

**Supplemental  
Environmental Assessment (EA)  
and  
Draft Finding of No Significant Impact (FONSI)**

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**BATCHTOWN  
HABITAT REHABILITATION  
AND ENHANCEMENT PROJECT  
(HREP)  
PHASE III**

**POOL 25  
MISSISSIPPI RIVER  
CALHOUN COUNTY, ILLINOIS**

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**UPPER MISSISSIPPI RIVER SYSTEM  
ENVIRONMENTAL MANAGEMENT PROGRAM  
(UMRS-EMP)**

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## **A. Purpose**

In compliance with the National Environmental Policy Act (NEPA, 40 CFR 1508.9), the purpose of this Supplemental Environmental Assessment (EA) is to inform the public of potential environmental effects of the proposed federal action and its alternatives, solicit comments from the public concerning the recommended plan, and after review of such comments determine whether to conclude this process with the preparation of a Finding of No Significant Impact (FONSI), or proceed with preparation of an Environmental Impact Statement.

This document is a supplement to a previously completed Definite Project Report with Integrated Environmental Assessment that was completed in July of 1996. This Supplemental EA will reference the original document when information has not appreciably changed in order to reduce duplication. The original DPR/EA is available in .pdf format and can be referenced at the St. Louis District's website at: <http://www.mvs.usace.army.mil/pm/EMP/pdf/batchtown%20rehab.pdf>.

## **B. Need for Supplemental Environmental Assessment**

A federal agency must prepare a supplement to existing NEPA documentation when a.) the agency makes substantial changes in the proposed action that are relevant to the environmental effects, or b.) there are significant new circumstances or information relevant to the environmental concerns that bear on the proposed action or its impacts (40 CFR 1502.9(c)(1)). The DPR for the Batchtown Project was approved for construction in 1996. Since that time, the project has been divided into 4 distinct construction phases, with Phases I, II, and IV already completed (Figure 1). Engineering and operational concerns with the design of Phase III, as well as significant new information in habitat availability, have recently arisen and are summarized below.

- 1) The recommended berm alignment that extends to the riverward side of the south end of the Batchtown project area (measure C2, Figure 2) and associated overflow structure at Lock and Dam No. 25 are no longer considered feasible alternatives due to engineering and operational issues. A new alignment is needed in order to complete this portion of the project.
- 2) Four major floods (1993, 1995, 1996, and 2001) have occurred on this reach of the river since the majority of the plan formulation was completed for the 1996 DPR, resulting in an unanticipated amount of bedload in the 40s and 70s channels. This has had the undesirable result of constricting the flow of the 40s and 70s channels, and decreasing the average depth of water in the channels to below 2 feet at normal pool of 434 feet NGVD. Additional protective features are needed to better divert bedload and sediment entering the project area.
- 3) Environmental Pool Management (EPM) is an experimental water control program designed to re-create a more natural river hydrograph in the lower portion of pools of the Mississippi River by mimicking historic summer low water conditions. It has been practiced since 1994 in Pools 24, 25, and 26. Because EPM has demonstrated success in producing nonpersistent wetland vegetation and is now popular with natural resource managers, the practice is very likely to continue well into the future, and can now reasonably be considered a current and future condition for the Batchtown project area. Given that the condition at the

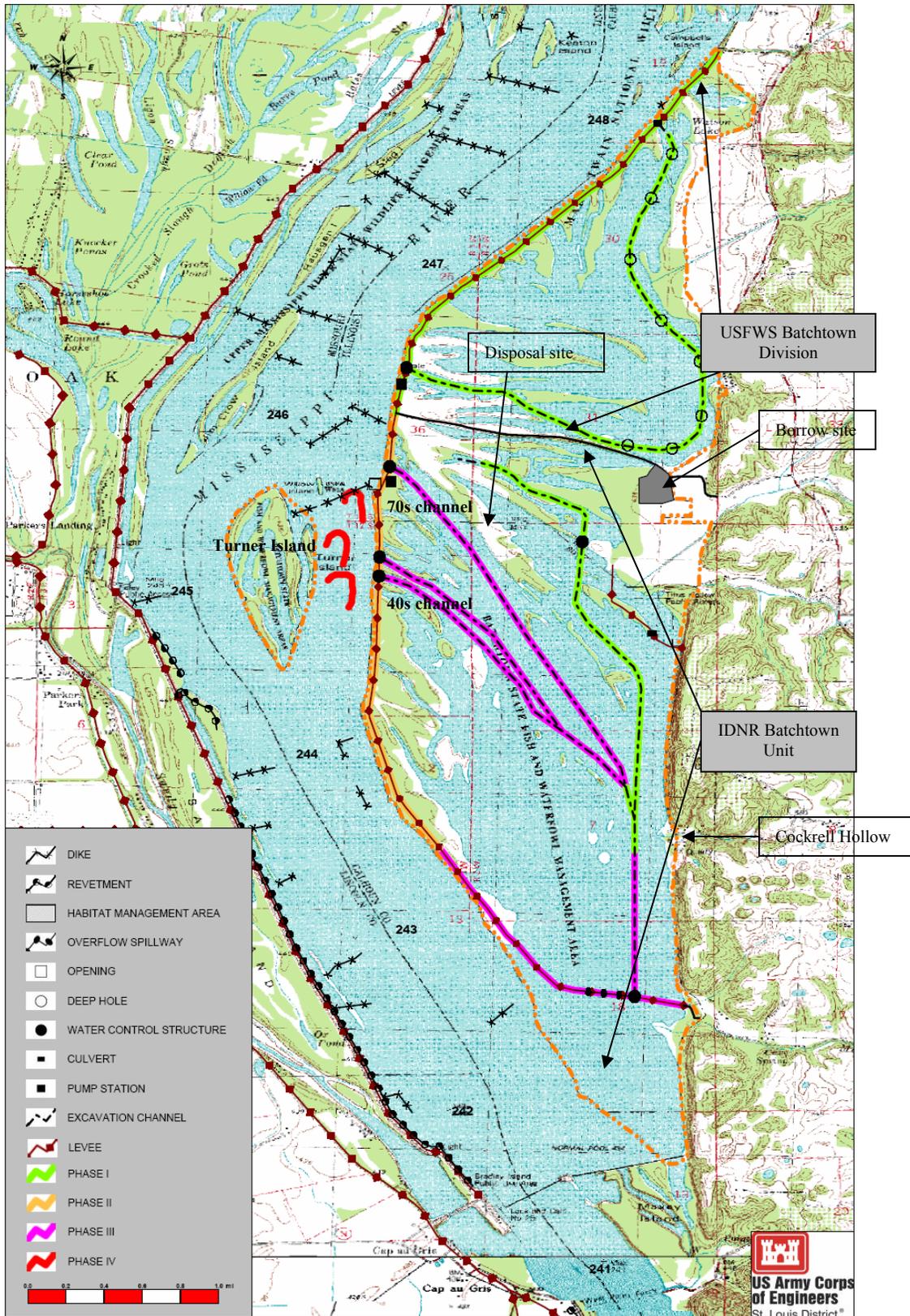


Figure 1. Batchtown project area (outlined by dashed orange line).

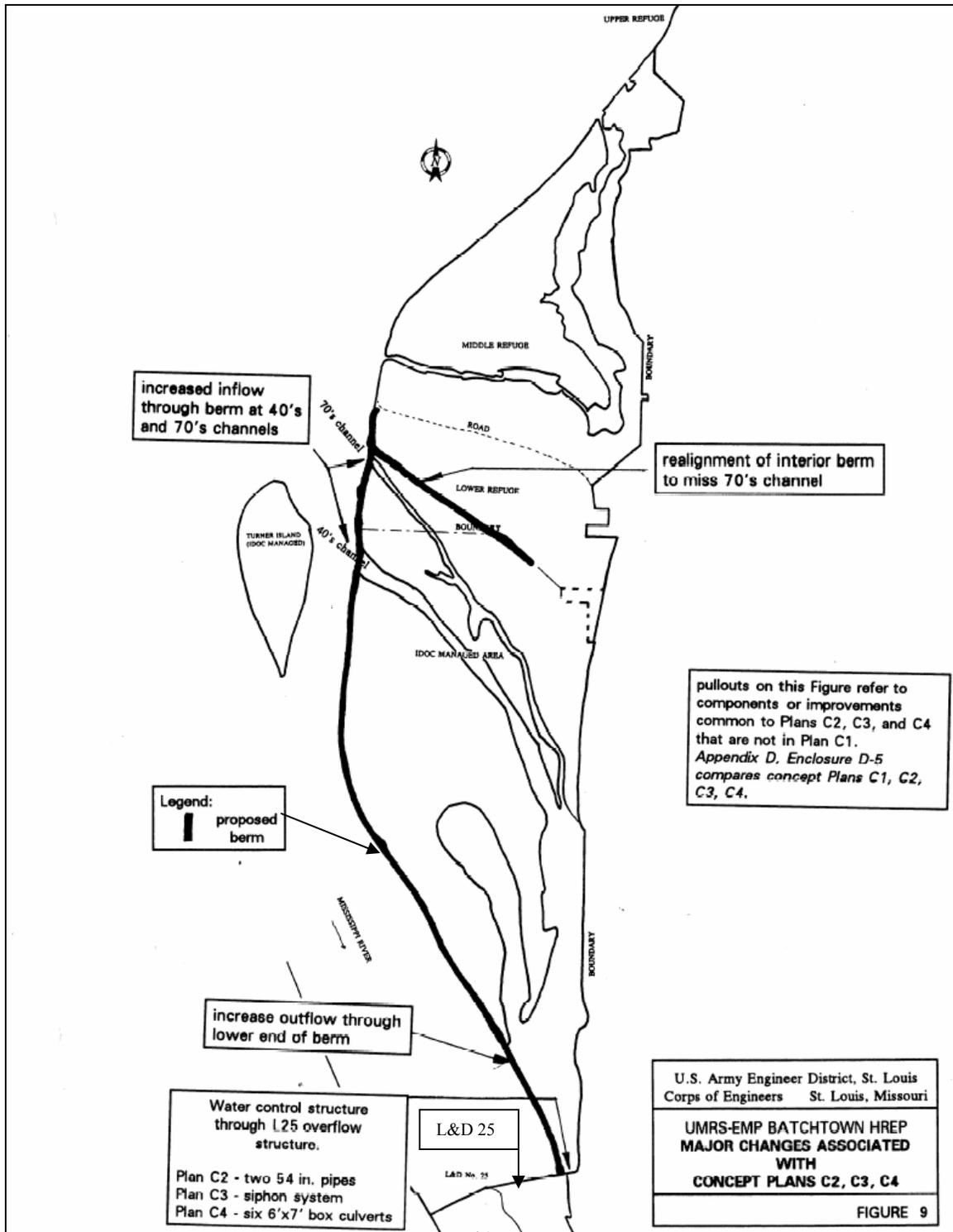


Figure 2. Diagram of Plan C2 (previously proposed berm extending to Lock & Dam 25).

Batchtown site has changed, the cost-effectiveness of continuing with Phase III construction must be reevaluated based on the new information.

- 4) Since the Applied River Engineering Center issued a Letter Report, Batchtown Sedimentation Study, in 1998, new environmental concerns have arisen regarding the rate and pattern of sedimentation in the Batchtown area and the potential effects of the Phase III berm alignment.

### C. Existing Conditions

Physical Setting. The 3,327-acre project consists of about 989 acres of forested wetland, 224 acres of cropland, 13 acres of moist soil, 1,172 acres of non-forested wetland, and 929 acres of open water.

The project area is almost entirely owned by the Corps of Engineers, and is managed for fish and wildlife benefits by the U.S. Fish and Wildlife Service under a cooperative agreement with the Corps. The northern most 1,007 acres, known as the Batchtown Division, is managed as part of the Two Rivers National Wildlife Refuge. It is comprised of about 446 acres of forested wetland, 134 acres of cropland, 13 acres of moist soil, 152 acres of non-forested wetland, and 262 acres of water. Dredging was completed in this area on the main open water body in 2001 under a Phase I contract. The dredging enhanced the depth of water in this area by creating a series of eight 150-foot wide by 10-foot deep holes (bottom el. 422 NGVD). Two water control structures were also placed to connect the river to the backwater area under the Phase II contract. This area is not being re-evaluated in this Supplemental EA because features to improve it have already been constructed, and it can be considered a distinct management unit from the rest of the project area.

The Illinois Department of Natural Resources manages the remaining 2,320 acres as the Batchtown Unit of the Mississippi River Fish and Wildlife Area under a cooperative agreement with the USFWS. This portion of the project area consists of 523 acres of forested wetlands, 90 acres of cropland, 1,020 acres of non-forested wetlands (22 acres is seasonally flooded), and 667 acres of open water. This area, the Batchtown Unit, is being re-evaluated under this Supplemental EA.

Portions of the project have already been built on the IDNR-managed portion of the project. Included in this are the remainder of the Phase II construction contract, which consists of stoplog water control structures (bottom el. 429 feet NGVD) at the head of the 70s and 40s channels, and a berm (el. 436 feet NGVD) that runs south along the river bankline on the south end of the project. Also, twelve square miles of upland watersheds that runoff directly into the project are adjacent to the IDNR-managed area. Hillside sediment control features justified in the original DPR have been implemented cooperatively with the Natural Resources Conservation Service. Much of the work identified in the DPR has been completed, and mainly encompass the Madison Creek, Dixon Hollow, and Turner Branch watersheds.

Water Resources. The project area is located in the low or downstream end of navigation Pool 25 of the Mississippi River. Water levels in Pool 25 are currently managed at a midpool control point located near Mosier Landing at river mile 260.3 by the Corps. To maintain a 9-foot navigation channel, water levels are managed between 434.0 – 437.0 feet at Mosier Landing and from 429.7 – 434.0 feet at Lock and Dam 25 over a specific range of discharges. The normal pool elevation at Lock and Dam 25 is 434.0 ft. NGVD, and the minimum water surface elevation at the project area is approximately 429.0 feet NGVD. Generally, stages at the lower end of the project area are nearly the same as Lock and Dam 25 and are slightly higher at the upper end of the IDNR managed area. During a moderate flood pulse, the pool becomes “tilted” when gates are lifted to maintain water levels at the midpool control point; tilting can result in the dewatering of backwaters in lower reaches of pools (Sparks 1995). When discharge exceeds values manageable through operation of Lock and Dam 25 (often occurring during spring high water events), all gates at the dam are raised out of the water and the river is said to be at “open river.” Spring floodwaters may recede to an elevation of 429.7 at Lock and Dam 25. This elevation, also referred to as “maximum drawdown,” is the maximum drop in water level that will still allow navigation in a nine-foot channel. If the discharge continues to fall, the pool is regained based on discharge rates. Typically, the Corps starts to regain pool when the discharge causes the water level at Mosier Landing to fall below 437.0 feet.

Since construction and operation of the navigation dams about 60 years ago, the typical annual hydrograph of the Mississippi River has changed. In the lower area of each navigation pool, the river now exhibits less overall variability (Sparks et al. 1998). To maintain a 9-foot navigation channel, the river is not allowed to get as low as it once did. Traditional water control plans do not allow for the occurrence of historic low water periods typical of summer months, which once exposed backwater substrates. In addition, dam operation often inverts the natural regime of spring and fall floods, such that backwaters and the adjacent floodplain are drained (rather than flooded) in anticipation of the arrival of moderate flood events from upriver. Water control plans can also lead to occasional summer and winter floods in the lower pool.

Pool fluctuations due to the water level management of Pool 25 have inhibited the establishment of submerged and emergent aquatic vegetation beds in many years prior to 1994. The combined impact had severely degraded the fish and wildlife habitat quality of this important backwater area. Also, nearly all of the project area has decreased in depth due to siltation, creating a soft silty bottom in areas unaffected by current for extended periods of time.

Since 1994, the Corps has worked with resource agencies to improve hydrologic conditions for biota within the constraints of a multi-use system. While the Corps has no control over the timing of the drawdown during open river conditions, there is some flexibility in how water levels are managed during the return of the river to the target pool elevation. This management strategy is called Environmental Pool Management (EPM). EPM prolongs the dry phase during the growing season for nonpersistent wetland vegetation. A few of the main goals of EPM are to allow wetland plants to

become established, and to provide system-wide benefits by consolidating substrates and re-establishing wetland functions. The EPM-induced vegetation is primarily found in backwaters located in the lower reach of the pool. The St. Louis District has implemented EPM since 1994 on an experimental basis in Pools 24, 25, and 26. The drawdowns in these pools have ranged from 0.5 feet to 2.0 feet, with 1.0 foot being the most common. The length of drawdowns has also varied from a low of 25 days to a high of 67 days with a median length of 40 days. The start of the drawdowns has likewise been varied, starting as early as May or as late as July. More information about EPM is available at the St. Louis District's website at: <http://mvs-wc.mvs.usace.army.mil/epm/epmindex.html>.

Investigations of mudflats exposed via EPM showed lush production of nonpersistent wetland vegetation consisting mainly of millet, chufa, and smartweeds (Atwood et al. 1996). Field observation confirms that the variation of the time, depth and length of the drawdowns have produced a diversity of results. Based on short-term data, EPM has the same effectiveness for producing vegetated habitats beneficial to migrating waterfowl in a large, regulated river that moist-soil management has in traditional shallow impoundments (Dugger et al. 2000). By enhancing vegetation production, EPM can generate mutually beneficial conditions for fish and waterfowl (Garvey et al. 2003).

EPM is targeted to the lower portions of navigation pools. Within the project area, over half of the 2,320-acre IDNR-managed Batchtown Unit is subject to EPM-induced summer drawdowns. It is estimated that habitats affected by EPM include nearly all of the open water areas (about 655 of 667 acres), and more than half of the 1,020 acres of non-forested wetlands. The remaining habitats within this unit consisting of forested wetlands and cropland are not directly affected by EPM-induced summer drawdowns.

Water Quality. Sedimentation has the greatest impact of any water quality parameter on the Batchtown project area. Nearly all of the sloughs, backwater areas and side channels have become very shallow due to sedimentation. Despite the trend in decreased water depth, other water quality parameters such as dissolved oxygen usually remain at or above minimum levels to support aquatic life throughout the year, at least in open water habitats. However, low dissolved oxygen levels have been observed in the Batchtown Unit in the interior of expansive areas of EPM-generated non-forested wetlands, during the fall when nonpersistent vegetation begins to decay (Garvey et al. 2003). The creation of open areas and lanes within such expansive vegetated areas may help to alleviate low concentrations of dissolved oxygen.

The 70s and 40s channels in the Batchtown Unit have filled in at a more rapid rate than anticipated in the original DPR due to four record flood events that have occurred in the last 10 years. Sedimentation of these channels is mainly due to the transfer of bedload from the Mississippi River. If these channels eventually become sealed off, lentic conditions and diurnal fluctuation of dissolved oxygen can be expected, possibly resulting in unsuitable conditions for mussels, as well as some fish and macroinvertebrate species. The nutrient enriched sediments can produce extensive aquatic vegetation beds in years when pool elevations remain fairly stable. When this occurs the area becomes an

important nursery area for fishes and a stopover for migratory birds. The shallow backwater areas frequently become ice and snow covered in winter and are important over-wintering areas for fish. However, oxygen depletion has caused fish kills in these areas in some winters with extended duration of ice cover. Water temperature and pH are generally conducive to the support of aquatic life. Water turbidity within the project area is comparable to other backwater areas in Pool 25 and is not believed to be a resource problem.

Management. Current IDNR management operations at the project area are targeted primarily at the production of food plants beneficial to migratory birds, especially waterfowl. However, the state-managed area of Batchtown does not have a perimeter berm or water control structures to allow for water manipulation. Consequently, the water level management for Pool 25 drives the current success of the project in terms of vegetative growth and waterfowl suitability. Water levels, which prior to 1994 were frequently inconsistent with water level regimes for moist soil plant production, are now more consistent under EPM. Millet is aurally sown on the Batchtown and Turner Island portions of the project area when conditions for plant establishment are present. Annual attempts to establish millet were less successful prior to establishing EPM. Once the plants are established, water levels are raised gradually over a period of weeks until they return to normal pool level, having inundated the plants produced and making the seed available to migratory birds in the fall. Again, the IDNR-managed unit is at the mercy of flows on the river. As waterfowl arrive in the area in the fall, they will remain in the area to feed for prolonged periods of time, unless high flows result in the drawdown of the pool. If the pool is drawn down, waterfowl will leave due to the inability to feed on the seeds and tubers of moist soil plants.

Based on gage records for Pool 25, drawdowns affecting the Batchtown Unit during the fall-winter period (September through December) occur about once every two years. For a 49-period of record (1939-1987), water elevations were stable during the entire fall and winter for 19 years, and unstable for 30 years. During unstable years, multiple drawdowns during the same fall-winter period occurred often. The total number of days at drawdown during the four-month period varied from less than 30 days (13 years), to 30-60 days (12 years), and over 60 days (5 years). Based on these data, stable water levels are not reliable without additional management capability.

Fish and Wildlife. Terpening et al. (1975) reported the occurrence or suspected occurrence of 416 species of birds, mammals and amphibians and reptiles in floodplain habitats of Pools 24, 25 and 26 of the upper Mississippi and lower Illinois Rivers.

(1) Birds. About 285 species of birds are known to use or probably use floodplain habitats of Pools 24-26 (Terpening et al. 1975). The most diverse orders are the perching or songbirds, shorebirds and gulls, waterfowl, herons and egrets, and vultures and hawks. The Mississippi River and floodplain is the center of one of the major flight corridors in North America for migrating waterfowl. This mid-migration habitat is recognized in the North American Waterfowl Management Plan as a habitat of major concern. About 20 species of ducks and geese stop during fall and spring migrations to rest, feed and seek

sanctuary in wetlands and deepwater habitats of Pools 25 and 26 and adjacent floodplain (Havera 1999). The mallard is the most abundant duck, with the wood duck a close second. In a 1999 spring waterfowl survey conducted within the Batchtown area, Dugger et al. (2000) noted that dabbling ducks (>94%) dominated the type of waterfowl utilizing the area, with mallards (*Anas platyrhynchos*) and northern pintails (*A. acuta*) being the most common species. Most waterfowl were observed in vegetated habitats (>98%). The project area is important for wood duck nesting and brooding. Several large heron and egret rookeries are located within a short distance from the project area, and it provides important foraging habitat for these species. The most common game birds, in addition to waterfowl, are the wild turkey, mourning dove, bobwhite quail, American woodcock and crow. Water birds known to use the Batch town area include killdeer, great blue heron, pectoral sandpiper, great egret ring-billed gull, and spotted sandpiper (Garvey et al. 2003).

(2) Mammals. Approximately 50 species of mammals inhabit or are expected to inhabit the project area (Terpening et al. 1975). Common species include opossum, raccoon, muskrat, mink, fox, beaver, squirrel, cottontail, white-tailed deer and a variety of bats and mice.

(3) Amphibians and Reptiles. Approximately 75 species of amphibians and reptiles have distributions that currently or historically include the project area (Terpening et al. 1975). The Batchtown project area and vicinity is used by a variety of turtles, snakes, skinks, frogs and toads.

(4) Fish. A diverse fish fauna comprised of 107 species in 28 families is found in Pools 24, 25 and 26 of the Upper Mississippi and lower Illinois Rivers (Colbert et al. 1975, Sheehan et al. 1990). The five most diverse families are minnows (30 species), suckers (16 species), sunfishes (13 species), perches and darters (11 species), and catfishes and bullhead (9 species). Many of these fishes prefer to spawn in backwater or side channel habitats where the current is slow and bottom is muddy or silty. Sunfishes generally prefer to spawn in backwaters and use these areas as general habitat. Batchtown has an abundance of backwaters and two side channels and, consequently, is regarded as good spawning habitat when water levels are at or near pool elevation. However, when the pool is "tilted" during the spawning season, spawning may be delayed or interrupted and may not be possible in much of the area if the drawdown is of long duration. Delayed or interrupted spawning may be offset in subsequent years by implementation of Environmental Pool Management, as was the case at Batchtown in 1999 (adverse drawdown) and 2000 (full pool maintained by EPM in summer followed by successful sunfish spawn) (Garvey et al. 2003). A major benefit of EPM-induced vegetation is that nonpersistent wetland plants produced along islands and in backwaters serve as nursery habitat for many fish species, leading to higher fish species richness and abundance (Garvey et al. 2003).

Some species of fish, such as channel catfish and largemouth bass, are unable to tolerate the cold-water temperatures and currents of channel habitats. This is especially true of young-of-the-year fish of these species and is true to some degree for young-of-the-year

fishes of nearly all species that inhabit the river (Sheehan et al. 1990). Backwaters provide a refuge from harsh winter conditions for wintering fishes because they generally have warmer water and little or no current. The project area is well known as a winter fish refuge, especially the areas known as "Big Hole" and "Little Hole" (Sheehan et al. 1990). Both of these areas are found within the lower unit of the wildlife refuge, with access from the IDNR-managed portion of the project area when the pool is at or near normal pool level. The remaining backwater areas of the project are also thought to be important fish wintering areas. Wintering conditions for fish can deteriorate rapidly if the pool is tilted, which occasionally occurs, or if ice and snow cover is of long duration. Oxygen depletion fish mortality has occurred in these backwaters in some years.

The most important commercial fish species of Pools 24, 25 and 26 are carp, buffalo, freshwater drum and catfish (UMRCC 1989,1990,1991; USACE 1988). Commercial fishing occurs in the main channel border area and throughout the backwaters and side channels of the project area, except for the middle unit of the wildlife refuge. Important sport fishes of the Upper Mississippi River include all members of the sunfish family as well as white bass (*Morone chrysops*), freshwater drum (*Aplodinotus grunniens*), sauger (*Stizostedion canadense*), channel catfish (*Ictalurus punctatus*), yellow perch (*Perca flavescens*), and walleye (*Stizosedion vitreum*) (USACE 1988). The Batchtown project area is a popular area for sport fishing because of the presence of sought after species such as largemouth bass (*Micropterus salmoides*), crappie (*Pomoxis spp.*) and channel catfish. Access may be restricted if the pool elevation is lowered under the existing water level management plan.

Currently, there are several species of non-native fish species that were not considered in the original DPR/EA that have recently become a concern in the Mississippi River. All three fish species are Asian carp, and include the black carp (*Mylopharyngodon piceus*), silver carp (*Hypophthalmichthys molitrix*), and bighead carp (*Aristichthys nobilis*). Silver and bighead carp are primarily filter feeders, eating a variety of small plants and animals called plankton. The black carp feeds mainly on mollusks. Silver and bighead carp entered the Mississippi River in the 1980s after escape from aquaculture facilities in the south, and greatly expanded their range northward during large floods in the early 1990s. Black carp have not yet escaped from aquaculture facilities. The environmental impacts of these fish are unknown, but they could adversely impact many native species of fish due to competition for food.

(5) Freshwater Mussels. Mussels are located within the project area from a point just west of Cockrell Hollow (see Figure 1) downstream, nearly to Lock and Dam 25 in the larger side channel formed by the 40s and 70s side channels. The IDNR-managed Batchtown Unit is designated as an Illinois Natural Area due to the presence of more than 10 species of native mussels occurring on the site. Sampling by brail and SCUBA from 1991-2002 yielded 21 live species, and approximately 75% of the catch was made up of three species - threeridge (*Amblema plicata*), threehorn wartyback (*Obliquaria reflexa*) and mapleleaf (*Quadrula quadrula*) (Atwood, personal communication). If recently dead shells were to be included, one additional species occurs within the project. The relic shell is that of the butterfly mussel (*Ellipsaria lineolata*), which is listed as a state of Illinois threatened

species. No federally threatened or endangered species were collected during the sampling effort (Atwood, personal communication). Commercial mussel fisherman had heavily harvested the bed until 1991 when it was declared a mussel sanctuary by the Illinois Department of Natural Resources. Mussels were also found upstream of the highly concentrated portion of the bed in the 40s and 70s side channels, although densities were not as high (Atwood, personal communication).

The zebra mussel (*Dreissena polymorpha*), a non-native species from Europe, has been unintentionally introduced into the Mississippi River. At high densities, zebra mussels can adversely affect native organisms by direct attachment, by competing for space and planktonic food resources, and by depleting dissolved oxygen in the water column. No zebra mussels were found in the Batchtown area until 1996, at which point 20% of the total number of native mussels captured in the area had zebra mussels attached. Currently, zebra mussels are at lower densities in Batchtown. Zebra mussel populations appear to be dynamic, and currently are declining in numbers on the Mississippi River, but the future status of zebra mussels is uncertain. Another non-native mussel, the Asian clam, has been present for several years.

A more recent mussel survey conducted in September 2003 documented the occurrence of 18 live mussel species in the Batchtown area. Species richness and abundance of live individuals was higher within the IDNR-managed Batchtown Unit than in adjacent main channel border and side channel habitat of the Mississippi River (see table below). Two additional species represented by dead material were also collected: *Potamilus alantus* (pink heelsplitter), and *Truncilla donaciliformis* (fawnsfoot). This geo-referenced survey establishes a baseline condition against which future post-project monitoring of mussels can be compared.

Live Mussels Collected in the Batchtown Area, September 2003

Species	Common Name	Number of Live Individuals Collected		
		Main Channel Border/Side Channel	40s & 70s Interior Channels	Backwater
<i>Amblema plicata</i>	Threeridge	8	360	96
<i>Arcidens confragosus</i>	Rock-pocketbook	1	0	0
<i>Fusconaia flava</i>	Wabash pigtoe	1	4	4
<i>Lampsilis cardium</i>	Plain pocketbook	4	1	0
<i>Lampsilis teres</i>	Yellow sandshell	1	0	0
<i>Lasmigona c. complanata</i>	White heelsplitter	0	1	1
<i>Leptodea fragilis</i>	Fragile papershell	0	1	0
<i>Megalonaias nervosa</i>	Washboard	0	1	22
<i>Obliquaria reflexa</i>	Threehorn wartyback	12	11	55
<i>Obovaria olivaria</i>	Hickorynut	15	3	1
<i>Pleurobema sintoxia</i>	Round pigtoe	0	0	1
<i>Potamilus ohioensis</i>	Pink papershell	0	0	1
<i>Pyganodon grandis</i>	Giant floater	1	3	3
<i>Quadrula nodulata</i>	Wartyback	17	20	11

<i>Quadrula p. pustulosa</i>	Pimpleback	3	6	11
<i>Quadrula quadrula</i>	Mapleleaf	0	41	118
<i>Toxolasma parvus</i>	Lilliput	0	1	0
<i>Truncilla truncata</i>	Deertoe	0	0	1
No. of Sample Transects		15	16	13
Sum of Live Individuals		63	453	325
No. of Species		10	13	13

(6) Other Animals. Insects and other invertebrates are common and comprise an important component in the diet of fish and wildlife that use the project area.

Threatened and Endangered Species. One federally endangered and two federally threatened species are known to inhabit the project area. The endangered species is the Indiana Bat (*Myotis sodalis*). The Bald Eagle (*Haliaeetus leucocephalus*) and Decurrent False Aster (*Boltonia decurrens*) are threatened. Since the original DPR was written, the bald eagle has been proposed for delisting. These Federally threatened and endangered species are addressed in the biological assessment of the original DPR.

The Illinois Endangered Species Protection Board has listed several species at the state level as either threatened or endangered with recent (since 1980) or historical (before 1980) distributions that may include the project area (Herkert 1991, 1992). Those that inhabit or may currently inhabit the project vicinity include the spectaclecase mussel (*Cumberlandia monodonta*) and the butterfly mussel (*Ellipsaria lineolata*) which prefers sand or gravel substrates in medium to large rivers having fairly good current; the lake sturgeon (*Acipenser fulvescens*) which prefers lake or large river bottoms 4-9 meters deep over sand, gravel or mud substrates; the river otter (*Lontra canadensis*) which prefers waterways isolated from large river channels, riparian habitat with extensive woodlands, open water in winter and good water quality; and the western sand darter (*Ammocrypta clarum*), which is restricted to sandy runs of medium to large rivers and is intolerant of excessive siltation and turbidity. The great egret (*Casmerodius albas*) and the bobcat (*Lynx rufus*) were mentioned in the original DPR as being listed by the state of Illinois, but are no longer on the list. State-listed species having historic occurrence in the vicinity of the project area include: the elephant ear (*Elliptio crassidens*), the little blue heron (*Egretta caerulea*), and the black-crowned night heron (*Nycticorax nycticorax*). The Higgin's Eye mussel (*Lampsilis higginsii*) (federally endangered), and fat pocketbook pearly mussel (*Potamilus capax*) (federally endangered) have historic ranges that include the project area. A current list of Illinois Endangered and Threatened species can be referenced at <http://dnr.state.il.us/esp/datelist.htm>.

Cultural Resources. In preparation of the original Definite Project Report, a Phase I archaeological and geomorphological investigation of the 121 terrestrial acres to be impacted by the project construction (project footprint), as then envisioned, was conducted in June, 1994 by American Resources Group, Ltd., Carbondale, Illinois (Titus et al. 1995). The geomorphological investigation indicated that the northwestern and southwestern portions of the project area were relatively recent landforms that were

judged to have little or no potential for containing cultural deposits. Also, much of the project area was covered by thick (about 3 feet) of historic alluvium, which is deeper than most construction impacts. However, the central portion of the project area had older landforms with shallow historic alluvium where several surface archaeological sites were found during the survey. The older landforms also have the potential to contain buried sites.

Seven archaeological sites were recorded during the field survey, including three prehistoric sites (11-C-206, 11-C-208, 11-C-209), three historic sites (11-C-205, 11-C-207, 11-C-211) and one site containing both prehistoric and historic components (11-C-210). Four sites (11-C-207, 11-C-208, 11-C-209, 11-C-210) were evaluated as potentially eligible for listing on the National Register of Historic Places. The remaining three sites (11-C-205, 11-C-206, 11-C-211) were determined ineligible. The Illinois State Historic Preservation Officer (ISHPO) concurred with this determination in their letter dated July 19, 1995. (Slightly earlier, the Fish and Wildlife Service had determined site 11-C-205 to be ineligible and obtained ISHPO concurrence). The DPR stated plans called for the avoidance of all four potentially eligible sites. However, should plans change so that any of the eligible sites would be impacted, Phase II testing to determine eligibility would be conducted.

During Construction Phase I in 1999, slight plan modifications adding seven dredge disposal areas, one borrow/dredge disposal area and one sediment trap were made and additional new archaeological surveys were conducted for the areas of new impact. Details on the changes are available in Appendix D (correspondence) of the original DPR. Four new archeological sites were recorded during the 1999 survey. The District determined that sites 11-C-411 and 11-C-412 (houseplaces) were potentially eligible for listing on the NRHP. The District determined that sites 11-C-413 (possible houseplace) and 11-C-414 (prehistoric isolated find, 2 items) were ineligible. Plan changes were made to avoid project impacts to potentially eligible archaeological sites: 11-C-207, 11-C-208, 11-C-209 11-C-210 (previously recorded), 11-C-411, 11-C-412 (Appendix D of the original DPR).

During Construction Phase II in 2001, additional archaeological surveys were deemed not necessary with ISHPO concurrence, April 16, 2001 (Appendix D of the original DPR). Therefore, the District determined that Construction Phase II had no effect upon potentially eligible cultural properties, and did not gain any additional information on possible archeological sites in the area.

Aesthetics, Recreation, Air Quality, Noise, Geology, and Habitat Type. Reference is made in the original DPR/EA to the current condition of these resources. Very little change is anticipated under these categories.

#### **D. Future Without Project Conditions/Resource Problems and Opportunities**

A number of changes to the assumptions made in the original DPR were incorporated as to what the project area and vicinity would be like 50 years in the future under the no action scenario. First, no action in the case of this assessment means “no further action”,

i.e. only the Phase III portion of the project remains to be completed, and all items built or being built in other phases of the project currently are considered on the ground features and part of the existing and future condition. These on the ground features currently provide some benefits to the site apart from Phase III being completed.

Secondly, the original assumption on management of water levels in Pool 25 was that Pool 25 would continue to be managed much as it was in the early 1990s for fish, wildlife and navigation, and that there would be little or no change in the normal pool elevations or their frequency of fluctuations. Environmental Pool Management has been implemented since 1994, and is now considered a permanent management strategy in Pool 25. While many aspects to water level fluctuations remain unchanged such as the need to lower waterlevels in the lower portion of the pool to accommodate high water events, EPM does provide plants with better growing conditions in the summer in general, which provide benefits to the Batchtown study area. Surrounding land use is still unlikely to change, remaining predominantly agricultural with perhaps some increase in tourism because of some of the unique aspects of Calhoun County, such as the presence of peach and apple orchards and the season markets for these and other kinds of produce. Little change in the floodplain use was originally and currently anticipated. The following additional assumptions were made that relate directly to site habitat conditions.

- Wetland habitat in the project area is rapidly being degraded due to siltation. A 65 % decrease in surface area and water depth was assumed to occur in the IDNR managed area in the original DPR. It was agreed by the Batchtown Project Team that the effects of the Phase II berm and water control structures on the 40s and 70s channels, and the upland sediment control measures that are current on the ground features, would reduce that rate somewhat. Without direct measurement, it is difficult to estimate what the sedimentation rate in the area actually is, but the team agreed to a rate of 55% decrease in surface area of wetlands over 50 years for purposes of evaluation. The result will be a transitional habitat situation that is changing from wetlands to bottomland forest, the initial phase of which will be a softwood monoculture of predominantly willow and soft maple having minimal wildlife habitat value.

- Bottomland forest habitat in the project area will be an increasing habitat type without the project. It is assumed that the wetland areas in the project site that are lost due to sedimentation will convert to bottomland forest. As the forests age, they will provide greater benefits to wildlife than at the present time. Initially this habitat type will be predominantly willow and silver maple of little wildlife habitat value, but as these stands age their wildlife habitat value will increase for forest dwelling species. Because mast trees produce a heavy seed, which is not as widely dispersed as the lighter wind carried seed of cottonwood, willow, maple, and ash, the future forest of the Upper Mississippi River (UMR) is likely to be these mentioned species ([UMRCC, 2002](#)). Hard mast species are still planned to be planted via the original DPR authorization, and based on the success of the plantings, species such as oak and pecan will begin to establish themselves on the higher ridges, although it may take more than a century before hardwoods become the climax vegetation. The flood of 1993 resulted in the loss of approximately 15-20 percent of the bottomland forest within the project area. Primary species affected were hackberry and sugarberry. Some loss of silver maple occurred as a

result of their being overtopped by the flood. These impacts will be seen immediately in the loss of tree species diversity, and over the short term as invading species such as willow and silver maple occupy the now unshaded area. As much as 50 to 100 years may be required before the forest would recover totally from the flood impacts.

- The 40s and 70s side channels will both close via sedimentation, beginning at the upper ends, thus ending the flow of water through the project area. In fact, this trend appears to be much more serious than realized in the original DPR. This closure will likely be the result of drift material blocking the shallow entrances of these channels allowing sedimentation to occur. This will have a dramatic impact on the side channel adjacent to Cockrell Hollow, allowing for increased sedimentation and likely causing the demise of the state mussel sanctuary. Sedimentation throughout the project area will increase when these channels close causing the loss of fish access to deep-water wintering areas. There will be a concurrent loss of habitat diversity as the sedimentation becomes more prevalent. While the water control structures at the head of the 40s (2) and the 70s (1) would help in protecting the site from bedload closing the upper ends of the channel, the channels would need to be dredged in order for much benefit to be realized.

- In the absence of Environmental Pool Management, backwater habitat within the Batchtown Unit would be expected to degrade as a result of sedimentation by bed load deposits in the interior (40s and 70s) channels, and suspended material deposits across the entire backwater area, thereby decreasing habitat quantity and quality for aquatic species. The flocculent substrate already present in portions of the Unit would become more prevalent. However, the current practice of EPM on pool 25 is expected to counteract the increase in area of flocculent substrate, through the implementation of periodic summer drawdowns that tend to consolidate the substrate. Within the Unit, habitats directly benefiting from substrate consolidation are estimated to include nearly all open water wetlands (655 of 667 acres), and more than half the 1,020 acres of nonforested wetlands. The trend of continuing bedload transport into the interior channels will not be abated by EPM, however. As the interior channels become choked off from the river, the large backwater area is expected to become warmer in summer and more prone to oxygen depletion in winter. The likelihood of winter and/or summer fish kills will increase.

Overall, water and wetland depth and surface area are expected to decrease by 55% percent in the future without condition. These changes will have a substantial impact on all fish and wildlife species that use the area resulting in decreased habitat quality and species diversity. Recreational use of the area will decline as access to the project area becomes restricted and fish and wildlife use decreases.

### **E. Project Goal and Objectives**

The management goal for this study is to rehabilitate the area's riverine habitat diversity for the benefit of fish, wildlife and freshwater mussels. The project goal and objectives were reached through participation of an interagency planning team comprised of the Illinois Department of Natural Resources, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Illinois Natural History Survey, and the Fisheries and

Wildlife Laboratories at Southern Illinois University-Carbondale. These participants identified the following project objectives to address the problems in the study area:

<b>Project Objectives</b>
Increase diversity of wetland types within the project area.
Create a water-level management capability that is independent of water levels in Pool 25.
Reduce the rate of siltation throughout the project area.
Improve habitat quality and quantity of bottomland forest within the project area.
Improve spawning habitat for riverine fishes.
Improve overwintering habitat for fish in side channels and backwaters.
Improve side channel habitat by preventing river-borne sediment from filling the side channels.
Ensure adequate long-term water flow over the freshwater mussel beds.

#### **F. Alternative Formulation and Evaluation**

When it was realized that the recommended berm alignment was going to be modified from the approved DPR alignment, the Batchtown Team, consisting mainly of personnel from the Corps of Engineers, IDNR, and the Service, had several formulation meetings. The resultant plans were variations from the concept plans outlined in the approved DPR. However, because of the EPM in Pool 25, the plans were no longer infeasible due to seepage problems that were figured to be insurmountable in the original DPR. The main reason for this is that pumps will primarily be utilized only for short periods of time when Pool 25 lowers the pool to accommodate flood events in the fall and wintertime. The following plans were formulated, and all considered to be workable.

##### *Features Common to All Plans*

The Phase II portion of Batchtown was considered to be beneficial under any scenario. The stoplog structures and berm that comes down the riverside portion of the Batchtown project would be necessary in all of the action plans in order to complete closure of the unit to allow water level management when needed. While they would not be needed under the no-action alternative to perform this function, they would provide benefits to the area by providing some protection from bedload encroachment into the area.

##### *Features Common to Action Plans*

All plan variations are examining the use of a pump to allow input (primary) and output (secondary) pumping capabilities into the project, and the St. Louis District will investigate different technology (floating pump) in its design as possibly replacing pumping structures identified in each of the plans.

Water level management in the Batchtown project area will utilize EPM to the fullest extent possible. This will reduce the amount of time that the bermed portions of the project need to be closed off to the river, since drawdowns of pool 25 will be utilized for producing moist soil plants during the growing season rather than closing off the bermed areas and pumping water levels down. The project is assumed to be open to the river approximately 75% of the time, and all sites will be open for a majority of the spring, summer, and fall. During the winter, the berms and water control structures around the project will provide the ability to maintain stable water levels within the project during times when the navigation pool water levels may be dropped to accommodate high water

conditions. Because fall-winter drawdowns at the Batchtown complex occur about once every two years, and this is a critical time for ducks utilizing the project site, this time of year will be the most likely time when the closure structures will be used to isolate the management unit from the river. By avoiding the need to isolate Batchtown from the river during most of the year, flow will be allowed over the mussel beds that have been identified within the site. Maintaining current flow conditions experienced within the Batchtown area was thought to be important for maintaining the current mussel populations in the project area.

All plan variations will also include 100 acres of bottomland forest plantings. This measure was described in the DPR as a combination of Section 404 mitigation for wetland impacts due to necessary tree clearing, and replacement of forest lost due to the flood of 1993. Numerous one to two-acre clearings were to be created in flood-damaged forest in the Batchtown Unit, with subsequent planting of various hard mast tree seedlings to increase tree species diversity. Since then, ground elevations of such proposed planting areas have been more closely examined, and generally found to be too low compared to sites currently supporting hard mast species. Alternative tree planting sites with suitable topography will be located, either within the IDNR-managed Batchtown Unit, the USFWS-managed Batchtown refuge, or other adjacent public lands outside the project area and along the river.

#### *No Action*

All features already built or currently being built are considered on the ground features and part of the existing condition. EPM would be the only water level management occurring within the Batchtown Phase III project area, with no ability to independently control water levels if needed. As mentioned above, tree plantings would occur as a condition of the 404 permitting of the other phases of the project.

#### *IDNR1*

The berm alignments in the IDNR1 plan allow the 40s and 70s channels to not be closed at the lower end, but stoplog structures constructed at the channel inlets in Phase II would still remain. A new berm is proposed along the left descending bank of the 70s channel, extending from the Phase II levee near the 70s channel stoplog structure to a tie-in point at Cockrell Hollow Access. This would create an enclosed management unit between the Turner Hollow Road (northern extent of state managed area) and the 70s channel that is referenced as Area 1. A stoplog structure at Cockrell Hollow Access would be needed for boat access and allow water level management of Area 1 when EPM cannot provide acceptable water levels. A pump facility would also be required with pump in and pump out capability. The berm would be at el. 437.0 with a riprap overflow section. Boat ramps into the 70s channel and Area 1 would be required for usage during perched water management periods.

The IDNR1 plan changes the Phase III berm alignment from the original DPR plan. The proposed alignment brings the berm back up immediately after the last land remnant at the south end of the project on high ground along the 40s channel. The alignment

continues along the 40s channel to a tie-in point with the Phase II levee. This creates a closed unit, called the Bay Area, which IDNR would manage as a moist soil unit.

Dredging of the 40s and 70s channel would be required to allow proper flow. The bottom profile would be based on the 70s structure sill elevation of 429.0. Dredging of the 40s channel would be required to remove a sand plug about mid-channel from the upstream mouth of the channel. The current bed elevation is estimated at about 430.0 – 432.0, while the upper 40s channel structure sill elevation would be at el. 429.0.

A stoplog drainage structure would be placed at the downstream end of the Bay Area for water level management and boat passage into the area. Pump in and pump out structures would also be required for management of the unit when the unit must be separated from the river. The pump structure, along with a riprap overflow section, would also be placed in the downstream area. Sand deposits in the lower end of the Bay Area were discussed as possible problems with water level management, and pumps would need to be sized accordingly. The pump in design would be based a pool level of el. 433 and perched interior water level management at el. 435. The pump out design would be based on el. 434 pool level and el. 432 interior water level for moist soil unit management. A boat pull over would be required for access during stoplog structure closure periods. IDNR has specific design requirements that would be incorporated into the design of the boat pullovers.

#### *IDNR2*

A new berm would be proposed along left descending bank of the 70s channel, extending from the Phase II levee near the 70s channel stoplog structure to a tie-in point at Cockrell Hollow Access. This would create an enclosed management unit between the Turner Hollow Road (northern extent of state managed area) and the 70s channel that is referenced as Area 1. A stoplog structure at Cockrell Hollow Access would be needed for boat access and allow water level management of Area 1 when EPM cannot provide acceptable water levels. A pump facility would also be required with pump in and pump out capability. The berm would be at el. 437.0 with a riprap overflow section. Boat ramps into the 70s channel and Area 1 would be required for usage during perched water management periods.

The IDNR2 plan shows the Phase III berm alignment changed from the original DPR plan. The proposed alignment would bring the berm back up immediately after the last land remnant at the south end of the project on high ground along the 40s channel. The alignment would cross the 40s channel with a new water control structure and continue up to a tie-in point with the Phase II levee. This would create a closed unit, called the Bay Area, which IDNR would manage as a moist soil unit.

Dredging of the 70s channel would be required to allow proper flow through the 70s channel. The bottom profile would be based on the 70s structure sill elevation of 429.0. Dredging of the 40s Channel would be required to remove a sand plug about mid channel from the upstream mouth of the channel. The current bed elevation is estimated at about 430.0 – 432.0. The new 40s structure would be managed to provide maximum water

flows through the Batchtown area for mussel bed management. The upper 40s channel structure sill elevation would be el. 429.0. The new lower 40s channel structure sill elevation would be designed to provide proper flows through the 40s channel. Dredging would be required to provide the proper channel bottom profile between the upper and lower structures.

A stoplog drainage structure would be placed at the downstream end of the Bay Area for water level management and boat passage into the area. Pump in and pump out structures would also be required for management of the unit when the unit must be separated from the river. The pump structure, along with a riprap overflow section, would also be placed in the downstream area. Sand deposits in the lower end of the Bay Area were discussed as possible problems with water level management, and pumps would need to be sized accordingly. The pump in design would be based on el. 433 pool level and el. 435 perched interior water level management. The pump out design would be based on el. 434 pool level and el. 432 interior water level for moist soil unit management. A boat pull over would be required for access during stoplog structure closure periods. IDNR has specific design requirements that would be incorporated into the design of the boat pullovers.

### *IDNR3*

The berm alignments in the IDNR1 plan would allow the 40s and 70s channels to not be closed at the lower end, but stoplog structures constructed at the channel inlets in Phase II would still remain. A new berm would be proposed along the left descending bank of the 70s channel, extending from the Phase II levee near the 70s channel stoplog structure to a tie-in point at Cockrell Hollow Access. This would create an enclosed management unit between the Turner Hollow Road (northern extent of state managed area) and the 70s channel that is referenced as Area 1. A stoplog structure at Cockrell Hollow Access would be needed for boat access and allow water level management of Area 1 when EPM cannot provide acceptable water levels. A pump facility would also be required with pump in and pump out capability. The berm would be at el. 437.0 with a riprap overflow section. Boat ramps into the 70s channel and Area 1 would be required for usage during perched water management periods.

The IDNR3 plan would change the Phase III berm alignment from the original DPR plan. The proposed alignment would bring the berm back up immediately after the last land remnant at the south end of the project on high ground along the 40s channel. The alignment would continue along the 40s channel to a tie-in point with the Phase II levee. This would create a closed unit, called the Bay Area that IDNR would manage as a moist soil unit.

Dredging of the 70s channel would be required to allow proper flow through the 70s channel. The bottom profile would be based on the 70s structure sill elevation of 429.0. Dredging of the 40s Channel would be required to remove a sand plug about mid channel from the upstream mouth of the channel. The current bed elevation is estimated at about 430.0 – 432.0. The new 40s structure would be managed to provide maximum water flows through the Batchtown area for mussel bed management. The upper 40s channel

structure sill elevation would be el. 429.0. The new lower 40s channel structure sill elevation would be designed to provide proper flows through the 40s channel. Dredging would be required to provide the proper channel bottom profile between the upper and lower structures.

A stoplog drainage structure would be placed at the downstream end of the Bay Area for water level management and boat passage into the area. Pump in and pump out structures would also be required for management of the unit when the unit must be separated from the river. The pump structure, along with a riprap overflow section, would also be placed in the downstream area. Sand deposits in the lower end of the Bay Area were discussed as possible problems with water level management, and pumps would need to be sized accordingly. The pump in design would be based on el. 433 pool level and el. 435 perched interior water level management. The pump out design would be based on el. 434 pool level and el. 432 interior water level for moist soil unit management. A boat pull over would be required for access during stoplog structure closure periods. IDNR has specific design requirements that would be incorporated into the design of the boat pullovers.

A new berm alignment was proposed to enclose the area between the 40s and 70s channel. This area is called Area II. This new berm would allow for perched water levels and moist soil unit management of Area II. Culverts for water level management would be required. A boat pullover would be required for access to the area. Portable pumps would be used for perched water level management.

#### *COE*

This option recognizes all structures originally identified in the original DPR, however, it realigns the berm located at the south end of the project. The original project had the berm connecting to the Overflow Spillway at L&D 25. The realigned berm would head east toward the eastern boundary line of the project immediately after the last land remnant at the south end of the project. The realignment would come in south of the Cockrell Hollow access and north of the Madison Creek outflow. The 40s & 70s channels would need sediment (sand) removed to promote flow over the mussel bed, and increase openings at the south end of the project to promote connectivity and flow to the backwater.

#### *Turner Island Variation*

Construction of three chevron dikes and creating an opening in existing dike 245.7L near the shoreline have been included in all variations of the above plans. These improvements are designed to redirect the deposition of bedload away from the left descending bank of the Turner Island chute or side channel in the vicinity of the 40s and 70s channels, and establish an area of scour parallel to this bank. The team recognized the importance of these improvements in order to reduce bedload transport into the Batchtown complex through the 40s and 70s channels. After the floods of 1993, 1995, 1996, and 2001, which deposited bedload materials (mainly sand) in these interior channels, it was obvious that something was needed to direct bedload transported by the river away from the project area. The need for this type of improvement was identified in

the 1996 Value Engineering Study for the Batchtown Project. These improvements were developed by the District's Applied River Engineering Center.

### **G. Future With Project Conditions**

Unless otherwise noted, all plans are considered to have nearly the same effect on the resources described below. Affected habitats assessed under all alternatives total 1,966 acres, and under existing conditions include nonforested wetland (1,493 acres, including open water habitat), bottomland forest (275 acres), and Turner Island side channel (198 acres).

Water Resources. The surface waters within the IDNR-managed area would be stabilized only when pool levels are on "tilt" during high flow conditions. This would insure adequate water levels on site to provide waterfowl with suitable conditions during fall migrations. Also, water level drawdowns within the IDNR-managed area may be utilized to aid in consolidation of sediments on an infrequent basis. EPM would be the main water level management technique utilized to foster the growth of submergent aquatic vegetation and provide improved fish spawning habitat. The quantity of deep water habitat would increase in and adjacent to the project as a result of dredging, however, having the capability to stabilize waterlevel conditions in fall and winter would insure that deeper fish overwintering habitat does not become too shallow due to late fall or winter open river conditions.

Water Quality. The proposed Phase III measures are expected to further reduce the deposition of sediments into the IDNR-managed Batchtown complex, and would complement the hillside sediment reduction measures already implemented. Reduction of bedload deposits in the upper 40s and 70s channels would occur initially via dredging. Future bedload deposition into these channels would be kept under control by the Turner Island chevron dikes and operation of the water control structures in the 40s and 70s channels. By keeping deposits of bedload confined to the Turner Island sidechannel, flows through the interior channels would be maintained into the backwater area. Bedload removal and control would also be expected to play some role in protecting backwater habitat from converting to terrestrial habitat.

Berm protection of the Batchtown Unit's backwater complex would reduce suspended sediment coming from Mississippi River floods. With the berm's crown elevation at 436 feet NGVD, the enclosed backwater area would be protected from most flood events, when compared with historic gage records. The elimination of the more frequent flood events would ensure a much longer life of this backwater area if no action were taken.

The overall reduction in the suspended sedimentation rate is itself a significant water quality enhancement. While stabilizing water levels in the lower portion of the project area would insure that deeper water will be present even when the pool is "on tilt", reduction in sedimentation should enhance the aquatic biota and insure that deep water habitats maintain their depth through time.

The predominant land use in the area is agricultural; consequently, sediment samples from within the project area were analyzed for pesticides and heavy metals. Evaluation of the results indicates the sediments do not contain any known contaminants, and thus, disturbance of these sediments during construction, such as during dredging of the interior channels, should not have any significant negative impact on the water quality.

Management. Enhanced management of the IDNR project area would be possible upon completion of the project. IDNR would have the capability to reduce water levels to consolidate flocculent substrate material to encourage the development of submersed aquatic plants.

Water levels in the IDNR unit would be managed for most of the year via EPM (unit would be open to the river) to promote moist-soil plants in the summer, and provide ingress and egress to fish and other aquatic species, as well as to boats. There are two exceptions to leaving the area open to the river. One is when the pool is on "tilt" in the fall or winter, when the water levels in the management units would be maintained at higher elevations to maintain adequate habitat for waterfowl. The other would be to close the unit off to small flood events to provide protection of the area from sedimentation.

Fish and Wildlife. Habitat benefits for all management measures were quantified using three methods, one for wildlife, one for fish, and one for freshwater mussels, and they are described in detail in the Habitat Analysis appendix. The evaluation for wildlife habitat conditions was made for three target species (mallard, diving ducks and Canada geese) and six non-target species, including one mammal (muskrat) and five birds (least bittern, lesser yellowlegs, king rail, green backed heron, and coot). Habitat conditions for fish were assessed for four species of fish (emerald shiner, largemouth bass, flathead catfish, and emerald shiner); however, the target species was the small mouth buffalo, which represents the large slackwater fish guild. Habitat conditions for freshwater mussels were assessed in terms of mussels in general (i.e., not species specific). The effect of the recommended plan on the evaluation species is summarized in the appropriate animal groupings below.

(1) Birds. The mallard, diving ducks and Canada goose are expected to benefit substantially from the ability to maintain water levels in the fall and winter, as well as the benefits provided by the ability to consolidate sediments in the unit. However, the most significant benefits are derived from the fact that the rate of loss of wetland habitats to sedimentation, and their subsequent conversion to terrestrial habitats, is greatly reduced with the project. The lesser yellowlegs, king rail, green-backed heron and king rail do not significantly benefit from the project when compared to the target species, however, habitat suitability of the site is not significantly reduced either. The only evaluation species showing a net loss in habitat value in the IDNR management unit is the wood duck, and this is due to a reduction in the conversion of aquatic habitat to terrestrial habitat under the with-project condition. The bottomland forest enhancement portion of Phase III, although not evaluated utilizing WHAG analysis, should be expected to benefit the wood duck by providing a hard mast food source not previously abundant. Other bird

species that utilize hard mast include turkeys and blue jays. A variety of other resident and migratory species should also benefit from the improved management capability at the site.

(2) Mammals. While not included as a target group of animals, mammals such as deer, squirrels, mice, and voles can be expected to benefit from the increased availability of hard mast produced by the bottomland forest enhancement measure. The aquatic portion of the project is not expected to negatively impact these mentioned species, or aquatic mammals such as beaver or muskrat.

(3) Amphibians and Reptiles. The evaluation methods did not assess habitat conditions for amphibians or reptiles, nor are these groups the focus of any specific management objective. However, the stabilization of water levels in the management units and the presence of submergent and emergent aquatic vegetation should be beneficial to the life cycles of many species from these two animal groups.

(4) Fish. Substantial habitat benefits are expected to accrue to all of the target and non-target species and to species within the fish guilds that they represent. All species of fish that use the side channels and sloughs in the lower IDNR-managed area of the Batchtown project area will benefit from the proposed measures, as these measures are expected to reduce sediment, stabilize water levels and allow for the growth of emergent and possibly submergent aquatic vegetation that would be beneficial for food production and escape cover. Because access to these waters is not expected to be impeded by the perimeter berms (due to the stop-log structures) for most of the year, the area will continue to be important for over wintering fish. The Turner Island area will also provide depth diversity either from scour behind dike(s) and/or dredging cuts.

(5) Freshwater Mussels. The habitat evaluation did not target any specific mussel species as an indicator. Instead, it utilized habitat parameters believed to be important for all species of freshwater mussels. The habitat evaluation did not indicate that habitat conditions for freshwater mussels would improve (as compared to existing conditions) because of the project, but rather showed that the decline of the habitat with the project would be less than that expected without a project. Flow through the Batchtown area is not expected to change significantly from current conditions, and so flow is not anticipated to cause any deleterious effects to mussels.

Efforts have been taken to reduce direct impacts to mussels. Meetings between the District and the USFWS and IDNR have examined ways to minimize impacts to mussels resulting from construction of the levee/berm and excavating sand from the 40s and 70s channels.

(6) Other Animals. Aquatic conditions within the project area are expected to improve as a result of the project due to stabilized water levels and an expanded food base. A variety of aquatic invertebrates including insects, crayfish and fingernail clams should benefit.

Habitat Analysis. Results of the habitat analysis are presented in the Habitat Analysis Appendix. This assessment is needed to evaluate project features where traditional benefit/cost evaluation procedures are not applicable, such as in a strictly habitat based project as this. Currently, the unit of measure that has gained the widest acceptance among technical and policy elements both within and outside the Corps is the habitat unit (HU). Habitat units have been used to evaluate the Batchtown project. A habitat unit is the product of an estimated acreage for a given habitat type times a habitat suitability index (HSI) value for that habitat type. HSIs result from the numeric ranking of site characteristics at sample sites for a habitat throughout a given project area. HUs can be annualized (average annual habitat unit, AAHU) for specific target years to project changes in habitat values over time. The effects of various plans or plan features can then be compared by applying the HSIs to the acreages of habitat for each alternative considered.

Threatened and Endangered Species. There are no significant differences from the original DPR with respect to the effect of the project on threatened and endangered species. Therefore, the previous biological assessment for threatened and endangered species should be applicable to this supplement. It is the St. Louis District's perspective that the completion of Phase III of the habitat enhancement of the Batchtown area will have no adverse effects on Federally listed species beyond what was previously considered in the original DPR for this project. Therefore, additional consultation with the Fish and Wildlife Service is not required. The protective measures in the original DPR remain applicable and will be applied as necessary. However, it should be noted that there has been a change to the tree clearing restriction dates for the Indiana bat (*Myotis sodalis*). If any trees need to be felled during the period 1 April through 30 September, it will be necessary to survey the area for the presence of Indiana bats. To insure no impact, trees exhibiting appropriate characteristics of roosting habitat must be removed outside the moratorium period. Much of the needed clearing has already occurred based on this requirement during the Phase II berm construction, however, further clearing work that may be needed in the Phase III portion of the project must comply with this moratorium.

The butterfly mussel (*Ellipsaria lineolata*), which is listed as a state of Illinois threatened species, may inhabit the project area, and should be provided a prolonged existence within the IDNR-managed Batchtown site. Sedimentation within the site is anticipated to be reduced, and flows through the interior channels and backwater area enhanced and prolonged with implementation of the project. Other state-listed species that may be found on the site are not anticipated to be negatively impacted.

#### Cultural Resources.

##### IDNR Proposed Projects (IDNR1, IDNR2, and IDNR3)

Four archaeological sites are near proposed project features for all 3 IDNR alternatives (alternatives 1, 2, 3), which are outlined elsewhere. Care should be taken to avoid these or conduct investigations prior to construction.

- 11C-85 Prehistoric (Mississippian) berm and dredging; 2 water control structures.
- 11C-16 Prehistoric (Woodland - Mississippian), Cockrell Hollow boat ramp.
- 11C-208 and 11C209 Prehistoric sites near access to berm and dredging.

*Berms and dredging for 70s and 40s channels*

The south end of the berm with riprap overflow section and stop log closure structure/boat passage and dredging should avoid the vicinity of prehistoric archaeological site 11C85. The probable site 11C85 location will be avoided by not dredging in the area, using the area as a borrow for the berm, or constructing the riprap overflow section or stoplog closure structure there. Otherwise, neither channel project will impact historic properties (prehistoric sites or historic house places). Berms will be placed on Beaucoup soils, which are too wet for prehistoric sites. No house places are shown on historic maps in the proposed berm locations.

*Cockrell Hollow Boat Ramp*

A prehistoric Middle Woodland mound group (11C-16), later Late Woodland & Mississippian occupations (Mississippian stone box grave with pots) is located on the bluff above Pool 25. The boat ramp and access vicinity have not been surveyed for archaeological sites according to the Illinois State Museum Site Repository. A site associated with the mound group may be located on floodplain at mouth of hollow. If so, it could be impacted by proposed boat ramp to 70s channel and Area 1. This raises the possibility for Indian burials raises Native American Graves Protection and Repatriation Act concerns. The area should be avoided or an archaeological survey of the proposed boat ramp, access location and any associated haul roads or staging areas should be surveyed to determine if historic properties are present.

*Staging and haul roads for 70s channel dredging*

Two potentially eligible prehistoric sites, 11C-208 (occupation period(s) not determined) and 11C209 (Late Woodland/Mississippian) are located in field north of proposed 70s channel dredging and berm, could be in staging or haul road area. These will be avoided by flagging each site with a buffer. If either site cannot be avoided, it will be tested for eligibility.

None of the additional elements proposed in Alternatives 1, 2, or 3 (IDNR alternatives) is expected to impact cultural resources.

*Corps proposed project (COE plan)*

The Corps proposed alternative would extend the Phase II berm across the last land along the southern end of the Batchtown Complex and extend to the bluff line at a point just upstream of the Madison Creek mouth. Care should be taken to avoid the following archaeological sites or conduct investigations prior to construction.

- 11C-85 Prehistoric (Mississippian) realigned berm and dredging; 2 water control structures.
- 11C-15 Prehistoric (Woodland), Madison Creek
- 11C-208 and 11C209 Prehistoric sites near access to berm and dredging.

*Berms and dredging for 70s and 40s channels*

The closure berm with riprap overflow section, stop log closure structure/boat passage, pump plant and dredging should avoid the vicinity of prehistoric archaeological site 11C85. On February 7, 2003 Lee and Harris examined the project contour map. Lee measured the distances from the site to the mouth of Madison Creek (south) and the bluff line (east) on the site form. There is a ridge the correct distance north of the creek mouth. While the east-west distance is off, we think this ridge is the Site 11C85 location, since it would be an island at the right flood pool elevation. An aerial photo shows the ridge underwater. This is a typical location for Mississippian villages. Lee proposed a buffer extending 500 feet south of the ridge. This will avoid any impact from construction of the closure berm, riprap overflow structure and stop log structure.

Dredge material from the 70's channel will be placed in a disposal area that was surveyed prior to Construction Phase II. Prehistoric archaeological isolated find 11C414 was recorded here but was determined ineligible by the District and the ISHPO concurred. The proposed borrow site is located in an area may not have been surveyed for archaeological sites. If so, it will require survey prior to construction and possibly construction monitoring.

*Closure berm tie in, haul roads and staging area*

The closure berm tie in and haul road will cross archaeological site 11C15. Site 11C15 is a Woodland habitation site located at the bluff base near the mouth of Madison Creek. The site also includes a small 20<sup>th</sup> century limestone quarry. District Archaeologists investigated the site in April 2004. The prehistoric component has been badly disturbed by Pool 25 flooding and the 20<sup>th</sup> century quarry; it has lost its integrity. Both the both the prehistoric and historic components have been determined ineligible for listing on the National Register of Historic Places. The District will coordinate this determination with the ISHPO shortly.

*Turner Island Chute Increment*

A rock closure extending from the Illinois bank line at River Mile 246 to the northwest tip of Turner Island or series of chevron dikes between Turner Island and the shoreline are proposed.

The geomorphological (landform) study conducted in 1994-5 demonstrated that land forms in the center of the Batchtown HREP have a high potential for both surface and buried archaeological sites to occur. Several prehistoric and/or historic archaeological sites were recorded on this older landform in 1994-5. Conversely, landforms in the southwestern and northwestern portions of the HREP are much younger and unlikely to contain prehistoric archaeological sites after years of flooding. The younger landform begins about .6 miles downstream from the Turner Hollow boat ramp. The rock closure tie in should be placed on the younger landform. If this is not possible, the tie in location should be investigated for the presence of archaeological sites.

The vicinity of the tie in on the northwest tip of Turner Island should also be investigated for the presence of archaeological sites. The 1820's and 1830's General Land Office (GLO) survey showed Turner Island but much smaller than at present. During the 19th century, Turner Island grew by accretion primarily on its east side. The soil type here (Tice silt loam) is the same type as the older landforms on shore. If the unrooted dikes, rather than the closure are used, no archaeological investigation will be necessary.

If the chevron dikes rather than closure are used and there is no tie in to the shore, no archaeological investigation will be necessary. Haul road and staging areas should avoid known potentially eligible archaeological sites on the older landform (11C207, 208, 209, 210, 412). If this is not possible the potentially eligible sites should be investigated prior to construction activities. If the haul road and staging areas are planned for areas on the older landform that have not be surveyed for archaeological sites, such areas should be investigated for the presence of archaeological sites prior to construction.

None of the additional elements proposed in the COE plan is expected to impact cultural resources.

Recreation, Aesthetics, Air Quality, Noise, Geology. Stabilization of the water levels due to project features will directly benefit recreational use of the area. Hunters, fisherman and boaters will no longer have access problems due to shallow water should the pool be "tilted" to prepare for an incoming high water event. Also, anglers and waterfowl hunters should benefit from the increased numbers of fish and waterfowl that will use the area due to the improved habitat conditions. Hunting within the USFWS refuge will continue to be prohibited but bird watching will improve as more migratory birds, especially waterfowl, use the refuge. Short-term opportunities for fishing, hunting and boating may be affected during project construction.

Construction activities will have minor adverse impacts on aesthetic quality and noise at the project area during the duration of the work. The most visible activities will occur during the construction of the perimeter berm and water control structures, and the dredging for drainage and deep-water fish habitat. The aesthetic quality of the area is expected to improve over the long term due to more stable water levels, submergent and emergent aquatic vegetation growth, and improvements to the bottomland forest.

No significant impacts to the geology of the site are expected.

## **H. Recommended Plan**

The preferred plan for the Phase III portion of the Batchtown project is the Corps alternative with the Turner Island Component (COE + Turner Island Component). Features of this preferred plan are displayed in Figure 1, and include:

- 1) Levee/berm. About 6,600 feet of earthen levee/berm would be constructed to close off much of the Batchtown Unit from the river. This new berm would extend from the south end of the Phase II berm along the river to the bluff near Madison Creek Road. With a crown elevation of 436 feet NGVD, the structure

- would extend 1-2 feet above prevailing ground surfaces, and 2 feet above normal pool (434 feet NGVD). An access road would be placed along its top. Portions of the structure constructed in the water would be protected on the riverside and interior side with stone. An 875-foot long access road would be constructed near the mouth of Madison Creek to connect the levee/berm with Madison Creek Road. The footprint of the berm would be 6 acres, and 28,000 cubic yards of earthen material and 62,000 tons of stone would be used to build it and the access road.
- 2) Water control structure. A water control structure consisting of two 40-foot wide spillway gates would be constructed in the levee/berm at the south (downriver) end of the project area. The gates would be pneumatically operated.
  - 3) Overflow spillway. A 1,500-foot long overflow spillway would be provided in the levee/berm to the west of the water control structure. The crown of this notch would have an elevation of 434.5 feet NGVD. It would be protected with stone, and have a driving surface consisting of an articulated concrete mattress.
  - 4) Pump station. A floating 130-cfs pump station would be placed adjacent to the existing water control structure at the upper end of the 70s channel. It would be used on either the riverside or interior side of the levee/berm. A boat-type ramp and fuel tank area would be provided for operation.
  - 5) Chevron dikes. Three chevron dikes would be constructed in the Turner Island side channel in a series descending from up- to downstream. They would have a height of 436.5 feet NGVD. Existing dike 245.7L, located just below the entrance to the 70s channel, would be modified by creating an opening where it ties into the left descending bankline.
  - 6) Channel excavations. Sand deposited by a series of floods in the 1990s would be removed from the upper portions of the 40s channel. Hydraulic dredging would remove about 24,000 cubic yards of sand from about 5,000 feet of channel, beginning at the channel's existing water control structures and continuing downstream. In the 70s channel, mechanical channel excavation would remove about 4,000 cubic yards of sediment from about 1,500 feet of channel; this reach extends downstream of a point about 2,700 feet downstream of the channel's existing water control structure. The 40s channel excavation would consist of a 50-foot wide cut down to el. 429 feet NGVD. The 70s channel excavation would consist of a 15-foot wide cut down to el. 429 feet NGVD. (In Figure 1, areas displayed for Phase III channel excavation exceed what would actually occur.)
  - 7) Borrow area. Earthen material needed for the levee/berm would be acquired from an agricultural field located in the Batchtown Unit north of the Titus Hollow Public Access area. An average of two feet of earthen material would be taken from a 14-acre site.
  - 8) Disposal areas. Sand removed from the 40s channel by hydraulic dredging would be placed in the Turner Island side channel behind the chevron dikes. Sand mechanically excavated from the 70s channel would be placed in an agricultural field along the channel's left descending bank on a 3-acre site.
  - 9) Tree Planting. Seedlings of various mast tree species would be planted on 100 acres of existing public lands along the river in or adjacent to the Batchtown

complex. Open areas or agricultural lands with ground elevations high enough to sustain mast tree species above levels of frequent river flooding would be used.

The preferred plan would remove sediment from the 40s and 70s channels, enhance flows over the mussel bed, and help prolong the viability of the mussels in the lower Batchtown unit. The design of the levee/berm and associated structures that cross the lower end of the Batchtown unit would allow for the maintenance of adequate flows through the area. The preferred alternative results in a net benefit of 810 AAHUs. Although this is not the greatest number of AAHUs provided by evaluated plans, the COE+TI alternative would be less costly, and have less operation and maintenance requirements associated with it.

### **I. Compliance with Environmental Laws and Regulations**

The degree of compliance of the proposed Phase III project with environmental laws and regulations is presented in Table 14 of the original DPR. The proposed project complies to the levels indicated in that table, with one exception. The Phase III project will require additional authorization under Section 404 of the Clean Water Act. While Section 404 authorization has been granted for previous phases of work at Batchtown, this new authorization would regulate impacts anticipated from the proposed borrow and dredging activities, fill placement, and bottomland clearing activities. A public notice issued by the District's Regulatory Branch is being circulated for public review concurrently with this Supplemental EA.

### **J. Adverse Environmental Effects Which Cannot be Avoided**

Adverse impacts that cannot be avoided are the same as mentioned in the original DPR/EA. Spot clearing and/or tree removal for the construction of the Phase III berm, water control structures and service roads, the placement of dredged material (sediment) into areas adjacent to the dredging site, and loss of cropland due to conversion to bottomland forest will still occur. Loss of side channel habitat due to construction of berms and water control structures should be somewhat lessened under the current plan, as the 70s and 40s channels will be operated in a way that will maintain flows for most of the years.

### **K. Short-term Uses of Environment Versus Long-term Productivity**

Local short-term uses of the environment are limited to disturbances created during the construction process and during pumping activities, and do not change significantly from what was originally anticipated in the original DPR/EA. Such things as soil disturbance, tree removal, disposal of dredged material, construction of berms and water control structures, and staging for construction equipment and pumping to assist with water level management, are all short-term uses of the environment in the Phase III portion of this project. Maintenance and enhancement of long-term biological productivity is the basic goal of this project. Productivity of all management units will be enhanced, and longevity will be increased as a result of this project. Aquatic productivity in the side channels is expected to be to be maintained because measures are proposed to maintain side channel flows. The short-term uses of the project area are minor in comparison to the expected increase in biological productivity.

#### **L. Irreversible or Irretrievable Resource Commitments**

Should the Phase III portion of this project be implemented, there will be irreversible or irretrievable resource commitments. These would include initial construction costs (mostly Federal), and operation, maintenance and rehabilitation costs by the U.S. Fish and Wildlife Service and the Illinois Department of Natural Resources. Should the project not be implemented, costs would still have been incurred on those portions of the project that have been previously built. While the resources committed to those efforts are irretrievable, benefits are anticipated to the environment based on the abilities of the devices that are in place to provide some sediment deflection capability in the IDNR-managed area of Batchtown.

#### **M. Cumulative Impact Assessment**

In terms of cumulative impacts, Habitat Rehabilitation and Enhancement Projects, such as Batchtown, are limited in scope. The Environmental Management Program affects only a fraction of the total habitat area of the Upper Mississippi River System. If all planned program activities turn out to be a failure (and most evidence is to the contrary), it would not represent an irreversible, catastrophic adverse impact on the river's ecosystem. The detailed Cumulative Impact Assessment, Appendix R of the original DPR/EA, is still considered adequate for this Supplemental EA.

#### **N. Participants, Coordination, Public Views and Comments**

Participants in the planning of the Phase III reevaluation have included the Illinois Department of Natural Resources, U.S. Fish and Wildlife Service, and the St. Louis District Corps of Engineers.

In 2000, the preferred plan in the original DPR/EA for Phase III was reevaluated and deemed unviable due to O&M concerns and responsibilities that revolved around the placement of a structure through the overflow structure for L&D25.

During 2001 and 2002, various meetings of the above mentioned agencies took place to brainstorm, provide ideas, and work out details of the new proposed alternatives for Phase III. In late 2002, habitat analyses of the alternatives occurred, and have subsequently been included into the production of this document.

Also during the 2001-2002, the District deemed it necessary to prepare a Supplemental EA to the original NEPA document. This is due to the fact that Environmental Pool Management (EPM) has proven to be successful in producing nonpersistent wetland plants and can now reasonably be considered a current and future condition for the Batchtown project area. Because of this, it was necessary to evaluate the new condition that EPM has created for the current and future without conditions.

#### **O. Preparers and Contributors**

Mike Thompson	- Project Management
Eric Laux, Tim George	- Environmental
Gary Lee	- Civil Engineering
Pat Conroy	- Geotechnical Engineering
Suzanne Harris	- Archaeology

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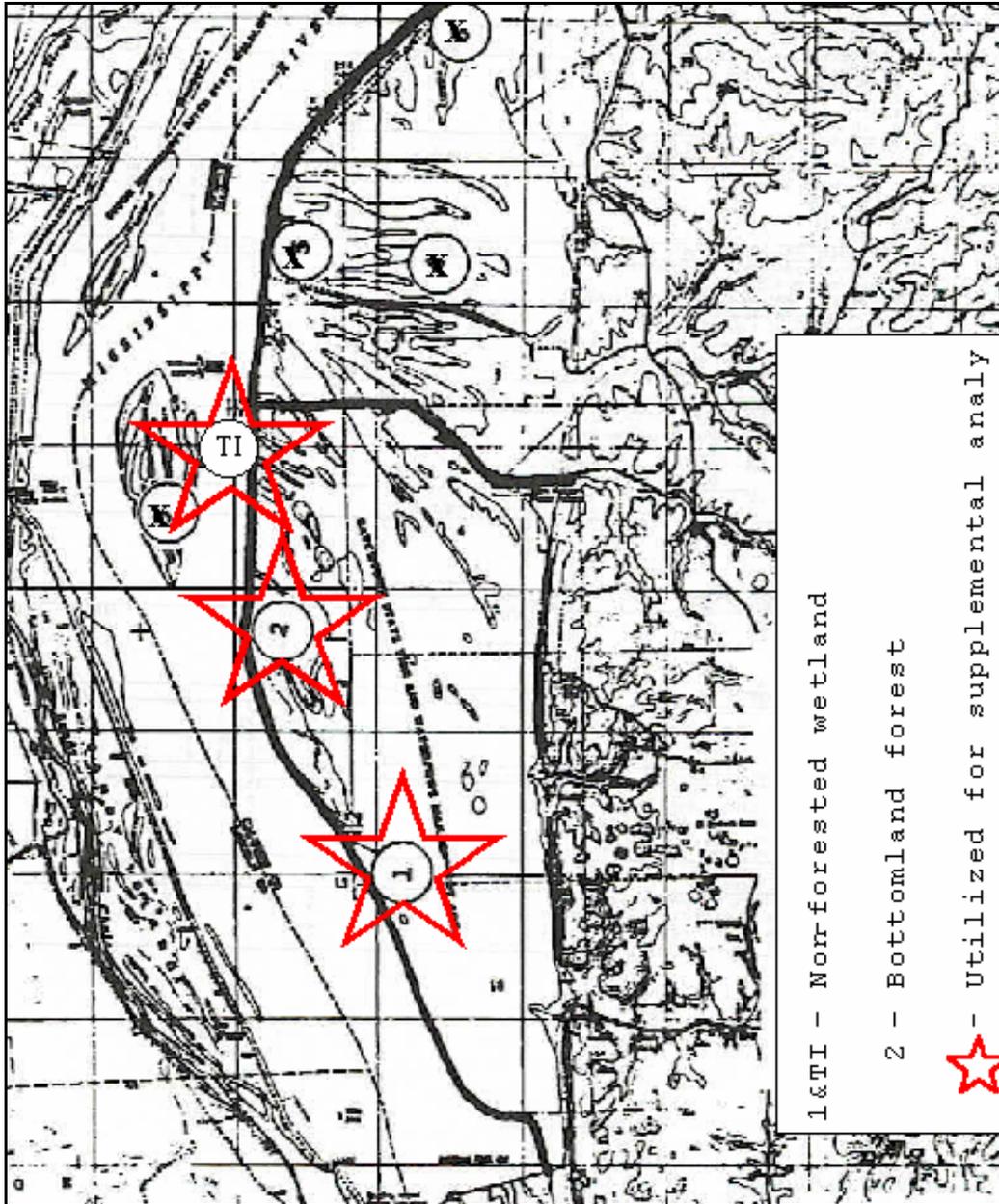
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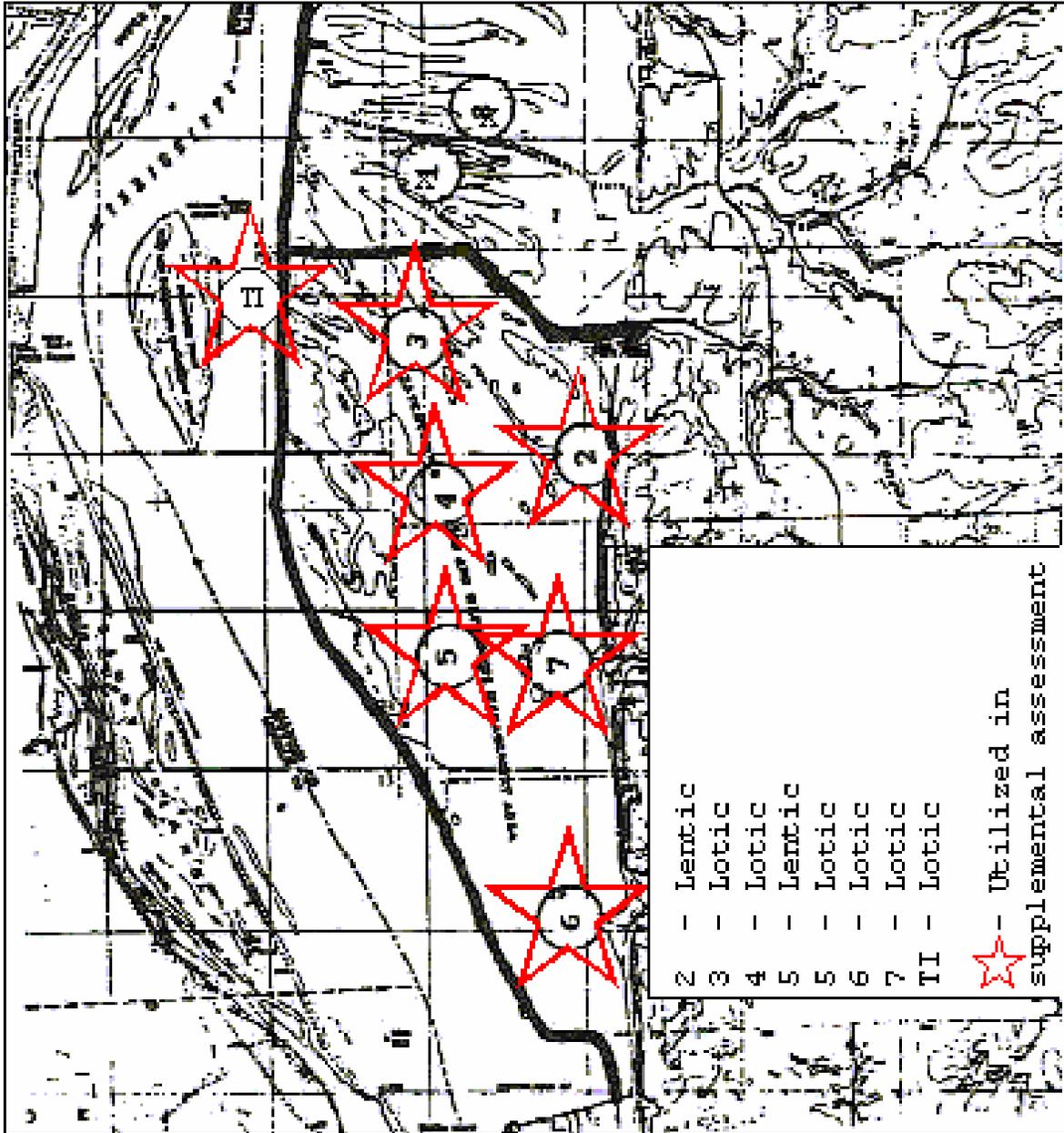
## Habitat Analysis Appendix

The WHAG and AHAG analysis have assumed an equal management emphasis for waterfowl and fish, with the goal in mind that mussel beds will not be impacted and at least maintain their current population levels. HSIs were computed using WHAG, AHAG, and Mussel models that were employed in the original DPR. HSIs from the original DPR were back-checked with the models currently being used to make sure the current model parameters were set as they were originally. Then the models were used to obtain the current HSIs based on the new current and expected future conditions for the lower Batchtown unit only, as this is the only area being considered in this supplemental analysis. Areas of focus for each analysis included the following (also see figures):

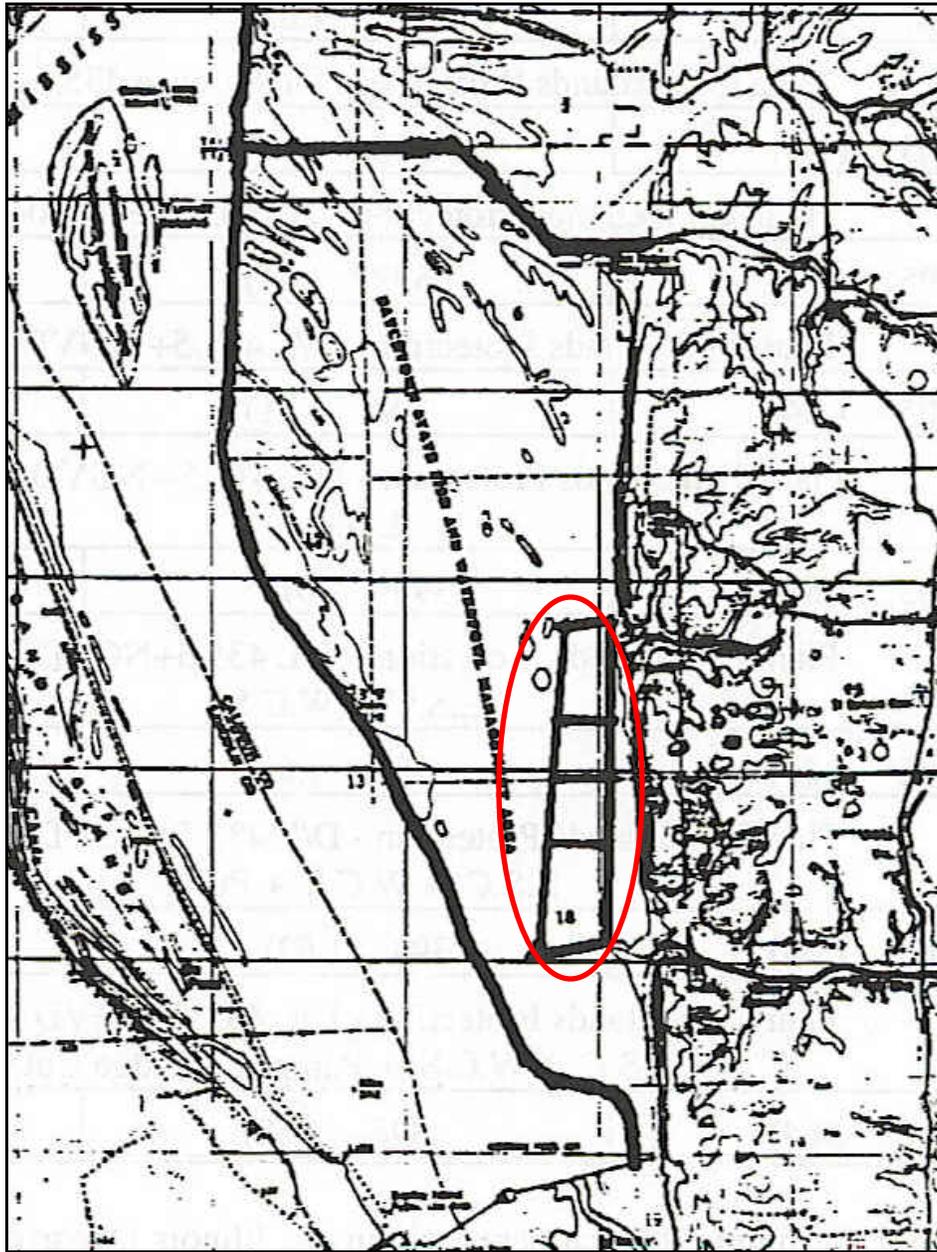
- WHAG HSIs were calculated for Non-Forested wetlands for the area considered to be the DNR-B management unit in the original DPR/EA habitat analysis (sample site one). The aquatic area between Batchtown and Turner Island was added to the non-forested wetland computation. Also, the upland component “bottomland forest” and “other-aquatic conversion to terrestrial” category HSIs were taken directly from the DPR for utilization in this analysis. The only changes in these categories for the current analysis were the assumed acreage of habitat for future years;
- AHAG HSIs were figured over the same basic aquatic area as in the original DPR, less the area noted as sample site one and eight in the DPR (north of what is being considered in this supplement). The aquatic area between Batchtown and Turner Island was added to the analysis;
- The mussels management unit was the same basic area as that shown in the DPR. For the current assessment, mussel habitat was figured to occur over an area of 220 acres in the vicinity of where they are shown in the DPR/EA. The original DPR/EA considered an area of 405 acres, which seems much more expansive than their actual occurrence.



WHAG Sampling Areas



AHAG Sampling Areas



Mussel Sampling Area

Assumptions for the analysis were as follows:

- Year 0, 2, and 50 captured the benefits of the project sufficiently.
- All conditions built or being built (previous project phases) are considered on the ground features and part of the existing condition.
- EPM is the main water level management technique utilized to produce moist soil within the IDNR managed portion of Batchtown.
- Pool 25 will be managed at a midpool control currently and in the future.
- Pool “tilt” will occur during moderate flood pulses now and in future conditions, often during the growing season and during waterfowl migrations.
- The currently built portions of the project (berm along west shore of Batchtown, 40s and 70s closures) provide some protections from sedimentation. Thus, 55% is the rate of loss of nonforested wetland areas to sedimentation over 50 years (future without condition). This is changed from the 65% proposed in the original analysis.
- 15% is the rate of loss of nonforested wetland areas (over 50 years) that are protected by berms planned for Phase III (future with condition).
- Fish will have access to over wintering sites 75% of the time, and all sites will be open for a majority of the spring, summer, and fall.
- Possible improvements in fine sedimentation within the Batchtown area provided by the berm proposed under the Turner Island alternatives were not figured because it was too difficult to reasonably assess. However, reductions in bedload deposition in the upper 40s and 70s channels were estimated. (38 acres of aquatic habitat protected from converting to terrestrial after initial dredging is completed).
- Flow will not change significantly from current conditions.
- Dredging or scour within parts of the Turner island area will occur as part of the proposed Turner Island dike

It is clear that the differences between HUs of each plan are moderate, but the gain from implementing any of the projects is significant from not implementing a plan. The COE plan appears to be the best option for meeting the goals of the project because of the relatively low labor intensity of building and managing the project, since it incorporates only one berm to provide the desired management capability within the IDNR managed portion of Batchtown. It also appears from the below table 7 that the benefits of incorporating the Turner Island component to any of the plans clearly provides additional benefits, although modest.

None of the plans should jeopardize the existing mussel bed in Batchtown while providing significant benefits to fish and wildlife. The COE plans would provide the

most benefits to all target species per unit of effort, as the other plans involve separating several management units with berms and structures. There are no substantial differences amongst the HUs of each plan, however, when benefits are looked at overall, there are some clear benefits to incorporating the Turner Island Dike as part of the selected plan.

**Habitat Units (AAHU) Produced by All Alternatives**

Alternative	AAHU			Sum	Net AAHU
	WHAG	AHAG	Mussels		
Future without	567.72	429.56	74.35	1071.62	0
IDNR1	778.04	942.88	98.49	1819.41	747.79
IDNR2	784.93	957.60	96.20	1838.72	767.10
IDNR3	784.93	957.60	98.49	1841.01	769.39
COE	773.70	957.60	95.62	1826.92	755.30
IDNR1 + Turner Island Component	793.56	971.58	108.62	1873.77	802.14
IDNR2 + Turner Island Component	800.45	986.88	105.93	1893.25	821.63
IDNR3 + Turner Island Component	800.45	986.88	108.62	1895.95	824.33
COE + Turner Island Component	789.22	986.88	105.25	1881.35	809.73

**DRAFT  
FINDING OF NO SIGNIFICANT IMPACT**

**SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT  
BATCHTOWN PHASE III**

**UPPER MISSISSIPPI RIVER SYSTEM (UMRS)  
ENVIRONMENTAL MANAGEMENT PROGRAM  
HABITAT REHABILITATION AND ENHANCEMENT PROJECT (EMP-HREP)**

1. I have reviewed and evaluated the document concerning the proposed Phase III rehabilitation and enhancement of the Batchtown project area. The purpose of this phase of the project is to restore and maintain habitat diversity to benefit fish, mussels and wildlife species by:

- a. Maintaining and improving side channel habitat by maintaining flow and preventing river-borne sediment from filling side channels;
- b. Providing overwintering and summer habitat for fish in side channels and sloughs;
- c. Increasing habitat quality and quantity of naturally flooded habitats for wetland-dependent wildlife;
- d. Maintaining and improving habitat quality and quantity of bottomland forest within the project area.

2. Prior to my decision, I evaluated pertinent data and information that led to the development of various potential Management Measures. I have reviewed the steps in the evaluation process that produced the recommended plan.

3. All Management Measures have been studied, and major findings of this investigation include the following:

- a. The "No Action" measure was evaluated but subsequently rejected. While this measure includes previously constructed portions of this project, it would not fully address study objectives;
- b. The recommended project is a viable, acceptable and effective combination of measures to address study objectives.

4. The possible consequences of the recommended plan have been studied for physical, environmental, cultural, social, and economic effects. Major conclusions of this study are as follows:

- a. It is expected that substantial additional habitat benefits will accrue to wetland wildlife and river fishes of the project area;
- b. The backwater within the project area will improve in habitat quantity and quality because of improved water management capabilities;
- c. It is anticipated that the viability of the mussel bed within the lower portion of Batchtown will be prolonged;

- d. Sedimentation from bedload and suspended sediments to the lower portion of the Batchtown area will be reduced;
- e. Flows will be maintained and prolonged through the 40s and 70s channels;
- f. Federal and state listed species will not be adversely impacted;
- g. The project will not impact any known historic properties. Any project elements not located on the younger landform that have not been previously investigated will be surveyed to locate any historic properties. In the event any cultural properties are located, these will be evaluated for National Register eligibility, in consultation with the Illinois State Historic Preservation Officer and appropriate mitigation completed before construction. If sites will be impacted the tribes who have indicated they have an interest in this area will be contacted and consultation will take place. Should an inadvertent discovery of human remains occur then Section 3 of the Native American Graves Protection and Repatriation Act will be followed.

5. Based on the disclosure of the impacts contained within the Environmental Assessment, no significant impacts to the environment are anticipated. The proposed project has been coordinated with the appropriate resource agencies, and there are no significant unresolved issues or any significant affect to the human environment. Therefore, an Environmental Impact Statement will not be prepared prior to proceeding with this action.

\_\_\_\_\_  
Date

\_\_\_\_\_  
C. Kevin Williams  
Colonel, U.S. Army  
District Engineer