

UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM



U.S. Army Corps of Engineers



St. Paul District
190 Fifth Street East
St. Paul, MN 55101-1638

September 2004

**FINAL DRAFT
BLACKHAWK PARK
PROJECT COMPLETION REPORT**



Backwater lakes in Pool 9 at Blackhawk Park on the Mississippi River, 25 miles south of La Crosse, Wis.

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1.0 INTRODUCTION

1.1 HABITAT REHABILITATION AND ENHANCEMENT PROJECTS

Section 1103 of the 1986 Water Resources Development Act authorized a multi-element program designed to protect, restore, and balance the resources of the Upper Mississippi River System (UMRS). Habitat Rehabilitation and Enhancement Project (HREP) construction is one element of the Environmental Management Program (EMP) (USACE 1997). Construction of the Blackhawk Park project was initiated as an HREP in May 1990 and completed in December 1990 (USACE 1986).

The planning, design, and construction of the project were the result of a cooperative effort by the involved Federal and State agencies and the public. The continuation of this cooperation and coordination as part of the operation and maintenance of the project was strongly recommended (USACE 1997).

1.2 PURPOSE OF HABITAT PROJECT COMPLETION REPORTS

The purposes of this habitat project completion report for the Blackhawk Park project are to:

- Document the pre- and post-construction monitoring activities for the Blackhawk Park project.
- Evaluate project performance on the basis of project objectives and goals.
- Evaluate the project relative to other issues such as operation and maintenance.
- Make recommendations concerning future project performance evaluation.
- Make recommendations concerning the planning and design of future habitat rehabilitation and enhancement projects.

This report summarizes all available monitoring data, operation and maintenance information, and project observations made by the U.S. Army Corps of Engineers (USACE), the U.S. Fish and Wildlife Service (USFWS), and the Wisconsin Department of Natural Resources (WDNR) for 1993. It also includes other agency and public input.

2.0 PROJECT OBJECTIVES

2.1 GENERAL GOALS

The ultimate purpose or goal of the Blackhawk Park project was to preserve and enhance existing fish habitat (USACE 1986).

2.2 SPECIFIC HABITAT OBJECTIVES

The backwater lakes and sloughs at Blackhawk Park were identified as important fishery habitat with multi-State importance. The purpose of the project was to convert 258 acres of backwater lakes from seasonal to year-round fish habitats, annually contributing an additional 20,000 fish to the boundary waters of Wisconsin, Minnesota, and Iowa. Over the 50-year project life, an estimated 1 million fish would be produced and dispersed to the waters of the three States (USACE 1986).

2.3 TARGET SPECIES AND HABITATS

2.3.1 Habitat Types and Distribution

The Blackhawk HREP project area includes backwater lakes, aquatic vegetation beds, islands, floodplain forests, sloughs, and side channels, as well as the main channel itself.

2.3.2 Fish and Wildlife

The Blackhawk project area provides habitat for fish and wildlife species. The backwater and off-channel habitat provided spawning, rearing, and overall habitat for fish species such as bluegill, crappie, bass, and gizzard shad. The project area is used occasionally by walleye, sauger, northern pike, and various other species, especially as refuge during periods of high water. Habitat improvement would benefit these species.

Animals that use the backwater area included beaver, muskrat, raccoon, white-tailed deer, squirrels, and other small mammals. Wood ducks and mallards are known to nest in the area, and it is used by a variety of species of migrating waterfowl. A wide variety of shorebirds also uses the area (USACE 1991).

2.3.3 Threatened and Endangered Species

At the time of project construction, it was noted that the Blackhawk backwater area was located within the historical range of the bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), osprey (*Pandion haliaetus*), and Higgins eye mussel (*Lampsilis higginsii*). The Higgins eye mussel is a Federal and a State of Wisconsin listed endangered species. The bald eagle is a Federal and a State of Wisconsin listed threatened species, and the osprey is listed by the State of Wisconsin as threatened (USACE 1991). The peregrine falcon (*Falco peregrinus*) was a federally listed species at the time of construction but has since been delisted. It remains listed as an endangered species by the State of Wisconsin.

3.0 PROJECT DESCRIPTION

3.1 LOCATION

The Blackhawk Park area is located in pool 9 of the UMRS, approximately 25 miles south of La Crosse, Wisconsin (Figure 1). The main park, operated by the USACE, is located along the main channel of the Mississippi River. A complex of channels, sloughs, and lakes is located between the park and the Wisconsin mainland (USACE 1986).

3.2 PROJECT AREA

Blackhawk Park is located in pool 9 along the left descending or Wisconsin bank of the UMRS. The park facilities are located on a strip of land along Battle Slough, a side channel that branches off the main channel at and below river mile (R.M.) 671. A number of backwater lakes and sloughs occur east of the park facilities. Several of the side channels that historically supplied water to this backwater complex were obstructed by the construction of roads to the park and to adjacent private developments. These obstructions resulted in the loss of freshwater (well-oxygenated) flows to these backwater areas during most of the year. The lack of freshwater flow resulted in dissolved oxygen (DO) depletion problems in these backwater lakes and sloughs (USACE 1986).

3.3 PRE-PROJECT HABITAT CONDITIONS

The Blackhawk Park area consists primarily of bottomland forest and backwater lakes and sloughs. The developed portions of the park occur along the main channel of the river. The backwaters provide excellent habitat for desirable sport fish such as northern pike, largemouth bass, crappie, and bluegill. However, low DO conditions in the backwater lakes and sloughs during both summer and winter limited the use of these areas by fish (USACE 1986).

3.4 PROJECT FEATURES

Habitat restoration efforts in the Blackhawk Park area began prior to the creation of the EMP. The USACE constructed a channel to provide fresh water to Green and Peck Lakes in the early 1980's (Figure 1). The Blackhawk Park habitat project under the EMP was a continuation of this effort to provide flows to the backwater complex lying east of the park boundaries. The project included the installation of three culverts in a private driveway, the construction of channels from the main channel to Long Slough, and the dredging of two sediment traps (Figure 2). The major action was the construction of 7,000 linear feet of channels from the main channel to the head of Long Slough. The channels provide freshwater flow to Long Slough in order to alleviate oxygen depletion problems (USACE 1986).

The channels are approximately 4 feet deep, depending on designed flow (from 30 to 90 cubic feet per second [cfs]). The channel side slopes are approximately 4 horizontal (H) to 1 vertical (V). The channels follow existing sloughs and low-lying areas to minimize the amount of excavation required (USACE 1986).

The excavated material was used primarily in bank shaping, which resulted in placing some material in portions of the sloughs adjacent to the channel. Placement of the excavated material increased the elevation of approximately 5 acres of the adjacent floodplain forest from 1 to 2 feet above its pre-construction elevation. Sediment traps were dredged immediately upstream from the culverts in the private driveway and the culverts in the park entrance (USACE 1986).

3.5 PROJECT HISTORY

A construction contract was awarded in May 1990 by the WDNR, and construction was completed in December 1990. The WDNR was reimbursed for preparation of the final design and construction in accordance with the local cooperation agreement. The WDNR is responsible for operation and maintenance (O&M) of the project (USACE 1997).

4.0 PROJECT MONITORING

4.1 MONITORING PLAN

Pre-construction monitoring showed low DO levels. Fish use was poor within the area, suggesting a need for restoration. The WDNR completed additional DO monitoring during the winter of 1985-86. Post-construction monitoring of DO, temperature, fish use, and flows was conducted by the WDNR.

4.2 MONITORING HISTORY

4.2.1 Pre-Construction Monitoring

The Blackhawk Park backwater areas have been identified as important fishery habitat with multi-State importance. Pre-construction monitoring consisted of collecting water quality data from the Blackhawk Park area and evaluating the influence of the water quality to the fishery. Several of the side channels that supply water to the backwater areas had historically been obstructed by the construction of roads to the park and adjacent private developments. These side channel obstructions resulted in the loss of fresh, well-oxygenated water flows into these backwaters. This loss of fresh water resulted in DO depletion problems throughout much of the year, which in turn caused fish kills and loss of aquatic life (invertebrates, reptiles, birds, etc.). The USACE (1986) determined that the overall limiting factor influencing the low DO levels is the lack of fresh, oxygenated water entering the backwater areas.

4.2.2 Post-Construction Monitoring

Post-construction monitoring at the Pool 9, Blackhawk Park project was performed by the WDNR. Table 1 summarizes the monitoring data collection efforts.

TABLE 1

Post-Construction Monitoring Data, Blackhawk Park

Date	Agency	Components Monitored
January to February 1993	WDNR	DO, Temperature, Current Velocity
November 21, 2002	WDNR	Winter Fisheries Use
November 3, 2003	WDNR	Winter Fisheries Use

January-February 1993 DO, Temperature and Current Velocity

Sullivan et al. (1993) monitored winter water quality and discharge measurements near a backwater complex adjacent to Blackhawk Park during January and February 1993. Current velocities were measured using a Marsh-McBirney 201D current meter. Discharge measurements were conducted on January 8 and February 12, 1993, at eight locations (seven locations within the excavated channels constructed in 1990 and one location along the Green Lake access channel constructed in 1985). Dissolved oxygen readings were taken using a Yellow Springs Instrument (YSI) Model 54 or 57 DO meter. Vertical profiles of DO, temperature, and velocity were collected at nine locations in the backwater complex near Blackhawk Park. Total flow through the excavated channels averaged 20.8 and 23.3 cfs on January 8 and February 12, 1993, respectively. The Green Lake channel averaged 13.9 and 11.1 cfs on these two respective dates. This data represents a 150- to 210-percent increase in freshwater flows to the backwater complex. Sullivan et al. (1993) state that the original project design for the

excavated channels and road culverts called for a total flow of 150 cfs, which was recognized as too high on the basis of channel hydraulics and fishery habitat needs. Dissolved oxygen levels during the sampling period were at or above saturation levels, with the only exceptions being in the south end of Green Lake and in Peck Lake. Bottom water temperatures in the sloughs below the newly excavated channels were at or near 0 °C. Green Lake bottom water temperatures averaged about 0.8 °C, while Peck Lake had the highest (1.8 to 2.9 °C). The Peck Lake readings are representative of typical winter stratification, since this area receives little flow from the Mississippi River. Sullivan et al. conclude that initial DO levels have improved dramatically since construction in the upper and lower Long Slough. However, water temperatures have decreased and current velocities have increased to levels that are likely unacceptable for winter centrarchid habitat. Sullivan et al. (1993) recommend a reduction in the freshwater flows to the backwater complex to enhance winter centrarchid habitat.

November 2002 and 2003, Winter Fisheries Use Monitoring

The WDNR (J. Janvrin, personal communication) performed fisheries sampling on November 21, 2002, and November 3, 2003, to assess use of the project area by fisheries resources. Sampling during this time, prior to ice-up, provides the best opportunity to document use of the area by fisheries resources. Sampling was performed by day electroshocking. During 2002, sampling rates (as measured by Catch per Unit Effort) were generally between 100 and almost 900 fish per hour. Sampling rates during 2003 were generally more than 1,000 fish per hour. The WDNR noted that additional fish were frequently missed during sampling runs because of the high volume of fish shocked. The most common species observed included bluegill and largemouth bass, while spotted sucker, yellow perch, and northern pike were also collected. Other taxa, such as cyprinids, were also observed. While black crappie were observed, they were collected in relatively low numbers. Many of the fish collected were young-of-the-year or juvenile fishes. However, the large numbers of fish collected point to the project area's high use and likely value as an overwintering site.

Given the lack of pre-project fisheries data and the limited temporal scale of this dataset, it is difficult to determine the specific influence of this project. However, on the basis of the observations here, the project area appears heavily used by a variety of species, and could be especially valuable for bluegill and largemouth bass. Fishery managers for the area consider the area valuable in terms of receiving heavy use by overwintering fish.

4.3 PRESENT HABITAT CONDITIONS

On the basis of the monitoring data and observations following construction of the Blackhawk Park Backwater Restoration Project, the project goals and objectives have been achieved. Construction of the side channels has facilitated the flow of fresh, well-oxygenated water into the backwaters during most of the year. However, the flow of fresh water into the backwater areas has inhibited winter stratification in upper and lower Long Slough. This decreases the effectiveness of the restoration project because of inadequate water temperatures for centrarchids during the winter.

5.0 OPERATION AND MAINTENANCE

5.1 PROJECT FEATURES REQUIRING OPERATION AND MAINTENANCE

Operation and maintenance of the project includes the periodic cleanout of the sediment traps and channels. It was estimated that this would be required every 10 years and that the cost would average approximately \$3,000 annually (USACE 1986).

5.2 OPERATION AND MAINTENANCE RESPONSIBILITIES

The WDNR is responsible for O&M. Operation and maintenance costs are to be shared on the same basis as project construction costs (75 percent Federal/25 percent local sponsor) (USACE 1986).

5.3 OPERATION AND MAINTENANCE TASKS AND SCHEDULE

There are no operational requirements associated with the Blackhawk Park project. The person officially designated as the “Superintendent” is responsible for maintaining the project. An annual inspection of the project area is made in September or October each year. It includes inspecting the culverts to ensure they are not functionally impaired, inspecting the overall channel system, inspecting areas of the channel having rock protection, and inspecting sediment traps (USACE 1997).

5.4 OPERATION AND MAINTENANCE HISTORY

An inspection checklist report and project drawing are to be submitted annually to the WDNR and the USACE St. Paul District Engineer for review (USACE 1997). Annual costs for operation, maintenance, and repair were estimated at \$3,000. The WDNR is the non-Federal project sponsor (USACE web page). Maintenance costs are to be cost shared with the sponsor in accordance with the Project Cooperation Agreement.

6.0 PROJECT EVALUATION

6.1 PROJECT TEAM

A project team workshop was held with the resource managers from 1:00 p.m. to 2:00 p.m. on February 13, 2001, at the USFWS District Headquarters office in Onalaska, Wisconsin. The purpose of the workshop was to receive input from the resource managers relative to the project. Mr. Don Powell, USACE Project Manager, and Mr. Jon Gumtow, Earth Tech, Inc., facilitated the workshop. The format included a brief summary of the project history followed by solicitation and recording of responses to 10 questions related to the effectiveness, appearance, and implementation of the project. Responses were recorded on a flip chart. Appendix A presents the questions and the recorded responses from this meeting.

Seven resource managers attended the workshop. One person was unable to attend and provided a written response. In general, the resource managers considered the project successful. All of the attendees rated the overall project as good. The resource managers agreed that the project improved the flow of water and dissolved oxygen levels to the backwater areas, improved the fishery, and increased public use in the area.

Suggested considerations for future projects include the following:

1. Improve public relations and education regarding the benefits of the project.
2. Obtain more accurate surveys for design of the project.
3. Improve cooperation between WDNR and USACE engineers.
4. Reduce O&M costs associated with removal of debris from the culverts in future designs.

6.2 INTERESTED PUBLIC

A public participation workshop was held from 7:00 p.m. to 8:00 p.m. on December 13, 2000, at the Village Hall in Ferryville, Wisconsin. The purpose of the workshop was to receive input from the public relative to the project. Public responses were requested to eight questions related to the effectiveness, appearance, and implementation of the project. Responses were recorded on a flip chart. Appendix B presents the questions and the recorded responses from this meeting.

Five people attended the workshop including three public participants. Two agency participants, including one from the WDNR and one from the USACE, were also in attendance to address questions about the technical aspects of the project. In general, the project was well received by the public. A majority of the attendees rated the overall project as good. The public perception was that the project improved the flow of water through Blackhawk Park, improved the fishery, and increased public use in the area. One comment expressed concern that bank erosion has been observed in the Battle Slough area since the project.

Project improvements suggested by the public include installing riprap in the Battle Slough area to control bank erosion.

6.3 SUMMARY EVALUATION OF ECOLOGICAL EFFECTIVENESS

The post-construction monitoring data gathered for this project indicate that the project goals and objectives were achieved. Construction of the side channels has facilitated the flow of fresh, well-oxygenated water into the backwaters. Since completion of the project, the public and resource managers have observed increased public use and improved fishery in the backwater areas.

The effects of freshwater flow into the backwater areas during the winter may have affected water temperatures and the quality of overwinter habitat for centrarchids. Alternatives to create improved winter habitat conditions for centrarchid fishes should be explored.

During construction, dredged material was sidecast into the adjacent floodplain forest habitat. As anticipated, the placement of material resulted in tree mortality and may have modified the hydraulic conditions within a localized area within the floodplain forest. The loss of some trees would allow for land route along the channels for future maintenance actions. However, the practice of sidecast placement of dredged material should be carefully evaluated for any future projects.

6.4 SUMMARY EVALUATION OF ENGINEERING EFFECTIVENESS

The engineering of this project was completed by the WDNR with minimal involvement by the USACE. Comments received by the resource managers indicate that the project goals and objectives were achieved. However, more detailed survey information and quality control review would have improved the design and effectiveness of the project. The design elevations for the culverts and the channels were too high for the site conditions originally planned. In retrospect, this was beneficial, as we have subsequently learned that lower flows may be better for fisheries habitat.

The culvert design has required routine post-construction maintenance to remove debris. Debris flowing in the channels is routinely lodged in the culverts, which affects water flow and the overall effectiveness of the project. Future projects should consider measures to minimize the buildup of debris in culverts.

6.5 SUMMARY EVALUATION OF COST

6.5.1 Estimated Cost

The total estimated cost for the project in February 1986 was \$170,650 (USACE 1986).

6.5.2 Actual Cost

General design costs were \$7,000, and construction costs were about \$190,000 (Table 2).

TABLE 2

Contract Construction Costs, Blackhawk Park HREP

EMP	BLACKHAWK PARK
WISCONSIN DEPARTMENT OF NATURAL RESOURCES - PARTNER JF BRENNAN CO., LA CROSSE, WI - CONTRACTOR	
FINAL CONTRACT COST (1992)	\$189,719
FOLLOWING IS A LIST OF THE UNIT COSTS BID FOR EACH ITEM OF WORK. THE FINAL ACTUAL QUANTITIES ARE NOT CURRENTLY AVAILABLE.	
DESCRIPTION	UNIT PRICE
CHANNEL EXCAVATION	\$6.75/CY
ROAD FILL	\$4.50/CY
CUT-OFF DIKE FILL	\$5.00/CY
STONE RIPRAP	\$49.00/CY
RIPRAP FILTER MATERIAL	\$49.00/CY
SEEDING	\$0.03/SF
CULVERT PIPE	\$58.00/LF
SERVICE ROAD	\$300/STA
CLEARING	\$1,542/STA
ROAD SURFACING	\$15.00/CY
ROAD EXCAVATION	\$3.50/CY

7.0 LESSONS LEARNED

The following lessons have been learned from evaluating the effectiveness of the Blackhawk Park project.

- Adequate survey data is required as part of project design.
- Future considerations should be given to whether adequate depths are present prior to diverting cold water with moderate velocity into backwater areas. Such actions could adversely affect existing winter habitat areas.
- Increased coordination and interaction between the WDNR and the USACE would benefit project design.
- Maintaining multi-agency involvement throughout the project duration increases project effectiveness.
- Increased flow of fresh water to backwater areas can, in certain situations, improve seasonal fishery habitat and increase public use. Increased flow can be considered on a case-by-case basis as a method to manage for desired habitat conditions.
- In conjunction with the point above, increased flow of fresh water may affect water temperatures and inhibit winter stratification in the backwater areas. This could adversely affect winter backwater habitat conditions. Resulting year-round habitat conditions should always be considered for any future HREP project.

8.0 RECOMMENDATIONS FOR FUTURE SIMILAR PROJECTS

On the basis of the information summarized in this project completion report, the following recommendations have been developed for consideration in future similar projects.

- Improve public relations and education regarding project benefits.
- Insure adequate surveys are obtained for project design.
- Include multi-agency involvement throughout the project duration.
- Consider design elements to minimize maintenance associated with the buildup of debris at culverts.
- Consider operation and maintenance costs associated with the removal of debris from culverts.
- Consider the effects of water flow into backwater areas as it relates to overwinter habitat requirements of centrarchids.
- Consider alternative methods of disposing material from channel dredging projects to minimize the impacts associated with sidecast disposal.

9.0 REFERENCES

Sullivan, John, J. McLimans, and T. Clement. 1993. Winter Water Quality and Discharge Measurements Collected at Blackhawk Park, Pool 9, January-February 1993. Report prepared by the Wisconsin Department of Natural Resources.

United States Army Corps of Engineers. 1986. Upper Mississippi River System Environmental Management Program, General Plan Appendix for Construction. Department of the Army, North Central Division, Corps of Engineers, 536 South Clark Street, Chicago, Illinois 60605-1592.

United States Army Corps of Engineers. December 1997. Upper Mississippi River System Environmental Management Program, Operation and Maintenance Manual for Blackhawk Park HREP. U.S. Army Corps of Engineers, St. Paul District, 190 Fifth Street East, St. Paul, Minnesota 55101-1638.

<http://www.mvp.usace.army.mil>

FIGURES

1. Blackhawk Park HREP Project Location
2. Blackhawk Park HREP Project Features

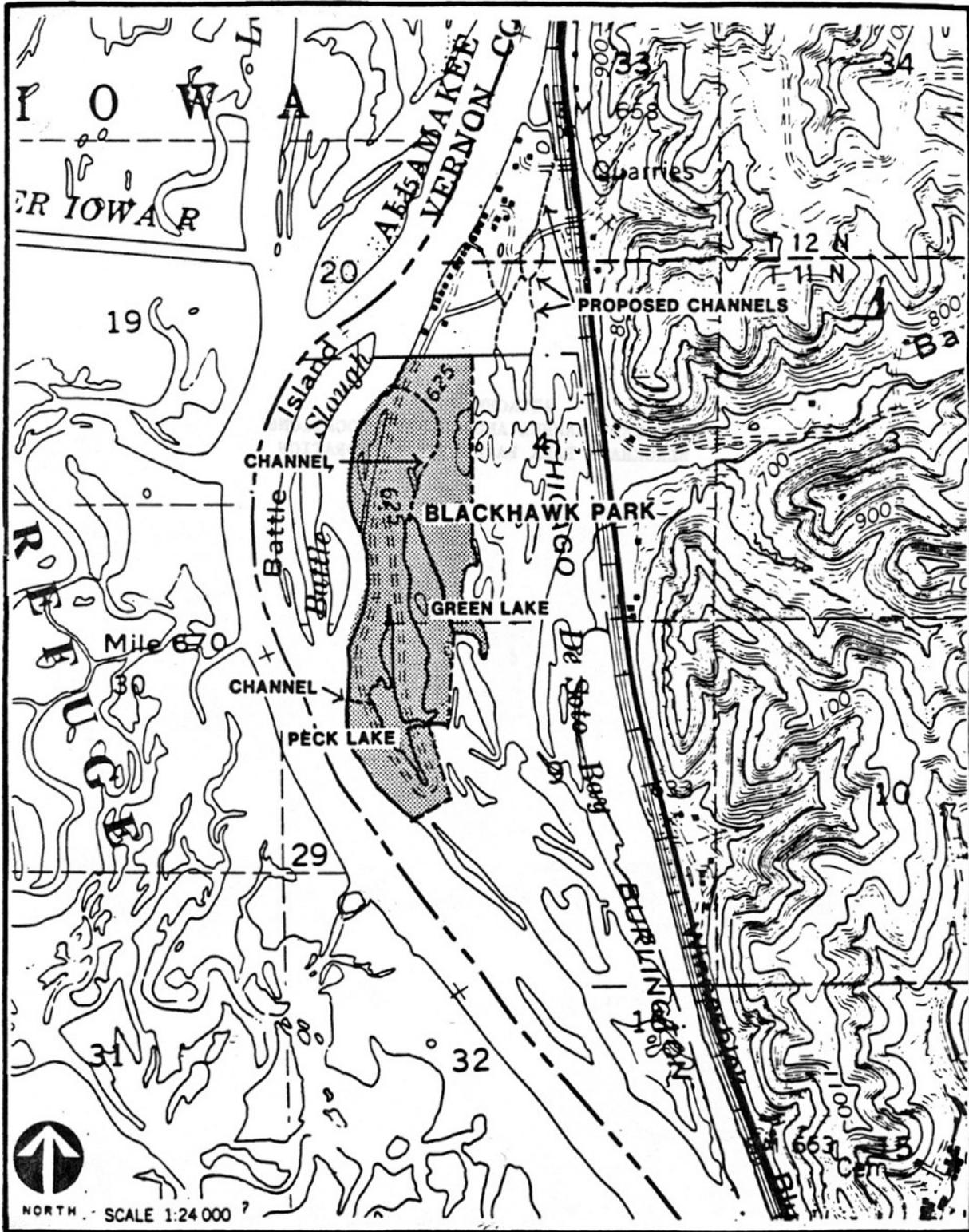


Figure 1. Blackhawk Park HREP Project Location

APPENDIX A

COMPILED RESULTS OF INTERVIEWS WITH PROJECT TEAM

PROJECT OBJECTIVES

1. The purpose of the project was to convert 258 acres of backwater lakes from seasonal to year-round fish habitats.

**PROJECT TEAM RESPONSES
BLACKHAWK PARK
FEBRUARY 13, 2001**

Question	Response
Q1 <i>Which of the project objectives were effectively addressed by the project?</i>	Objective # 1 was achieved. Objective # 2 was achieved. - Overall project could have been done better.
Q2 <i>What project features could have been changed to make a more effective project?</i>	- Elevations of channels and culverts were set too high. - Look at interrelationship between channels and culverts (i.e., Green Lake culvert). - Debris buildup in the system (culvert) affecting water flow. - Develop a DPR for the project. - Sidecasting of dredged material caused some tree mortality. - Dig channel farther into the lake.
Q3 <i>How could the appearance of the project be improved?</i>	- None needed.
Q4 <i>How did this project affect use of the area?</i>	- Better fishery – fishing tournaments have been won from this area. - Increased fishing pressure in this area.
Q5 <i>Is the amount of O&M appropriate, and how could it be reduced?</i>	- High O&M needed to remove debris in the system. - lower Gantenbein Road elevation. - Not much can be done at this time to reduce O&M.
Q6 <i>What monitoring is appropriate to assess project effectiveness?</i>	- Should have included monitoring the influence of Green Lake.

Question	Response
<p>Q7 <i>What is your assessment of the project overall?</i></p> <p>A = Excellent – ecologically effective, appropriate design/cost, appearance acceptable.</p> <p>B = Good – mostly ecologically effective, good design, reasonable cost, etc.</p> <p>C = Fair – marginally effective, fair design, somewhat costly, etc.</p> <p>D = Poor – not ecologically effective, inappropriate design, too costly, etc.</p> <p>F = Failure – no positive attributes.</p>	<p>(B - 4 responses)</p>
<p>Q8 <i>What needs to be done to further improve habitat conditions in the project area?</i></p>	<ul style="list-style-type: none"> - Gates placed on culverts. - Link isolated areas. - Island building. - Forestry management in the area.
<p>Q9 <i>What was the public reaction to the project?</i></p>	<ul style="list-style-type: none"> - Positive – bass tournaments have been won in this area. - Public was unaware of the project. - Public observed fewer fish kills in the area.
<p>Q10 <i>What were the “lessons learned” from this project?</i></p>	<ul style="list-style-type: none"> - Accurate surveys needed for design. - Consider effects of disposal of material in bottomland forests. - More USACE involvement in design. - Multi-agency projects produce better project results.

APPENDIX B

COMPILED RESULTS OF INTERVIEWS WITH INTERESTED PUBLIC

**INTERESTED PUBLIC RESPONSES
BLACKHAWK PARK
DECEMBER 13, 2000**

Question	Response
Q1 <i>Which of the project objectives were effectively addressed by the project?</i>	- The project objectives were met. - Improved flows. - The public was using the area more after the project.
Q2 <i>What project features could have been changed to make a more effective project?</i>	- No response.
Q3 <i>How could the appearance of the project be improved?</i>	- No response.
Q4 <i>How did this project affect use of the area?</i>	- More people are using the area in general, especially in the spring and fall.
Q5 <i>What is your assessment of the project overall?</i>	
A = Excellent – ecologically effective, appropriate design/cost, appearance acceptable.	- (A - 0)
B = Good – mostly ecologically effective, good design, reasonable cost, etc.	- (B - 3)
C = Fair – marginally effective, fair design, somewhat costly, etc.	- (C - 0)
D = Poor – not ecologically effective, inappropriate design, too costly, etc.	- (D - 0)
F = Failure – no positive attributes.	- (F - 0)
Q6 <i>What needs to be done to further improve habitat conditions in the project area?</i>	- Improve the areas with stagnant water. - Use riprap in the Battle Slough area to control erosion.
Q7 <i>How could public participation in project planning be improved?</i>	- No response.
Q8 <i>What are your recommendations for habitat rehabilitation and enhancement on the Upper Mississippi River?</i>	- Bad Axe Landing should be dredged to remove sedimentation and improve low water conditions for boat access. Consider projects associated with the adjacent sloughs to Bad Axe.