loss of sandbar scouring by heavy spring flows and/or ice, which allowed vegetative encroachment on the sandbars. A programmatic NEPA document is being prepared by the Corps to implement the U.S. Fish and Wildlife Service's 2000 Biological Opinion on the Operation of the Missouri River Main Stem Reservoir System, as amended in 2003. Vegetation removal efforts will also be assessed in that document. The purpose of this project is to chemically reduce vegetative cover and increase the useable habitat on the 76-sandbar island complex composed of approximately 1248 acres of land in 2005 as an interim measure before the programmatic documentation is completed.

Other alternatives considered and eliminated include a) no action, b) flow manipulation, and c) burning. The no action alternative would allow vegetation to continue to encroach on critical habitat and so is not a viable alternative. Under the current master manual and the drought/low-water conditions along the Missouri River, the flow manipulation alternative would not be practicable. The burning alternative is not practicable because the vegetation on the sandbars is clumped and sparse, which would not allow it to carry a suitable flame.

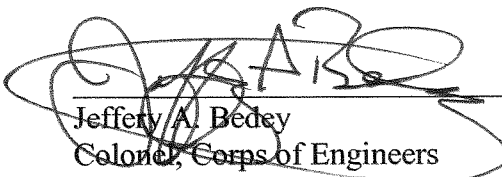
All environmental and social factors relevant to the proposed project were considered in this assessment. These include, but are not necessarily limited to, threatened and endangered species, vegetation, wetlands, cultural resources, air quality, water quality, and wildlife. The

primary benefit of this project would be the increase of habitat for the interior least tern and piping plover. Adverse effects would include a slight, temporary increase in noise, suspended solids, and fugitive dust during the vegetation clearing. There would also be a loss of vegetation for use by other sandbar organisms. No adverse impact to threatened and endangered species or cultural resources are expected as a result of the proposed project.

It is my finding, based on the EA, that the proposed Federal activity would have no significant adverse impact on the environment and the proposed project would constitute no major Federal action significantly affecting the quality of the human environment. The proposed project has been coordinated with the appropriate resource agencies, and there are no significant unresolved issues. Therefore, an environmental impact statement will not be prepared.

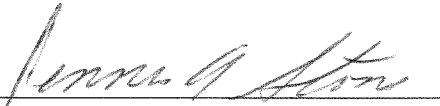
Date

5 AUG 2005




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Colonel, Corps of Engineers  
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7/22/05  
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for 

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7/22/05  
Date

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**LIST OF ACRONYMS AND ABBREVIATIONS**

ATV	All-terrain Vehicle
BA	Biological Assessment
BiOp	Biological Opinion
BOMMM	Burleigh, Oliver, McLean, Mercer, & Morton County Resource Districts
CEQ	Council on Environmental Quality
EA	Environmental Assessment
msl	Mean Sea Level
MNRR	Missouri National Recreational River
NEPA	National Environmental Policy Act
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NWD	Northwestern Division
RM	River Mile

SDGFP  
SHPO  
Corps  
USEPA  
FWS  
USGS

South Dakota Department of Game, Fish, and Parks  
State Historic Preservation Officer  
U.S. Army Corps of Engineers  
U.S. Environmental Protection Agency  
U.S. Fish and Wildlife Service  
U.S. Geological Survey



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## **1. PURPOSE AND NEED FOR ACTION**

In the absence of natural dynamic forces present in unmanaged rivers, current sandbar habitat quality is low and is expected to continue to degrade without maintenance to slow or remove vegetative growth. It is anticipated, based on previous vegetation removal projects, that removing vegetation would aid in creating new habitat, improving existing habitat, and reclaiming habitat that once was available but now is not usable (primarily due to vegetative encroachment).

### **1.1 INTRODUCTION**

The interior least tern (*Sterna antillarum*) and the piping plover (*Charadrius melodus*) are listed as federally endangered and threatened species, respectively, which nest on sandbars in the Missouri River and along reservoir shorelines. Vegetative encroachment has contributed to the decrease in riverine and recently exposed reservoir shoreline-nesting habitat. Vegetation is no longer regularly scoured from river sandbars by heavy spring rain flows and/or ice flows, primarily because the Missouri River main stem dams currently regulate flows.

Channel degradation and prolonged drought may also contribute to an increase in vegetation by allowing more historically flooded areas to dry, thus allowing for seedling development. New sandbar creation is uncommon because the river carries less sediment and no longer meanders along much of its course. Bank erosion, river degradation, and tributary input continue to supply sediment to the Missouri River; however, the reservoirs collect much of the incoming sediment so little passes on to the river downstream from the dams.

Within the reservoirs along the Missouri River drought conditions have resulted in lower water elevations and exposed shoreline suitable for nesting. These areas are becoming vegetated due to lack of inundation. The combination of vegetation encroachment and reduced sandbar formation resulted in fewer acres of suitable nesting habitat for the two bird species.

### **1.2 BACKGROUND**

The Missouri River, in its natural state, was a meandering, dynamic river with continuous

erosion and deposition, creating and destroying sandbars. Sandbars and islands were scoured of vegetation by heavy spring runoffs and winter ice flows. These elements were severely reduced with the construction of the main stem dams along the Missouri River.

In 1985, the interior least tern was listed as an endangered species, and the northern Great Plains population of the piping plover was listed as threatened. The U.S. Army Corps of Engineers (Corps) initiated informal consultation soon after the birds were listed, based on the effect of Missouri River system regulations on the species and its habitat. During the 1986 breeding season, the Corps, the U.S. Fish and Wildlife Service (FWS), and South Dakota Department of Game, Fish and Parks (SDGFP) began gathering population and habitat data for the two species. In April 1986, the Corps entered formal Section 7 consultation with FWS, and during the same year, the Corps began constraining system releases, and implementing and evaluating techniques to protect the birds. By the fall of 1987, sufficient data had been gathered to allow the Corps to prepare a biological assessment (BA) based on drought operations of the main stem reservoirs. These data were submitted to the FWS in October 1987. The BA concluded that operations of the main stem system might affect terns and plovers. That assessment was supplemented by additional data, which were sent to FWS in January 1989. Based on the BA and the supplemental data, the FWS issued a biological opinion (BiOp) in November 1990 (1990 BiOp). This BiOp has since been superseded by the November 30, 2000 BiOp (FWS, 2000), which was amended in 2003. Both BiOps discussed habitat improvements and the 2000 BiOp established reach-by-reach emergent sandbar habitat acreage goals.

The 2000 BiOp was issued by the FWS based on continuing operations of the main stem reservoirs. The 2000 BiOp concluded that operation of the main stem system would jeopardize the continued existence of the interior least tern, piping plover, and pallid sturgeon. The 2000 BiOp describes reasonable and prudent alternatives (RPA), conservation recommendations, and reasonable and prudent measures for implementation in order to remove or alleviate the jeopardy opinion rendered by the FWS. The 2000 BiOp was amended in 2003 as a result of formal consultation between the Corps and the FWS.

The Corps is in the process of developing a programmatic National Environmental Policy Act (NEPA) document on the impacts of carrying out the mechanical habitat maintenance and creation described in the 2000 BiOp and the 2003 amendment. The project is necessary to comply with the RPA Paragraph IV 3B of the 2000 BiOp (FWS 2000). While the programmatic NEPA document is being developed, the Corps continues to implement the four elements of the RPA with short-term projects working in support of the amended 2000 BiOp. The vegetation clearing described in this environmental assessment (EA) is one of those short-term projects. A similar vegetative removal project was completed in 2004 on three sandbars below Gavins Point Dam in the Missouri National Recreational River (MNR) and between 1992 and 1994 on two

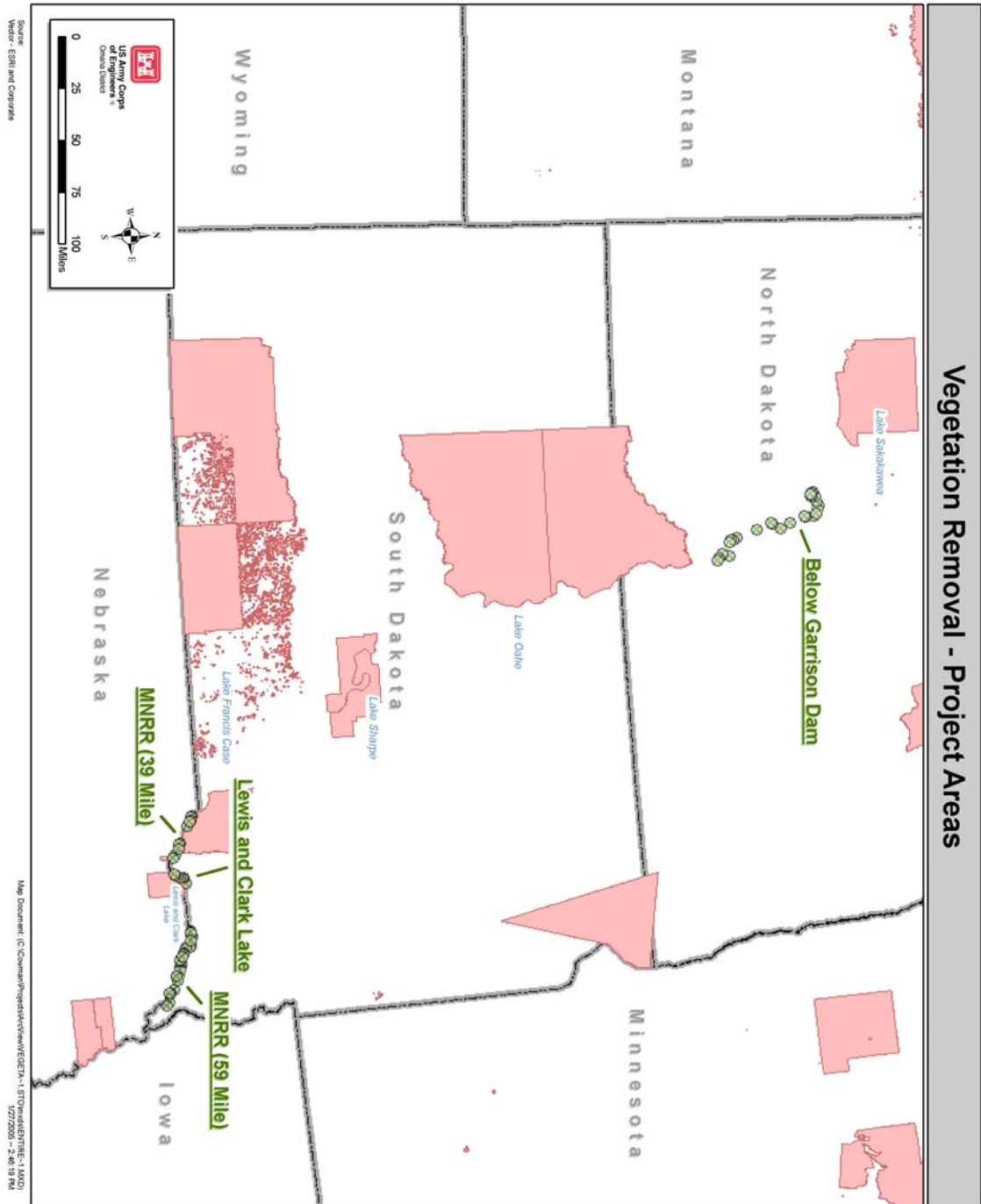
sandbars in Lewis & Clark Lake in response to the 1990 BiOp by the FWS. Data collection and monitoring is part of the implementation for RPA element of adaptive management/monitoring.

### 1.3 LOCATION

The Corps proposes to remove vegetation from approximately 1248 acres on 76 sandbars located in three segments of the Missouri River: approximately 681 acres on 30 sites downstream of Gavins Point Dam between river miles (RM) 756 and 805 in South Dakota and Nebraska; approximately 190 acres on 18 sites between RM 832 and 870 between the Fort Randall Dam and into Lewis & Clark Lake in South Dakota and Nebraska; and approximately 377 acres on 28 sites between RM 1284 and 1380 below Garrison Dam in North Dakota. Table 1 identifies the sandbars for the proposed action. Appendix C contains aerial photographs with individual sites outlined (*NOTE: Sites 1308 and 804.5 have been **eliminated** due to cultural resources considerations. Site 788.5 was eliminated at request of the NPS. Site 786.0 was dropped by the Corps*).



# MAP 1 FY05 Vegetation Removal Project Location



## 2. AGENCY COORDINATION

Letters dated December 3, 2004 were submitted to appropriate Federal, state, Tribal, and local government agencies and organizations regarding the proposed project. At the request of the FWS and the National Park Service (NPS), the comment period was extended from January 7 to January 27, 2005.

Correspondence dated December 22, 2004 from the SDGFP indicated support for the project but there were concerns about some aspects of it. SDGFP understands the need for speed in this instance but wants future projects to be evaluated fully under NEPA. It has not seen analysis of past similar projects and would like to have this information furnished before future projects are proposed. SDGFP requested maps showing the sites in more detail. It was concerned that water levels would be lowered rapidly to allow for mechanical treatment after the herbicide had taken effect. Finally SDGFP prefers habitat be improved by natural flows rather than mechanical means.

A letter dated December 10, 2004 was received from the South Dakota Department of Environment and Natural Resources (SDDENR) air quality program. No objections to the project were expressed, and the letter indicated the project would have no impact on the attainment of air quality standards in the area.

A letter dated December 27, 2004 was received from the Nebraska Department of Environmental Quality informing the Corps that waters in the Gavins Point segment of the Missouri River are designated as state Class A resource waters. As such, waters in the project area are subject to Chapter 3 Anti-Degradation Clause, Section 001 of Title 117 Nebraska's Surface Water Quality Standards. The Corps must show the proposed project will cause no degradation to this segment of the river.

A letter dated December 16, 2004 from the North Dakota State Conservationist, Natural Resources Conservation Service (NRCS) indicated the proposed action would impact no agricultural lands. There was no other comment.

A letter dated December 21, 2004 from the South Dakota State Conservationist indicated the proposed action would impact no agricultural lands. There was no other comment.

A letter dated January 4, 2005 was received from the NPS indicating it would like to review the completed EA, and advised the Corps to acquire proper authorization from the various owners of sandbars and riparian lands before implementing the project. It requested the sandbar located at RM 788.5 be excluded from the project because it was already one of the most productive sites for least tern and piping plover nesting on the river. It wanted noxious weeds treated and not spread as part of the project. The NPS wanted sandbars surveyed for turtles and other reptiles and amphibians before any mechanical treatment was applied to the sandbars. It emphasized that a monitoring program was necessary to determine success or failure of this

approach to creating habitat. Finally, it advised that a NPS research permit was required to be obtained prior to the project commencing on its property.

The Missouri River Natural Resources Committee, in a letter to the Corps dated January 7, 2005, expressed a preference for flow manipulation over herbicide/mechanical methods for improving habitat. The MRNRC also listed six recommendations for the Corps if herbicide and mechanical methods were used.

A letter dated January 7, 2005 from Burleigh, Oliver, McLean, Mercer, Morton County Resource Districts (BOMMM) requested the Corps wait until the programmatic NEPA document for the entire habitat restoration project is completed before any action is taken. The BOMMM noted North Dakota has sovereignty over sandbars in the river and must give permission for the work to be done.

A letter dated February 11, 2005 from the FWS recommended items to be included in the EA, advising the Corps that bald eagles may be nesting during the operation and requesting project impacts be documented so the information may help guide future activities. The letter concluded that FWS believed the project would work without serious impact to natural resources if its comments were followed and the project's activities were coordinated with the states involved.

The draft EA was placed on a file transfer page and letters were sent to the agencies, Tribes, and organizations on May 6, 2005 asking for comments. Agency letters and Corps responses are in Appendix D.

### **3. ALTERNATIVE ANALYSIS**

#### **3.1 NO ACTION**

The no action alternative would continue to allow vegetation to grow on the sandbars described in this project, encroaching on the existing tern and plover habitat. This encroachment would continue to decrease the amount of useable habitat available on these reaches of the river. This alternative would not support the Corps' implementation of habitat restoration/creation/acquisition as recommended by the FWS in its amended 2000 BiOp. This alternative is also likely to have negative impacts on nesting terns and plovers, possibly resulting in a decrease in fledge ratios and nest success as vegetation increases on the sandbars.

#### **3.2 PROPOSED ALTERNATIVE**

The proposed alternative is divided into two primary tasks: 1) vegetation clearing and 2)

the monitoring and evaluation of the usefulness of the proposed vegetation clearing methods for habitat creation for terns and plovers.

The Corps proposes to clear the sandbar islands listed in Table 1 by applying an imazapyr-based (i.e. Habitat) or a glyphosate-based (i.e. Rodeo) herbicide approved for aquatic use, either by helicopter or all-terrain vehicle (ATV). This action would be undertaken during the absence of terns and plovers so as not to interfere with the courting/breeding activities of these birds.

Burning, mowing, and/or raking may also be utilized to remove dead vegetation if deemed necessary. The method selected would depend on the soil conditions and amount of vegetation remaining. These methods, while having only short-term benefits, are viable and cost effective. Equipment and personnel will be transported to the sandbars by pontoon barges pushed by boats or by crossing over at low water if possible. No temporary filled crossings will be created at any site for access.

### **3.3 FLOW MANIPULATION**

Flow manipulation has been suggested for scouring the vegetation and can be used if the authorized purposes of the system are not adversely affected. The Corps has manipulated flows in the past when there were opportunities for flow fluctuations without hampering flood control and navigational responsibilities. Due to the extended drought and low water conditions along the Missouri River flow manipulations are not possible at this time.

### **3.4 BURNING**

The burning of live, dormant vegetation may have potential for use in certain areas; however, an intense, persistent flame is necessary. Currently, there is not enough vegetation to maintain an intense, persistent flame of appropriate duration. Not all plant species are effectively killed by the incidence of fire; often the root systems are left intact and viable. Also, this alternative does not meet the needs of the proposed project.

## **4. PROPOSED PROJECT**

### **4.1 PROJECT OUTLINE**

The Corps proposes to clear the sandbar islands listed in Table 1 by applying an imazapyr-based (i.e. Habitat) or a glyphosate-based (i.e. Rodeo) herbicide, both of which are



approved for aquatic use. The imazapyr-based herbicide is applied as a post emergent but has properties of a pre-emergent, which would eliminate the vegetation for a longer time period. The glyphosate-based herbicide is a post emergent and would require re-treatment of sites in a shorter time period. The herbicide selected would be determined by the conditions of the area to be treated and the surrounding areas. This action would be undertaken during the absence of terns and plovers so as not to interfere with the courting/breeding activities of these birds.

The proposal would remove vegetation from approximately 1248 acres on 76 sandbars located in three segments of the Missouri River, approximately 681 acres on 30 sites downstream of Gavins Point Dam between River Miles (RM) 756 and 805 in South Dakota and Nebraska, approximately 190 acres on 18 sites between RM 832 and 870 between the Fort Randall Dam and into Lewis & Clark Lake in South Dakota and Nebraska, and approximately 377 acres on 28 sites between RM 1284 and 1380 below Garrison Dam in North Dakota. A helicopter or an ATV with a boom sprayer will spray the herbicide to remove vegetation from the selected sandbars. These sandbars were selected because the birds have used them in the past.

Corps personnel would inspect each sandbar prior to helicopter or ATV activities to ensure there are no nesting birds, other wildlife species, or obvious cultural resources. The Corps will take appropriate action to protect any of the above found on an island (e.g. skip the island, spray only part of the island, report findings to appropriate agencies, etc.).

The following methods would be utilized to minimize drift during helicopter application:

- The helicopter would fly slowly and low, as slow speeds can be combined with lower pump pressures to produce larger droplets. Flights will take place only on calm days.
- Nozzle orientation would be appropriately aligned to produce the desired droplet size.
- Boom length would be no more than 75 percent of the rotor diameter to ensure reduced drift caused by wingtip and rotor vortices.
- A microfoil boom drift control system would be used.
- The drift retardant, Chem-trol, would be used as a standard part of the project.
- Aerial applicators would check calibration and follow all practices that enhance accurate delivery of pesticides.
- As recommended by the FWS, Grand Island, Nebraska office LI 700, which is a non-ionic, low foam surfactant, would be used to enhance the activity and

effectiveness of either herbicide.

- Fuel and herbicides will be added to vehicles at sites away from the water. Fill sites will have proper spill protection equipment in place to contain and clean up any spilled material.

An ATV would be used to spray islands when the use of a helicopter is not appropriate. Burning, mowing, and/or raking may also be utilized to remove dead vegetation if deemed necessary. The method selected would depend on the soil conditions and amount of vegetation remaining. Equipment and personnel would be transported to the sandbars by pontoon barges pushed by boats or driving to the site at low water when possible.

## **4.2 MONITORING**

Each sandbar will have an on-site evaluation before vegetation removal occurs. The Corps will develop a checklist of flora, fauna, and topographical information for personnel evaluating the sandbars. This information would be gathered to provide quantifiable acreage data and to provide information necessary to assess the usability of the habitat cleared for the terns and plovers. Pertinent data will be collected and used to monitor changes in habitat for three to five years to help assess effectiveness of methods.

## **5. AFFECTED ENVIRONMENT**

### **5.1 AIR QUALITY**

The affected states have studies and investigations and operate an ongoing sampling network to determine compliance with the national ambient air quality standards. These standards include maximum allowable pollution levels for particulate matter, ozone, sulfur dioxide, nitrogen dioxide, lead, and carbon dioxide. All three states are listed as air quality attainment areas by the Environmental Protection Agency, which means there are no restrictions on uses (USEPA 2004).

The North Dakota Department of Health, Division of Air Quality is responsible for air quality standards in North Dakota. There are monitoring stations located in Bismarck, Mandan, Oliver County, Mercer County, and McLean County surrounding the project area.

The SDDENR ambient air quality monitoring section is responsible for air quality standards in South Dakota. The closest air monitoring sites are located in Sioux City, Iowa, approximately 30 miles southeast, and Sioux Falls, South Dakota, approximately 90 miles northeast of the project site.

None of the stations have reported incidents of readings above standards between 1995 and 2004 (USEPA 2004). The potential to have high concentrations of air pollutants in the project areas in North Dakota, South Dakota, and Nebraska are low due to the type and size of industries located in these states.

## **5.2 WATER QUALITY**

In 1999, the SDDENR resumed quarterly sampling of the Missouri River at the power station discharges. Water quality remains good, although exceedances in surface water temperature and elevated pH may occur from time to time. The sediment-free water discharged from all three dams exerts a considerable erosive force on the banks of the Missouri River. Shoreline erosion was severe for most of the past decade due to significant increases in water released from all of the large main stem reservoirs upstream during summer, fall, and winter of 1995 to 1997. Recent drier conditions in the middle of the state and in upstream reservoirs will temporarily alleviate erosion problems (SDDENR 2004).

The water in the Missouri River throughout North Dakota is a Class 1. It can sustain fish and other aquatic biota, allow recreational uses, and provide for suitable irrigation and stock watering without injurious effects. It can be used for domestic and municipal purposes after treatment to meet the biological, physical, and chemical requirements (USACE 2004a).

Nebraska has classified the MNRR 59-mile river reach section of the river below Gavins Point Dam as a Class A water because of its high quality.

## **5.3 NOISE**

Under the Noise Control Act of 1972 and its amendments (Quiet Communities Act of 1978; USC, Title 42, parts 4901-4918), states have authority to regulate environmental noise. Governmental agencies are directed to comply with local community noise statutes and regulations. Currently, the project area has a low noise condition due to the remoteness of the location. Sources of noise within the project area include agricultural activities on the North Dakota, Nebraska, and South Dakota shorelines and river recreation. Sites near Yankton, South Dakota and Bismarck/Mandan, North Dakota are subject to urban noise also.

## **5.4 CLIMATE**

The sub-humid conditions foster grassland transitional between the tall and short-grass

prairie. High concentrations of temporary and seasonal wetlands in the region create favorable conditions for duck nesting and migration (USACE 2004b). Though the soil is fertile, agricultural success is subject to annual climatic fluctuations. Precipitation varies throughout the region with a mean annual range between 16 to 20 inches (USACE 2004b).

## **5.5 GEOLOGY/PHYSIOGRAPHY**

The project area consists of superficial material and bedrock glacial soil over cretaceous-Pierre shale. The Missouri River flows through tertiary sandstone and shale of the Fort Union formation in an eco-region known as the river breaks in North Dakota. The region is comprised of natural terraces 200 to 500 feet above the river and was naturally wooded in the past. The river falls from approximately 1640 feet mean sea level (msl) to 1620 feet msl within the project area (17 miles).

In South Dakota, the river flows through sandstone of Niobrara formation (USGS 1998). The Missouri River passes through the southern river breaks below Fort Randall Dam, which are dissected hills and canyons rising 250 to 700 feet above the river. This area was more heavily wooded than the North Dakota river breaks. The river drops from 1230 to 1206 feet msl in this segment. Then it moves into the James River basin division of the central lowland on the Pierre shale. The landscape of the James River basin is a nearly level and gently undulating glacial soil plain where many small drainage ways terminate (USGS 1998). The river drops from 1170 feet msl at Gavins Point Dam to 1110 feet msl at the end of the project area. The project will not change the geology or physiography of the areas.

## **5.6 VEGETATION**

Inavale variant soils found on the sandbar island will support eastern red cedar, common chokecherry, Siberian pea shrub, American plum, silver buffalo berry, ponderosa pine, green ash, common hackberry, Siberian crabapple, and blue spruce. Russian olive, an introduced species, is common on nearly all of the soils (NRCS 2004). Cottonwoods and willows comprise approximately 90 percent of all plant species found on the selected sandbars.

The National Wetlands Inventory map shows no wetlands in the proposed construction area other than the Missouri River shoreline (FWS 2003a). However, many vegetated sandbars are considered wetlands under the Clean Water Act if they support hydrophytic vegetation such as horsetail, sedges, cottonwood, willows, etc. Mapping has not occurred because the sandbars are changing constantly.

## **5.7 SOILS**

Sandbars are constantly changing landforms proportioned of sand and silt composition. The breaks along the river are areas of loamy glacial till, clayey soils underlain by Pierre shale, sandy soils, and silty soils underlain by Niobrara chalk rock. The soils in the immediate proposed project location are composed of sand and silt. The area soils are organized into soil orders including mollisols (argiustolls, haplustolls, natrustolls) and the common soil series are predominately beadle, dudley, hand, bonilla, houdek, and prosper (USGS 1998).

## **5.8 WILDLIFE**

Missouri River mammal species that may be found in the project area include whitetail and mule deer, coyotes, bobcats, raccoons, mink, skunks, foxes, cottontails, muskrat, opossum, beaver, tree squirrels, ground squirrels, mice, and gophers (USACE 2004a).

The most abundant birds recorded in the project area are typical Missouri River species including: pied-billed grebe, ring-necked pheasant, doves, swallows, terns, American robin, song sparrow, common grackle, Franklin's gull, brown-headed cowbird, orchard oriole and house sparrow (FWS 2005b). Other common birds are American white pelicans, double crested cormorant, egrets, herons, turkey vulture, northern harrier, Swainson's hawk, red-tailed hawk, American kestrel, wild turkey, American coot, semipalmated plover, greater and lesser yellowlegs, semipalmated sandpiper, long and short-billed dowitcher, great horned owl, whip-poor-will, woodpeckers, horned lark, jays, crows, black-capped chickadee, white-breasted nuthatch, warbling vireo, yellow and orange-crowned warblers, sparrows, blackbirds, and orioles (FWS 2005b).

Waterfowl most common and abundant to the area include the greater white-fronted goose, snow goose, Canada goose, green-winged teal, northern pintail, blue-winged teal, mallard, northern shoveler, gadwall, American wigeon, canvasback, redhead, ring-necked duck, lesser scaup, bufflehead, hooded merganser, common merganser, and ruddy duck (FWS 2005a).

## **5.9 AQUATIC SPECIES**

Thirty-three of the 156 native fish species in the Missouri River basin are now considered rare, threatened, or endangered (USACE 2004b). Species such as walleye, white bass, and small mouth bass, which do well in clearer lake habitat, have flourished in the present reservoir environment (USACE 2004b).

The Population Structure and Habitat Use of Benthic Fishes Along the Missouri River: 1996 Annual Report (Dieterman et al. 1997) lists the following fish for each segment of the project area.

Between RM 1284 and 1380 below Garrison, seven main sucker species are represented in the area. Longnose and white sucker are the majority, with the other five species being bigmouth buffalo, smallmouth buffalo, river capsucker, shorthead redhorse, and blue sucker. Native Cyprinidae and deep-bodied Catostomidae were absent. There was no gizzard shad in this area. In this same area, shovelnose sturgeon, goldeye, ciscoe, rainbow smelt, northern pike, burbot, common carp, emerald shiner, fathead minnow, spottail shiner, bigmouth buffalo, longnose sucker, river capsucker, shorthead redhorse, white sucker, channel catfish, Johnny darter, sauger, walleye and yellow perch are the captured species (Dieterman et al. 1997).

At Fort Randall Dam Lewis & Clark Headwaters (RM 880), the following species have been recorded: shovelnose sturgeon, common carp, flathead chub, emerald shiner, sand shiner, fathead minnow, smallmouth buffalo, river capsucker, shorthead redhorse, channel catfish, stonecat, walleye, shortnose gar, goldeneye, gizzard shad, red shiner, spotfin shiner, river shiner, quillback, northern pike, rock bass, green sunfish, bluegill, smallmouth bass, largemouth bass, white crappie, black crappie, Johnny darter, and yellow perch (Dieterman et al. 1997).

Between Gavins Point Dam and Ponca, Nebraska the following species have been recorded: shovelnose sturgeon, common carp, flathead chub, emerald shiner, sand shiner, blue sucker, bigmouth buffalo, smallmouth buffalo, river capsucker, shorthead redhorse, channel catfish, stonecat, flathead catfish, freshwater drum, walleye, sauger, shortnose gar, goldeneye, gizzard shad, red shiner, spotfin shiner, river shiner, bigmouth shiner, spottail shiner, quillback, northern pike, rock bass, green sunfish, bluegill, smallmouth bass, largemouth bass, white crappie, black crappie, Johnny darter, and yellow perch (Dieterman et al. 1997).

Backlund (2004) noted that 19 species of freshwater mussels have been documented in the river segment between Gavins Point and Ponca.

The false map turtle (*Graptemys pseudogeographicans*) is a State listed species in South Dakota. It is found primarily in large streams of the Missouri and Mississippi River systems from Ohio, Indiana, Illinois, Wisconsin, Minnesota, and the Dakotas southward; possibly to extreme southwestern Alabama, southern and western Mississippi, Louisiana, and eastern Texas. The turtle is typically found in large rivers and backwaters, but it also occupies lakes, ponds, sloughs, bayous, oxbows, and occasionally marshes. The false map turtle prefers water with abundant aquatic vegetation, places to bask, and slow currents, but it can be found in swiftly flowing channels of large rivers (USACE 2002).

There is a good chance the false map turtle will be found on or near the sandbars at the southern end of the project area, along with other species of turtle. The project has outlined a survey for turtles and other animals that might be impacted before using any mechanical

treatment of vegetation or any burning. Treatment on any sandbar with turtles will be modified to ensure minimal impact to the turtle.

## 5.10 THREATENED AND ENDANGERED SPECIES

**TABLE 2**  
**Threatened And Endangered Species**  
**A list of threatened and endangered species that could be found near the project area.**

Common Name	Scientific Name	Classification	Year Listed
Interior least tern	<i>Sterna antillarum</i>	Endangered	1985
Piping plover	<i>Charadrius melodus</i>	Threatened	1985
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	1967
Pallid sturgeon	<i>Scaphirynchus albus</i>	Endangered	1990
Whooping crane	<i>Grus americana</i>	Endangered	1967
Black-footed ferret	<i>Mustela nigripes</i>	Endangered	1967
American burying beetle	<i>Nicrophorus americanus</i>	Endangered	1989
Topeka shiner	<i>Notropis topeka</i>	Endangered	1998
Scaleshell mussel	<i>Leptodea leptodon</i>	Endangered	2001
Higgin's eye pearly mussel	<i>Lampsilis higginsii</i>	Endangered	1976
Eskimo curlew	<i>Numenius borealis</i>	Endangered	1967
Western prairie fringed orchid	<i>Platanthera praeclara</i>	Endangered	1989

Source: FWS 2004b.

### 5.10.1 INTERIOR LEAST TERN AND PIPING PLOVER

The interior least tern and the piping plover nest on unvegetated or sparsely vegetated sandbars in the Missouri River within the project area. Nesting colonies of least terns and piping plovers have been confirmed on Missouri River sandbars throughout the project area. The nesting season for the least tern and piping plover is from April 15 through August 15 (FWS 2003b).

The FWS has designated critical habitat for the northern Great Plains breeding population of the piping plover within the banks of the Missouri River and Lewis & Clark Lake between Fort Randall Dam and Gavins Point Dam (FWS 2003b). Tables 3 and 4 contain 2004 census data showing the populations of these species for each reach of the river.

**TABLE 3**  
**Missouri River - Least Tern 2004 Census**

<b>Reach</b>	<b>Adult Census</b>	<b>Fledged</b>	<b>Fledge Ratio</b>
Fort Peck Reservoir	0	0	0
Fort Peck River	48	12	0.5
Lake Sakakawea	16	7	0.88
Garrison River	142	80	1.13
Lake Oahe	73	46	1.26
Fort Randall River	71	13	0.37
Lewis & Clark Lake	13	0	0
Gavins Point River	359	186	1.04
<b>Total</b>	<b>722</b>	<b>344</b>	<b>0.95</b>

**TABLE 4**  
**Missouri River - Piping Plover 2004 Census**

<b>Reach</b>	<b>Adult Census</b>	<b>Fledged</b>	<b>Fledge Ratio</b>
Fort Peck Reservoir	9	10	2.22
Fort Peck River	0	0	0
Lake Sakakawea	738	552	1.5
Garrison River	164	95	1.16
Lake Oahe	372	262	1.41
Fort Randall River	42	15	0.71
Lewis & Clark Lake	0	0	0
Gavins Point River	262	245	1.87
<b>Total</b>	<b>1587</b>	<b>1179</b>	<b>1.49</b>

### 5.10.2 BALD EAGLE

Bald eagles migrate over a wide area and utilize mature riparian timber near streams, lakes, and wetlands. All three segments of the project area are important eagle wintering areas. The primary bald eagle migration and wintering period is mid-November to April 1 (FWS 2003b). Active bald eagle nests are known to occur at several locations along the Missouri River downstream from Garrison Dam and between Fort Randall Dam and Gavins Point Dam. Nesting occurs between mid-February and mid-July. There are approximately eight active nest sites below Garrison Dam (FWS 2005a), four active nests below Fort Randall Dam, and six active nests below Gavins Point Dam on the Missouri River (USACE 2005c). It is unknown how many of these nests will be active in 2005.



### **5.10.3 PALLID STURGEON**

This fish is found in all three segments of the Missouri River and Lewis & Clark Lake, where its preferred habitat is submerged sand flats and gravel bars. Numerous pallid sturgeon catches have been reported in the Missouri River between Fort Randall Dam and the mouth of the Niobrara River (FWS 2003b).

Pallid sturgeons are most often caught over a sandy substrate. Velocity use by pallid sturgeon indicates most frequent capture in South Dakota between 0.33 and 0.98 feet per second (FWS 1993). The most common depth at which pallid sturgeon were captured seems to be between 3.5 and 10 feet (FWS1993).

The pallid sturgeon recovery plan identifies six priority management areas that provide suitable habitat for restoration and recovery of the species. One area is the Missouri River from 20 miles upstream of the mouth of the Niobrara River to Lewis & Clark Lake. Priority recovery areas are typically the least degraded and have the highest habitat diversity, and in some reaches still exhibit a natural channel configuration of sandbars, side channels, and varied depths. The confluence areas of major tributaries to the Missouri River (e.g., the Niobrara River) were emphasized in selecting priority recovery areas because of the importance in feeding and nursery areas for large-river fish (FWS 2003b).

### **5.10.4 WHOOPING CRANE**

Whooping cranes migrate through western and central counties of North Dakota during spring, late April to mid June, and the fall, late September to mid October (FWS 2003b). Whooping cranes use open sand and gravel bars or very shallow water in rivers and lakes for nightly roosting. Feeding cranes seen during migration are frequently found within short flight distances of reservoirs, lakes, and large rivers that offer bare sandbars for nightly roosting. Whooping cranes do not readily tolerate disturbances.

In North Dakota most whooping crane sightings occur in the western two-thirds of the state including the five counties in the project area. In addition they have been recorded in Charles Mix County, South Dakota and Boyd County, Nebraska. They only pass through these areas on their migration in spring and fall.

In the Lake Andes National Wildlife Refuge Complex in South Dakota, whooping crane sighting have been occasional, and are classified as being seen only in the summer and fall every two to five years (FWS 2005a).

In the Garrison section there have been about six group sightings between 1943 and 1999. For the entire state of North Dakota, there have only been four sightings from 1977 to

1999 in a riverine wetland system. Along RM 870 to 832 in South Dakota, there have been two sightings close to the Missouri River since 1943 (USGS 1999). The latest sighting in April 2004 was noted along the Niobrara River, one mile up from Carns Bridge, north of Bassett, Nebraska (Arrowsmith and Hall 2004).

### **5.10.5 BLACK-FOOTED FERRET**

Black-footed ferret habitat includes open areas of grasslands, steppe and shrub steppe (prairie dog habitat). Black-footed ferrets dwell in prairie dog towns, raise two to five young in prairie dog burrows, and prey almost exclusively on prairie dogs. They are rarely observed anywhere but prairie dog towns (USACE 2004b).

Ferrets are secretive and nocturnal and most commonly seen in late summer and early fall (USACE 2004b). Ferret tracks are practically identical to those of mink; however, the ferret's characteristic diggings consist of a long, narrow section of dirt directly out of a prairie dog burrow, often with a lengthwise furrow or trench (USACE 2004b). Prairie dogs may destroy this evidence within a few hours of sunrise. Besides trenching, another clue to ferret presence in a prairie dog town is evidence of plugged burrows (prairie dog defense against roving ferrets) (USACE 2004b).

The historical range is listed in Mercer, Morton, and Oliver counties in North Dakota and Boyd and Knox counties in Nebraska. However, no prairie dog towns occur on sandbars within or near the project area; therefore, there are no black-footed ferrets within or near the project area.

### **5.10.6 AMERICAN BURYING BEETLE**

The American burying beetle is a large black insect with two distinct orange bands on each elytra. The pronotum is orange with a black border. Each antenna is tipped with orange and there is an orange patch on the head. This large beetle is about 1.5 inches long. This insect is considered as possibly existing in Union County, South Dakota by the FWS; but it has only been found in three counties in South Dakota. Since it requires undisturbed vegetated areas with buried carrion, it is unlikely to exist on sandbars in the Missouri River.

### **5.10.7 TOPEKA SHINER**

The Topeka shiner is a small minnow, less than three inches in total length. It is an overall silvery color, with a well-defined dark stripe along its side, and a dark wedge-shaped spot

at the base of the tail fin. Males develop additional reddish coloration in all other fins during the breeding season.

The Topeka shiner occurs primarily in small prairie (or former prairie) streams in pools containing clear, clean water. Most Topeka shiner streams are perennial (flow year-round), but some are small enough to stop flowing during dry summer months. In these circumstances, water levels must be maintained by groundwater seepage for the fish to survive. Topeka shiner streams generally have clean gravel, rock, or sand bottoms. While listed in Clay, Union, and Yankton Counties in South Dakota, it is unlikely to be found in the mainstream of the Missouri River (USACE, 2004a).

### **5.10.8 SCALESHELL MUSSEL**

The scaleshell is a relatively small freshwater mussel with a thin, fragile shell with faint green rays. It grows to about one to four inches in length. The inside of the shell is pinkish white or light purple and highly iridescent. The scaleshell gets its name from the scaly appearance of the shell, which is only seen in the female (USACE, 2004a).

Scaleshells live in medium to large sized rivers with stable channels and good water quality. They bury themselves in sand and gravel on the bottom with only the edge of their partially opened shells exposed. As river currents flow over them, they siphon particles out of the water for food such as plant debris, plankton, and other microorganisms. The roles of scaleshell in river ecosystems are as food for wildlife like muskrats, otters, and raccoons and as filters, which improve water quality (USACE, 2004a).

Scaleshells historically occurred across most of the eastern United States. During the last 50 years this species became increasingly rare within its reduced range. Of the 55 historical populations, 14 remain scattered within the Mississippi River basin in Arkansas, Missouri, and Oklahoma. The southern end of the project area is in the mussel's historic range, but none have been found (USACE, 2004a).

### **5.10.9 HIGGIN'S EYE PEARLY MUSSEL**

Historically, Higgins eye mussels were found in the Mississippi River in Pool 24 to Pool 3, (Louisiana, Missouri to Prescott, Wisconsin), as well as in several tributaries such as the Kankakee and Illinois Rivers in Illinois; the Cedar, Wapsipinicon, and Iowa Rivers in Iowa; and the St. Croix, Wisconsin, and Black Rivers in Wisconsin. The best bed was in pool 10 near Prairie Du Chien, Wisconsin in the east channel (USACE 2002).

Presently, the species is limited to sites between Pool 22 near Hannibal, Missouri and Pool 7 in the Mississippi River and the St. Croix, Wisconsin, and Rock Rivers (USACE 2002).

Higgins eye mussels generally live in medium to large rivers with high current velocity in a sand-mud-gravel substrate and are host specific. Fish hosts of the Higgins' eye include sauger, walleye, freshwater drum, and smallmouth and largemouth bass.

On October 27, 2004, a shell below Gavins Point Dam near the outlet of Lake Yankton was identified as the Higgins eye mussel, a federally endangered species. The shell was freshly dead and still had some hinge ligament attached (Backland 2004).

#### **5.10.10 ESKIMO CURLEW**

Eskimo curlews are medium-sized shorebirds that closely resemble their slightly larger relative, the whimbrel. Eskimo curlews are about 12 inches long and have a slightly down curved bill. They are dark, rich cinnamon in color and have solid (rather than barred) primary feathers (USACE, 2004a).

Although called a shorebird, this was a species of grasslands and tundra. Flocks of spring migrants once fed on insect eggs on the prairie grasslands of North America. In the mid-1800s, huge flocks of Eskimo curlews migrated from South America to nesting areas in the Alaskan and Canadian arctic. Eskimo curlews formerly nested in the arctic tundra areas of Alaska and northwestern Canada. They fed in open natural grassland and tundra, burned prairies, meadows, and pastures. Fall migration was down the east coast of North America, and spring migration was through the central United States and Prairie Provinces of Canada, including the project area. They wintered in the grasslands of southern South America from southern Brazil and Uruguay to mid-eastern Argentina (USACE, 2004a).

The last documented sighting of an Eskimo curlew was in Texas in 1962. Research efforts in recent years have focused on trying to document the continued existence of the species (i.e., to observe an Eskimo curlew). Surveys in historical breeding areas, migration routes, and wintering areas have failed to observe a single individual (Sohl 2004).

#### **5.11 CULTURAL RESOURCES**

Sandbar areas are naturally disturbed and continually changing due to the erosive nature of the river currents, and due to fluctuations in reservoir levels and wave action. Most of the sandbars are recently accreted and therefore would have little or no archaeological significance. Most of the actions described are non-intrusive and would not alter the shape of the sandbars, nor disturb the soils of the surrounding area. Raking and disking may be performed on some sandbars, which would disturb the surface area of the sites.

There is a National Historic Park south of Garrison Dam called Knife River Indian Villages. There are historic ruins containing earth lodge rings and other archaeological remnants of the Hidatsa Tribe (NPS 2005).

## **5.12 SOCIOECONOMIC**

The proposed project would not impact this resource because the project is small and spread along a wide area of the Missouri River.

Each of the three project areas has a rural economy based on agriculture and tourism. Bismarck/Mandan is an urban area in the North Dakota segment, and Bismarck is the state capitol. Yankton, South Dakota is an urban area in the Gavins Point Dam segment. Both of these urban areas' economies depend on agriculture and tourism, along with education and manufacturing. Overall, the area has many historical sites and recreational opportunities along the Missouri River that impact the regional tourism industry.

## **5.13 PRIME FARMLAND**

The U.S. Department of Agriculture does not consider sandbars as farmland according to the response letters from the NRCS state offices in North and South Dakota.

## **5.14 RECREATION AND LEISURE**

The MNRR along the Nebraska-South Dakota border offers such activities as boating, fishing, canoeing, camping, bird watching, and touring historic sites (NPS 2003). Other activities can include picnicking, campfires, sand volleyball (USACE 2004b) and hunting (USACE 1993). Ponca State Park is located on the Nebraska side.

There are many Lewis & Clark historic sites that offer recreation opportunities such as The Knife River Indian Villages National Historical Park, Cross Ranch State Park, Fort Clark, North Dakota Lewis & Clark Interpretative Center, and Fort Mandan in North Dakota.

## **5.15 LAND USE/OWNERSHIP**

The sandbars in the project area are not developed, farmed or grazed, and have no permanent structures. Ownership is a combination of private, state, Native American Tribe, NPS and Corps (Table 1). Rights-of-entry will be obtained by the Corps from legal owners prior to work being done.

## **6. ENVIRONMENTAL CONSEQUENCES**

### **6.1 AIR QUALITY**

There would be a short term and local increase in particles in the air around the sandbars caused by dispersal of the glyphosate-based herbicide. The herbicide should settle out of the air within minutes. Burning of dead vegetation, if done, would temporarily increase suspended particles in the air in the form of smoke. Prevailing winds would dissipate the smoke within hours. Small amounts of wind-driven ash residue from the dead plants may be temporarily suspended in the water immediately downwind from the sandbar area that was burned. This would be dissipated by a combination of river and wind current.

### **6.2 WATER QUALITY**

A Corps Section 404 permit and state Section 401 water quality certification are not required for the spraying, raking, or disking activities on the sandbars. If a bulldozer is used to pile dead brush, a Nationwide Permit, NWP #4, Fish and Wildlife Harvesting, Enhancement and Attraction Devices, and Activities, will be requested. The State of Nebraska Chapter 3 anti-degradation clause, Section 001 of Title 117 Nebraska's Surface Water Quality Standards, will be observed for the portion below Gavins Point Dam.

The aquatic approved herbicide with additives will be spread at a rate of five gallons per acre, one gallon chemical to four gallons water. Drift will be kept to a minimum by selecting calm days for application. The herbicides and additives were selected because they are the most aquatic friendly herbicides on the market. They are practically non-toxic to aquatic organisms on an acute basis based on information in the Material Safety Data Sheets. (LC50 and EC50 are greater than 100 mg/L in most sensitive species tested.) Any material that enters the water will quickly dissipate and be in such small amounts that no significant impact is anticipated for water quality.

Water quality may be affected temporarily during vegetation clearing by small amounts of ash residue. However, this effect is considered temporary. Best management practices would be followed to prevent soil from entering the Missouri River during the project activity.

### **6.3 NOISE**

Noise levels at the project site may increase above current levels temporarily due to the use of a helicopter or ATVs to spray the herbicide and tractors to mow, disk, and drag or rake dead

materials; however, these noises will be short in duration and kept within the compliance levels. They are common noises within the agricultural areas surrounding the sites.

## **6.4 BIOLOGICAL EFFECTS**

The spraying of the herbicide would result in the loss of vegetation on the sandbars. This would result in a reduced amount of cover for mammals, reptiles, and birds, etc. The reduction would be nominal compared to the total amount of cover and forage available for these species in the general vicinity of this project.

The vegetation removal will be of mixed impact on birds. Birds that use the vegetation for nesting or live off insects or animals in the vegetation will temporarily lose these acres. However, these islands are small and scattered over a large area, and there are large areas that would remain vegetated near each project site. Birds that like to rest or nest on open sandy areas (i.e. sandhill crane and some waterfowl) will experience a slight increase in their habitat temporarily.

These sandbars have continued to be used for tern and plover nesting even though the habitat is being invaded by vegetation. Eliminating or reducing vegetation encroachment on the sandbars would increase the habitat available for the interior least tern and piping plover.

## **6.5 THREATENED AND ENDANGERED SPECIES**

The proposed action, vegetation removal, is one of several recommended in the FWS 2000 BiOp, which is the culmination of a formal Section 7 process under the Endangered Species Act. The FWS has considered impacts to federally listed species prior to issuance of the BiOp. As such, Endangered Species Act compliance has been met. However, the Corps is still required to disclose any potential impact associated with the implementation of the BiOp.

### **6.5.1 INTERIOR LEAST TERN AND PIPING PLOVER**

The proposed sandbar clearing would provide additional nest habitat for the least tern and piping plover. At the request of the FWS (2003b), if project activities were initiated near the time of the nesting season of the least tern and piping plover, surveys would be conducted to determine if any nesting colonies are located within 0.25 mile of the project site. If active nesting colonies were present, project activities would be delayed until after the chicks have fledged. This project would have beneficial effects as intended in the RPA element of habitat restoration/creation/acquisition from the 2000 BiOp.

### **6.5.2 BALD EAGLE**

Large cottonwood trees used for roosting are available along the shore in all sections of the project. The spraying operation would not occur near nest trees during nesting periods. Therefore, this project would have no effect on the bald eagle.

### **6.5.3 PALLID STURGEON**

The proposed project would take place on the sandbar islands. There would be some herbicide drift into the Missouri River water; however, these impacts are not considered significant because of the small amount of herbicide to be used, the associated dilution within the river, and the quick chemical breakdown time for aquatic friendly herbicides. The sturgeons prefer the channel and utilize a wide range of habitat.

### **6.5.4 WHOOPING CRANE**

Spraying could take place during the spring or fall migration period of the whooping crane. The North Dakota sites and the northern-most sites along the South Dakota-Nebraska border would be affected. However, any impact would be minimal because the herbicides are not lethal to birds, the areas treated are small and scattered, whooping crane sightings are rare in these areas, and the cranes have the ability to depart if a helicopter comes into the area. The long-term impact could be beneficial because the cranes like to roost nightly on open sandy areas similar to the areas this project will create.

### **6.5.5 BLACK-FOOTED FERRET**

The black-footed ferret does not exist on sandbars because there are no prairie dog colonies. No colonies are known to exist near any project area sandbars.

### **6.5.6 AMERICAN BURYING BEETLE**

There are no American burying beetles on the sandbars because they need stable soil and carrion to survive. These factors are not present on the sandbars.



### **6.5.7 TOPEKA SHINER**

These fish require clear, clean water in small streams. The sandbars are in the main stream of the Missouri. The shiner is not likely to be in the project area. Also, both herbicides were developed for use in aquatic area with minimal impact on fish and aquatic organisms.

### **6.5.8 SCALESHELL MUSSEL**

The scaleshell would not be impacted by the spraying because it is under the water and does not live on vegetation. Any mechanical vegetation removal will be upland and over fairly small areas. There should be little increase in sedimentation to impact the mussel.

### **6.5.9 HIGGIN'S EYE PEARLY MUSSEL**

The Higgins's eye mussel would not be impacted by the spraying because it is under the water and does not live on vegetation. Any mechanical vegetation removal will be upland and over fairly small areas. There should be little increase in sedimentation to impact the mussel.

### **6.5.10 ESKIMO CURLEW**

The Eskimo curlew is not likely to be impacted by this project because none have been sighted in this area for more than 40 years. While the spraying in the spring could take place during the time of the curlew's historical migration, the acreages to be treated are spread over a large geographical area.

## **6.6 CULTURAL RESOURCES**

Sandbar areas are continually changing due to the erosive nature of the river currents and wave action. Most of the sandbars are recently accreted and have little or no archaeological significance. The spraying of an aquatic approved herbicide would not alter the shape of the sandbar, nor disturb the soils of the surrounding area. Several sandbar sites were eliminated because of cultural issues. The Corps has made a No Historic Properties Subject to Effect determination.

In addition to the December 3, 2004 notification to each state's State Historic Preservation Officer (SHPO), a site file search was completed for all emergent sandbar habitat

sites and coordinated with the SHPOs for North Dakota, South Dakota, and Nebraska. Any sites located near archaeological sites have been withdrawn. In the event that cultural resources are discovered the SHPO will be notified and the area will be protected. A response, dated April 12, 2005 was received from the Nebraska SHPO, stating that no survey for unrecorded cultural resources in the project area was necessary and the undertaking will have no effect for archaeological, architectural, or historic properties.

The Tribes located adjacent to the project sites were notified about this project by letter dated December 3, 2004. No responses have been received.

## **6.7 RECREATION AND LEISURE**

Clearing vegetation from the sandbars could encourage use of the areas for sand volleyball, picnicking, and beaching boats (USACE 2004b). Sandbars used for interior least tern and piping plover nesting are off-limits for recreational use. When tern and plover nests are present, signs are posted informing recreational users that the area is off limits which is an existing procedure. When the terns and plovers are not present or nesting, the sandbars could be used for recreational activities with the landowner's permission.

## **6.8 LAND USE/OWNERSHIP**

This project would not impact land use or ownership. Prior to conducting aerial spraying or land operations on any sandbar, the Corps will obtain the right-of-entry from the person or agency with control over the parcel. In addition, a Sovereign Lands Permit will be obtained from North Dakota for work to be done.

## **6.9 CUMULATIVE IMPACT**

Cumulative impacts are the impacts on the environment resulting from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions.

The project reaches of the Missouri River have already been altered by the construction of the six main stem dam and reservoir projects. The resulting flow control from the dams, associated river degradation below the dams, and the inundation of the Missouri River to form the main stem reservoirs has significantly impacted endangered species habitat, as well as habitat for other fish and wildlife.

The control of spring flooding has resulted in cabin development along the banks of the Missouri river, as well as increased agricultural use. Ongoing erosion led to the construction of bank stabilization structures. Bank stabilization primarily protects cabins, boat ramps, and farmsteads.

The proposed project would neither improve most of the conditions mentioned above nor increase the impact. There would be 1300 acres of additional tern and plover habitat created over a large area. This project would help alleviate cumulative impacts on terns and plovers resulting from habitat loss related to construction of, and the ongoing operation of, the dams.

Recreational use of cleared areas could increase slightly on the newly formed sand beaches, but use would be restricted by protection efforts for the terns and plovers. There would be temporary increases in noise, air pollution, and erosion potential at the time of the spraying activity. These increases would be minor because the sites are small in size and scattered over a large area of the Missouri River. All impacts will be temporary because nature will begin re-vegetating the sandbars soon after the work is completed.

## **7. CONCLUSION**

The application of either an imazapyr-or glyphosate-based herbicide with additives will accomplish the objective of creating interior least tern and piping plover habitat quickly, economically, and with minimal impacts on the aquatic environment surrounding the sandbars. The herbicides were developed for use in aquatic environments with minimal impact to fish, wildlife, and water quality. The precautions to be used with the spraying operation and ground clean up (i.e., assessing sites for wildlife and cultural resources before operations, loading fuel and pesticides away from water, and spraying during periods when the birds are not nesting) will protect resources in the areas and further minimize the impacts of the project. This method has been used in the past without significant impacts to the areas treated.

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**ENVIRONMENTAL STATUTES COMPLIANCE  
FOR INTERMEDIATE  
ENDANGERED SPECIES HABITAT IMPROVEMENT  
BY VEGETATION REMOVAL IN  
NORTH DAKOTA, SOUTH DAKOTA, AND NEBRASKA  
SEGMENTS OF THE MISSOURI RIVER**

American Indian Religious Freedom Act (AIRFA) Of 1978, 42 U.S.C. 1996. In compliance. The sandbar habitat improvement project would not adversely affect the protections offered by this act. Access to sacred sites by tribal members would not be affected.

Bald Eagle Protection Act, 16 U.S.C. Sec. 668, 668 note, 668a-668d. In compliance. This act prohibits wantonly possessing, selling, transporting, or trading of a bald or golden eagle or eagle part, alive or dead. The Endangered Species Act contains requirements on Corps projects concerning bald eagles. See Endangered Species Act.

Clean Air Act, as amended 42 U.S.C. 1857h-7, et seq. In compliance. Air quality is not expected to be impacted to any measurable degree by activities associated with the proposed spraying of the herbicides.

Clean Water Act, as amended, (Federal Water Pollution Control Act) 33 U.S.C. 1251, et seq. Not applicable. Because this project does not involve construction in waters of the United States, a Section 404 permit is not required.

Comprehensive Environmental Response, Compensation and Liability Act of 1980. Not applicable. The proposed spraying of the herbicide does not involve any real estate transactions.

Endangered Species Act, as amended, 16 U.S.C. 1531, et seq. In compliance. ESA compliance has been completed since this action implements an existing BiOp resulting from formal consultation. The FWS reviewed the draft and made comments to ensure bald eagle nesting sites were protected (Appendix D).

Farmland Protection Policy Act, 7 U.S.C. 4201, et seq. Not applicable. No lands would be taken out of agricultural production.

Federal Water Project Recreation Act, as amended, 16 U.S.C. 460-1(12), et seq. Not applicable. This project does not involve any federal navigation, flood control, reclamation, and hydroelectric or multi-purpose water resource projects.

Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661, et seq. Not applicable. The project does not involve modification of waters of the United States. However, State and federal agencies were provided opportunities to comment on the Draft EA (Appendix D)

Land and Water Conservation Fund Act (LWCFA), as Amended, 16 U.S.C. 4601-4601-11, et seq. Not applicable. No lands involved in the proposed project were acquired or developed with LWCFA funds.

National Environmental Policy Act, as amended, 42 U.S.C. 4321, et seq. In compliance. An EA has been completed in accordance with ER 200-2-2, procedures for implementing NEPA (33 CFR 230). An EIS is not required.

National Historic Preservation Act, as amended, 16 U.S.C. 470a, et seq. In compliance. This project was coordinated with the SHPOs for North Dakota, South Dakota, and Nebraska. Research on the ESH sites indicate the work will have no affect on historic properties; consequently the Corps has made a No Historic Properties determination for the proposed project.

Native American Graves Protection and Repatriation Act, 25 U.S.C. Sec. 3001 et seq. In compliance. If an inadvertent discovery is made of Native American remains or objects in connection with an activity on Federal or Tribal lands, the activity must cease in the area of discovery, a reasonable effort must be made to protect the items discovered before resuming activity, and the items are to be repatriated to affiliated tribes. See National Historic Preservation Act above.

Noise Control Act of 1972, 42 U.S.C. Sec. 4901 to 4918. In compliance. Noise emission levels at the project site could increase above current levels temporarily due to helicopter and ATV usage; however, appropriate measures would be taken to keep the noise level within the compliance levels.

North American Wetlands Conservation Act, 16 U.S. C. Sec. 4401 et. seq. Not applicable. There is no opportunity to enhance wetland habitat with this project.

Rivers And Harbors Act, 33 U.S.C. 401, et seq. Not applicable. Corps projects do not require a Section 10 permit.

Watershed Protection and Flood Prevention Act, 16 U.S.C. 1101, et seq. Not applicable. This act does not impose requirements on Corps projects.

Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271, et seq. In compliance. Two segments of the proposed project area occur within the MNRR boundary. The Corps is coordinating this project with the NPS. NPS comments on the Draft EA are in Appendix D

Environmental Justice (E.O. 12898, Federal Actions to Address Environmental Justice in minority and low income populations, 11 February 1994). In compliance. The project does not impact minority or low-income populations because no one lives on these sandbars and there would be no construction or taking of property.

Floodplain Management (E.O. 11988) 42 CFR 26951. Not applicable. This project does not involve construction in the floodplain; therefore, flood elevations would not be affected.

Protection of Wetlands (E.O.11990). Not applicable. Wetlands would not be filled by this project.

Indian Sacred Sites (E.O. 13007). Not applicable. The sandbar islands are not known to be used as a ceremonial or sacred site. Therefore, the project would not affect the protections offered by this executive order.

CEQ memorandum, August 10, 1980, Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the Nationwide Inventory. In compliance. Two segments of the proposed project area occur within the MNRR boundary. The Corps is coordinating this project with the NPS.