Illinois
Department of
Natural Resources
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http://dnr.state.il.us

Authorization for Incidental Take and Implementing Agreement

Pursuant to the Illinois Endangered Species Protection Act (520 ILCS 10/5.5) the Marseilles Land and Water Company (MLWC) project: Marseilles Lock and Dam Project (MLDP) – FERC Project No. 13351 involving the incidental take of the State endangered greater redhorse fish *(Moxostoma valenciennesi)* and the State threatened river redhorse fish (*Moxostoma carinatum*) impacting the Illinois River in LaSalle County, Illinois (as described/shown in the conservation plan received by the Department on 04 November 2010) is hereby granted, subject to the terms and conditions described in the attached Authorization and Implementing Agreement. The Illinois Department of Natural Resources has determined that this authorized take is incidental to the construction of the MLDP impacting the Illinois River in LaSalle County, Illinois.

Procedural History

The Marseilles Land and Water Company (MLWC), acting through its environmental consultant – AECOM, prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and MWLC's request for authorization for incidental take of the State endangered greater redhorse fish *(Moxostoma valenciennesi)* and the State threatened river redhorse fish (*Moxostoma carinatum*) were received by the Illinois Department of Natural Resources (Department) on 04 November 2010. Public notice of MLWC's request for authorization of the incidental take of the above listed aquatic species was published in the Breeze-Courier (Official State Newspaper) and the Morris Daily Herald (local project area circulation) on November 12, 19, and 26, 2010. Public comments on MLWC's conservation plan were accepted by the Department until December 26, 2010. No comments were received by the public during the period of November 12, 2010 through December 26, 2010.

An initial consultation request was made to both the IDNR and USFWS on behalf of the MLWC by Mead & Hunt, Inc. on July 2, 2001. The IDNR requested additional information regarding maintenance of minimum flows over the dam (in order to provide adequate physical habitat and dissolved oxygen [DO] concentrations) and measures that could be employed to reduce entrainment and impingement of fish at the powerhouse intake. A revised and updated Detailed Action Report was prepared in July of 2009 (revised October 2010) to review proposed Project activities in sufficient detail to determine to what extent these activities could potentially affect State and federal listed threatened or endangered fish under the jurisdiction of IDNR, the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service. Subsequent consultation with USFWS concluded that implementation of the proposed project is not likely to adversely affect any federally listed species.

The purpose of the initial Conservation Plan (CP) was to review proposed Project activities in sufficient detail to determine to what extent these activities could potentially affect State listed threatened or endangered fish under the jurisdiction of IDNR. The CP was also prepared in accordance with requirements of the Illinois ESPA (Title 17 IL Adm. Code, Chapter I, Section 1080).

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Compliance with the Endangered Species Protection Act

The Illinois Endangered Species Protection Act includes six (6) criteria which must be met for the authorization of incidental take of an endangered or threatened species. These criteria and the Department's determination for each criteria are listed below.

1. The taking will not be the purpose of, but will only be incidental to, the carrying out of an otherwise lawful activity:

The proposed Project is located within the City of Marseilles, Illinois, approximately 65 miles south of Chicago, Illinois, in LaSalle County. The proposed Project would utilize the head created by the Marseilles Lock & Dam, which is owned and operated by the U.S. Army Corps of Engineers (USACE). The Marseilles Lock and Dam is located on the Illinois River approximately one-quarter mile upstream of the proposed Project development site at river mile (RM) 247 above the confluence of the Illinois River with the Mississippi River.

Under the proposed Project a new powerhouse would be constructed on the downstream end of the existing North Head Race system located in Marseilles, Illinois. This existing system was developed by William D. Boyce in the early 1900s starting in 1904 under a charter granted to the MLWC by the Illinois legislature in 1867. In 1911 a second hydroelectric power plant was constructed at the end of the North Head Race. This facility operated until October 1988 when it was closed down by Illinois Power Co. Since that date, no power has been generated from the North Head Race facility and no jobs have existed as a result of this facility since that time.

The proposed MLWC Project would construct a 10.26 megawatt (mW) four (4) hydroelectric turbine facility and rebuild portions of the North Head Race retaining walls to restore the raceway system to maximum potential operation. In addition, outbuildings associated with the Project, including a museum and marina, are proposed as well to augment the recreational facilities in the region.

During construction of the project it is anticipated that 12 direct construction jobs would occur on daily work for the facility and an additional 5 jobs would be created to supply materials to the project and to provide various equipment needs such as off site trucking during the construction period. During the construction period the owner would require 3 construction supervisors and 4 engineering staff who would provide quality assurance oversight and on site engineering supervision of the work. In addition to the construction period, engineering staff would design and develop the details of the project as approved by the FERC (Federal Energy Regulatory Commission). It is therefore anticipated that 22 new jobs would be created during the two (2) year construction period of the project. After construction the facility would be operated with three (3) maintenance staff and one (1) supervisor. The facility is anticipated to generate 67,000 mW hours per average year per a *Mill Road Engineering* 2010 analysis.

The proposed Project would produce renewable, clean energy, utilizing the existing headrace structures as a run-of-the-river facility with no storage for hydroelectric purposes and no modification of the existing reservoir releases. Generation of this energy would utilize the energy potential of the river at this location.

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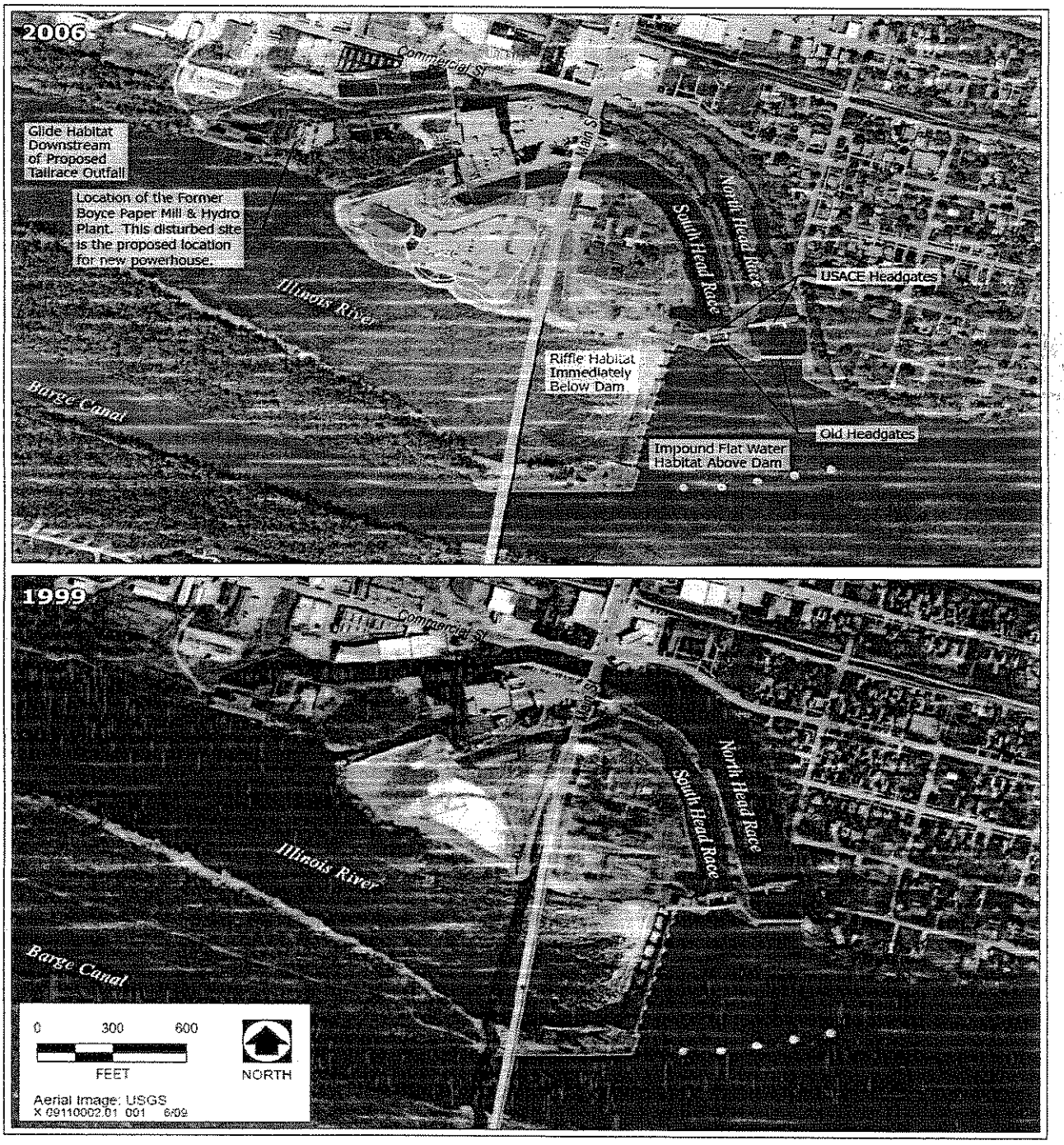
This potential once used to run factories in Marseilles would again become available as an asset to Illinois, and provide the region with green energy replacing the equivalent energy generated from fossil fuels, thereby reducing the carbon footprint of the region. *See Project Area Photo below:*



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2. The parties to the conservation plan will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking.

**Species of concern: State endangered greater redhorse fish (Moxostoma valenciennesi) and the State threatened river redhorse fish (Moxostoma carinatum)*

-The greater redhorse is a member of the sucker family. They are distributed in mid-central and northeast North America as well as eastern Canada. They are currently listed as endangered in the State of Illinois, and occurrences since 2000 have been found in Grundy and Livingston counties.

Adult greater redhorse feed on bottom invertebrates, aquatic insects, and plant material, and their main food items appear to be crustaceans and mollusks. Similar to the river redhorse, they prefer locations with moderate to swift water velocity, pool-run-riffle habitat, and an irregular bedrock channel with a boulder, rubble, and gravel substrate. Locations that are impounded or where the river is predominantly pooled contain comparatively few or no individuals . Although the greater redhorse is not an obligate migrator, in one population in Ontario, Canada, greater redhorse migrated 15 km to spawn in riffles and then moved back to low velocity runs for their summer range. In their summer habitat, the mean water depth used was 18.2+/-0.35 inches and water velocities were less than 1.97 inches/s (0.16 ft/s). The greater redhorse also requires pollution-free water.

- The river redhorse is a member of the sucker family. Although historically they have been widely distributed in eastern North America, in recent years they have been disappearing in the northern and western parts of their range. They are currently listed as threatened in the State of Illinois. Occurrences since 2000 have been reported in Grundy, Kane, Kankakee, Kendall, La Salle, Vermilion, and Will counties.

Locations that are impounded or where the river is predominantly pooled contain comparatively few or no individuals. This association with swifter water habitat is due to the low siltation which is necessary for their prey's survival as well as low turbidity which facilitates sight feeding. They also require pollution-free waters in order to thrive.

Little information is available on the physiological tolerances and swimming ability of the suckers of eastern North America . A relative of the river redhorse, the robust redhorse (*M. robustum*) however, has a thermal maximum between 35-37 C (95-99 F). Hatching success was observed to decline above 23C (73 F), with an increase in larval and juvenile deformity at temperatures above 25 C (77 F). The juveniles exhibited surface respiration at DO concentrations of 0.7-0.8 mg/L and lost equilibrium at 0.54-0.57 mg/L, suggesting that greater concentrations of oxygen are required. The prolonged swimming speeds of robust redhorse larvae of 0.52-, 0.64-, and 0.80-inches length have been recorded as 2.7 (0.23), 4.2 (0.35), and 4.6 (0.38) inches/s (fps), respectively.

The proposed Project has been designed to include elements to minimize potential adverse effects. These elements include environmental protection measures to avoid and minimize potential adverse effects on State listed species. <u>The following biological and water quality conservation measures shall be implemented to minimize potential adverse effects to these sensitive resources:</u>

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- Install **Kaplan** turbines to minimize the injury or mortality to fish that may become entrained in the turbines.

- Continue to maintain a minimum of approximately 1,000 cubic feet per second (cfs) of flow through the dam on the main river (through the Marseilles Dam) to ensure adequate physical habitat and DO levels in the tail-water and downstream. This amount of flow would be supplied by "leakage" that currently takes place through the USACE dam. The amount of leakage through a 1.0 inch gap between the face of the tainter gate skin plate and the spillway slab at the Marseilles Dam would continue to allow approximately 1,000 cfs to pass through the dam into the river below. This bypass flow has been identified as constant and verifiable.

- Install a trash rack (vertical bar grate) immediately upstream of the power-plant water intake with a bar width of 2.0 inches to minimize entrainment and/or impingement of fish.

- Design and install the trash rack with adequate surface area to ensure that intake approach velocities do not exceed 1.5 feet per second (fps). The purpose is to allow fish to escape the flow into the power-plant facility and reduce entrainment and/or impingement.

- Conduct all site clearing (e.g., vegetation removal) outside of the primary raptor nesting and bat roosting seasons (April 1 – Oct. 31) to avoid any potential effects to these birds and mammals in the case that they could be present in the region.

- Conduct mussel surveys (by qualified biologists) in the Illinois River within the immediate construction area and in the vicinity of proposed construction activities (up and down stream) prior to conducting any construction activities. If native mussels are found to be present in the construction area, a qualified ecological/malacological consultant shall develop and implement a mussel relocation and site restoration plan in direct coordination with IDNR. Prior to any relocation of any species, Joseph Kath of the Illinois DNR shall be contacted well in advance of any such operations and be provided with any and all documentation, procedures, reports outlining such activities. Mr. Kath shall be contacted by telephone at: (217)785-8764 and via e-mail at: Joe.Kath@illinois.gov. No relocation efforts or site restoration plans shall proceed without prior written approval/issuance of official permits by the IDNR, coordinated directly through Mr. Kath.

Water Quality Conservation Measures - National Pollution Discharge Elimination System Permit: The IEPA administers the National Pollutant Discharge Elimination System (NPDES) storm-water permitting program in Illinois for both construction and industrial activities. Construction sites disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). Before the approval of grading permits and improvement plans, MLWC (Project applicant for all proposed Project phases) shall consult with the City of Marseilles, the County of LaSalle, and IEPA to acquire the appropriate regulatory approvals necessary to obtain the General Construction Permit (NPDES Permit No.ILR10), issued by the IEPA.

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The permit requires a Storm-water Pollution Prevention Plan (SWPPP), and details information on how to develop the plan, what elements must be included in the plan, and what the periodic inspection requirements are. The purpose of the SWPPP is to ensure that the storm-water discharge from a site meets IEPA water quality standards. NPDES permits require that the SWPPP be prepared before construction can commence. The SWPPP and best management practices (BMPs) therein are designed to minimize soil erosion at the proposed Project site, and to remove sediment from storm-water before it reaches the points of discharge. The SWPPP would incorporate all construction phases, including dewatering operations. This statewide NPDES permit was effective as of August 11, 2008 and will expire July 31, 2013.

The proposed Project applicant shall prepare and submit the appropriate Notice of Intent (NOIs) and prepare the SWPPP and any other necessary engineering plans and specifications for pollution prevention and control. The SWPPP and other appropriate plans shall identify and specify:

- use of erosion and sediment-control best management practices (BMPs), including construction techniques that will reduce the potential for runoff as well as other measures to be implemented during construction. These may include but not be limited to sedimentation ponds, inlet protection, perforated riser pipes, check dams, and silt fences;
- means of waste disposal;
- implementation of approved local plans, non-storm-water management controls, permanent post-construction BMPs, and inspection and maintenance responsibilities;
- the pollutants that are likely to be used during construction that could be present in storm-water drainage and non-storm-water discharges, and other types of materials used for equipment operation;
- spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills;
- personnel training requirements and procedures that will be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP; and
- the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP.

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Where applicable, BMPs identified in the SWPPP shall be in place throughout all site work and construction and shall be used in all subsequent site development activities. BMPs shall include but not be limited to the following measures:

- Implementing temporary erosion-control measures in disturbed areas to minimize discharge of sediment into nearby drainage conveyances. These measures shall include combinations of silt fences, staked straw bales or wattles, sediment/silt basins and traps, geofabric, sandbag dikes, and temporary vegetation.

- Establishing permanent vegetative cover to reduce erosion in areas disturbed by construction by slowing runoff velocities, trapping sediment, and enhancing filtration and transpiration.

- Using drainage swales, ditches, and earth dikes to control erosion and runoff by conveying surface runoff down sloping land, intercepting and diverting runoff to a watercourse or channel, preventing sheet flow over sloped surfaces, preventing runoff accumulation at the base of a grade, and avoiding flood damage along roadways and facility infrastructure.

- All construction contractors shall retain a copy of the approved SWPPP on the construction site.

On completion of the Project, the applicant shall submit to the IEPA a Notice of Termination to indicate that construction is completed.

Dredge Material Analysis:
As part of the proposed Project, cofferdam construction and sediment dredging would be required. This would result in the requirement for a Dredge and Fill material analysis pursuant to Section 401 requirements. The sediment study is not sufficient to address this requirement because the nearest study sampling site was approximately 14 miles downriver of the proposed Project site, and therefore the potential for localized contaminants at the proposed Project site was not examined. Therefore, a dredged materials analysis shall be performed to evaluate sediment quality at the site as follows:

- Composite samples shall be collected from the areas of the proposed Project areas that would be excavated, including the isthmus separating the north and south head races, the berm areas, and the north head race. This material sampling plan shall be submitted to the IEPA for review.

- These samples shall be tested in accordance with the Materials Analysis for Dredge and Fill Activities, Section 401 Water Quality Certification handout from IEPA. Sampling and testing shall be performed by a certified analytical laboratory and the results submitted to IEPA.

- Material deemed suitable for use on-site by the IEPA based on the sampling analysis shall be accepted at the site for use as fill in areas where the fill would be prevented from returning to the waterway.

- Material unsuitable for use on-site must demonstrate compliance with Title 40 of the Code of Federal Regulations (CFR) Part 230, Section 404 (b)(1) "Guidelines for Specification of Disposal Sites for Dredged or Fill Material" regarding proper disposal.

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3. The parties to the conservation plan will ensure that adequate funding for the conservation plan will be provided:

The Marseilles Land and Water Company (MLWC) project - Marseilles Lock and Dam Project (MLDP) is primarily being funded by the United States Government under a Federal grant issued and managed by the Federal Energy Regulatory Commission (FERC). This project has been assigned FERC Project No. 13351 for the incidental take of the State endangered greater redhorse fish (*Moxostoma valenciennesi*) and the State threatened river redhorse fish (*Moxostoma carinatum*) impacting the Illinois River in LaSalle County, Illinois.

As stated previously, an initial consultation request was made to both the IDNR and USFWS on behalf of the MLWC by Mead & Hunt, Inc. on July 2, 2001. The IDNR requested additional information regarding maintenance of minimum flows over the dam (in order to provide adequate physical habitat and dissolved oxygen (DO) concentrations) and measures that could be employed to reduce entrainment and impingement of fish at the powerhouse intake. A revised and updated Detailed Action Report was prepared in July of 2009 (revised October 2010) to review proposed Project activities in sufficient detail to determine to what extent these activities could potentially affect State and federal listed threatened or endangered fish under the jurisdiction of IDNR, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. Subsequent consultation with USFWS concluded that implementation of the proposed project is not likely to adversely affect any federally listed species.

4. Based on the best available scientific data, the Department has determined that the taking will not reduce the likelihood of the survival or recovery of the endangered species or threatened species in the wild in Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois:

The proposed Project lies within the Illinois River - Marseilles Illinois Natural Areas Inventory (INAI) site, so designated because of the documented presence of listed species. In addition, the Marseilles Dam tail-water supports a notable fishery which includes not only sport-fishes, such as walleye and smallmouth bass, but a high diversity of non-game fishes as well. Electro-fishing has been used by IDNR to characterize the fish community in the Illinois River at Marseilles (Marseilles Reach) as part of the Illinois River Fish Population Monitoring Program. In 1999, the overall catch-per-unit-of-effort (CPUE) was 16.22 fish per hour with seven (7) species accounting for 95% of the total catch by weight. Common carp (*Cyprinus carpio*) was the greatest contributor by weight at 54% with gizzard shad (*Dorosoma cepedianum*) second highest at 11%. Smallmouth buffalo (*Ictiobus bubalus*) ranked third with 9% and largemouth bass (*Micropterus salmoides*) ranked fourth (7%), followed by shorthead redhorse (*Moxostoma macrolepidotum*; 6%), freshwater drum (*Aplodinotus grunniens*; 5%), and golden redhorse (*Moxostoma erythrurum;* 2%).

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The Index for Biotic Integrity (IBI), which summarizes information on fish abundance, species richness, and habitat needs of the fish assemblage, has increased from less than 10 in 1976 to 40-50 by 2002. The greatest increases were seen between 1976 and 1986 after which the IBI leveled out. The increase in the health of the fish community is likely a result of improvements in water quality, particularly treatment of wastewater effluent: the IEPA reports that overall water quality in the State has steadily improved since 1972, noting declining trends in many conventional pollutants.

River temperature over this period for the same sampling location ranged from 0 to 31 degrees Celsius, with no obvious trends over time. The DO levels ranged from 4.0 to 16 mg/L with a general increase in levels during the period of sampling. Only three of the monthly means were below 5.0 mg/L and eleven were below 6 mg/L (generally considered the minimum DO concentration required for common warm-water fish species). All of the low DO monthly means were in the early portion of the time series, prior to 1988 and all except one were during the summer months. The generally lower DO levels generally occurred during the time of the operation of the old Illinois Power Company (IPC) power-plant. However, the data strongly suggest that the increase in DO is a regional trend tied to decreases in nutrient loading, particularly nitrogen on a watershed level, and not a localized effect. Furthermore, because the low DO levels are found during a period of dramatic increase in the IBI, the biotic conditions (fish community health) were improving throughout this period. After cessation of power-plant operation, the gains in biotic integrity were minimal, suggesting power-plant operation was not a limiting factor on ecosystem health.

Between 1976 and 2002, mean daily river flows (averaged by month) between the dam and the old IPC tailrace have ranged from 2,350 to 74,800 cfs with no obvious trends in monthly or summer (June-September) flows. The lowest annual 7-day minimum flow on record (1920-2006) is 1,670 cfs. A total of 41 (0.4% of days in record) days between 1976-2002 were measured with mean flows less than 2,000 cfs (all between 1998 and 2002) and 22% of the days between 1976 and 2002 had mean flows below 5,000 cfs. Aeration of the waters passing through the dam occurs through turbulence created at the points of release. Additionally, there is a long riffle that is visible immediately downstream of the dam which contributes an unknown but likely significant concentration of DO to the river.

Construction-Related Effects

Project construction activities would disturb soils within and adjacent to waterways that drain directly into the Illinois River. A total of approximately 18.4 acres could be disturbed by Project activities. Of the 18.4 acres, approximately 6 (six) acres of disturbance would occur in the existing head and tailraces. No State listed threatened or endangered fish under the jurisdiction of IDNR are known to occur in the tailraces; therefore, there would be no direct effects associated with construction activities.

The potential also exists for contaminants such as concrete, fuels, oils, and other petroleum products used in construction activities to be introduced into the water system directly or through surface runoff. BMPs for contaminant control are proposed for the Project. Contaminants may be toxic to fish or cause altered oxygen diffusion rates and acute and chronic toxicity to aquatic organisms, thereby reducing growth and survival.

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Measures designed into the proposed Project to avoid and minimize degradation of water quality for both turbidity/sedimentation and contaminant runoff will be implemented, as described above in Avoidance, Minimization, and Conservation Measures. Because implementation of these measures will substantially reduce water-quality-related effects in the Illinois River, temporary increases in sediments and/or turbidity, and/or release and exposure of construction-related contaminants are not anticipated to result in adverse effects to water quality or the listed fish species.

Operation-Related Effects

The proposed Marseilles Lock and Dam Project would use *Kaplan* turbines for power generation. The Kaplan turbine is an adjustable-propeller-type turbine and is an evolution of the Francis turbine. The invention of the Kaplan turbine allowed efficient power production in low head applications that was not possible with Francis turbines. Kaplan turbines are now widely used throughout the world in high-flow, low-head power production.

Comparative studies have found that the survival rates for Kaplan turbines are higher than for Francis turbines. One review of studies conducted on several riverine and anadromous fish species throughout the United States reported survival rates averaging 88% through the Kaplan turbines and 80% through the Francis turbines. They suggested that survival for a given turbine type is similar for a wide variety of species. In another study, the survival rate for Kaplan and Francis turbines was 92.4% compared to 81.8% for salmonids and 91.5% compared to 88.3% for centrarchids (bass and crappie).

The key to minimize entrainment and impingement mortality is to ensure that the velocity of water at the intake and in the head race is slower than the swimming speed of the smallest fish to be excluded by the bar spacing. Swimming speed for a given species of fish is related to size, with larger fish more capable of maintaining their position in a current than smaller fish. The swimming speed of a fish is provided in number of body lengths traveled per second, and the maximum sustained speed for most fish is roughly 6 to 7 body lengths per second. Therefore, with the proposed maximum velocity of water at the intake of 1.5 fps (18 inches per second), fish of roughly 2.6 to 3.0 inches length would be able to swim against the current and comfortably avoid entrainment into the turbines or impingement on the trash rack. Smaller fish unable to swim against the current with their sustained swimming speeds could pass through the gaps in the trash rack and avoid impingement. They would instead pass through the turbines and their small size would more than likely ensure a high probability of survival.

Water Quality and Fish Community Health below the Dam

Reduced DO concentrations in discharges from hydropower facilities most often occur due to thermal stratification of hydroelectric reservoirs. This usually occurs in hydropower Projects with deep, stagnant reservoirs and deep water intakes. The impoundment created by the existing Marseilles Dam is not subject to this common problem and would not be changed with the proposed Project. Operation of the proposed Project would be as a "run-of-the-river" facility, involving no additional storage for hydroelectric purposes. As a result, DO concentrations would not be reduced as a result of stratification due to proposed Project operation. Long-term increases in sedimentation and turbidity are not anticipated with operation of the hydropower facilities.

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Water Quality and Fish Community Health Between the Dam and the Tailrace

A minimum flow of approximately 1,000 cfs would continue to be released into the natural river channel below Marseilles Dam at all times, as required by the IDNR and IEPA, to ensure adequate habitat (e.g., physical habitat) and DO levels in this stretch of the river and downstream. The USACE operates the Marseilles Dam and controls the Tainter Gate-General Assembly at the dam. They would continue to supply the minimum flow through 'leakage' that takes place through a 1.0 inch gap between the face of the tainter gate skin plate and the spillway slab of the dam . This amount of flow would be anticipated to maintain the fish community downstream, has been identified as constant and verifiable, and was required for the previously licensed Project No. 12020 at the Project site in 2003, subject to a monitoring requirement. Based on continuous river monitoring, it is extremely unlikely that the 1,000 cfs minimum flow would not be met.

Water Quality and Fish Community Health Downstream of the Tailrace

The river downstream of the tailrace would continue to receive waters from the Dam releases /leakage (a minimum of approximately 1,000 cfs) flow as well as a maximum of 9,620 cfs flow from the tailrace of the proposed Project. The operation of the proposed Project would not affect river flows below the tailrace since there is no additional storage above the dam for hydroelectric generation. The DO levels below the tailrace would also not likely be affected by the operation of the proposed Project as Kaplan turbine operation does not result in a change in the DO of water entering and exiting the facility.

5. Any measures required under Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], shall be performed:

Additional measures are listed below under "Authorization." This authorization is, by definition, subject to those terms and conditions and official MLWC's signature(s) on this authorization indicates their commitment to performing those measures.

6. The public has received notice of the application and has had the opportunity to comment before the Department made any decision regarding the application:

The Marseilles Land and Water Company (MLWC), acting through its environmental consultant – AECOM, prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and MWLC's request for authorization for incidental take of the State endangered greater redhorse fish *(Moxostoma valenciennesi)* and the State threatened river redhorse fish (*Moxostoma carinatum*) were received by the Illinois Department of Natural Resources (Department) on 04 November 2010. Public notice of MLWC's request for authorization of incidental take of the above listed aquatic species was published in the Breeze-Courier (Official State Newspaper) and the Morris Daily Herald (local circulation newspaper) on November 12, 19, and 26, 2010. Public comments on MLWC's conservation plan were accepted by the Department until December 26, 2010. No comments were received by the public during the period of November 12, 2010 through December 26, 2010.

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Authorization

It is the determination of the Department that the measures to be implemented by MLWC and/or AECOM, acting as environmental consultant for MLWC, would adequately minimize and mitigate for the anticipated taking of a small number of the State endangered greater redhorse fish (*Moxostoma valenciennesi*) and the State threatened river redhorse fish (*Moxostoma carinatum*) impacting the Illinois River in LaSalle County. Further, it is our opinion that the take authorized herein would not diminish the likelihood of the survival of the above listed species in the wild within the State of Illinois, the biotic community of which the species is a part or the habitat essential to the species' existence in Illinois.

Pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], this authorization is issued subject to the following additional terms and conditions:

1. This authorization is effective upon signature by the Department and shall remain in effect for a period of ten (10) years after completion and final, on-line start-up of the Marseilles Lock and Dam Project (MLDP) – FERC Project No. 13351 for the incidental take of the State endangered greater redhorse fish (*Moxostoma valenciennesi*) and the State threatened river redhorse fish (*Moxostoma carinatum*) impacting the Illinois River in LaSalle County, Illinois unless terminated as pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.80].

2. The proposed Project has been designed to include elements to minimize potential adverse effects. These elements include environmental protection measures to avoid and minimize potential adverse effects on State listed species. The following biological and water quality conservation measures shall be implemented to minimize potential adverse effects to these sensitive resources:

a. Install **Kaplan** turbines to minimize the injury or mortality to fish that may become entrained in the turbines.

b. Continue to maintain a minimum of approximately 1,000 cubic feet per second (cfs) of flow through the dam on the main river (through the Marseilles Dam) to ensure adequate physical habitat and DO levels in the tail-water and downstream. This amount of flow would be supplied by "leakage" that currently takes place through the USACE dam. The amount of leakage through a 1.0 inch gap between the face of the tainter gate skin plate and the spillway slab at the Marseilles Dam would continue to allow approximately 1,000 cfs to pass through the dam into the river below. This bypass flow has been identified as constant and verifiable.

c. Install a trash rack (vertical bar grate) immediately upstream of the power-plant water intake with a bar width of 2.0 inches to minimize entrainment and/or impingement of fish.

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d. Design and install the trash rack with adequate surface area to ensure that intake approach velocities do not exceed 1.5 feet per second (fps). The purpose is to allow fish to escape the flow into the power-plant facility and reduce entrainment and/or impingement.

e. Conduct all site clearing (e.g., vegetation removal) outside of the primary raptor nesting and bat roosting seasons (April 1 – Oct. 31) to avoid any potential effects to these birds and mammals in the case that they could be present in the region.

f. Conduct mussel surveys (by qualified biologists) in the Illinois River within the immediate construction area and in the vicinity of proposed construction activities (up and down stream) prior to conducting any construction activities. If native mussels are found to be present in the construction area, a qualified ecological/malacological consultant shall develop and implement a mussel relocation and site restoration plan in direct coordination with IDNR. Prior to any relocation of any species, Joseph Kath of the Illinois DNR shall be contacted well in advance of any such operations and be provided with any and all documentation, procedures, reports outlining such activities. Mr. Kath shall be contacted by telephone at: (217)785-8764 and via e-mail at: Joe.Kath@illinois.gov. No relocation efforts or site restoration plans shall proceed without prior written approval/issuance of official permits by the IDNR, coordinated directly through Mr. Kath.

3. The proposed Project applicant shall prepare and submit the appropriate Notice of Intent (NOIs) and prepare the Storm-water Pollution Prevention Plan (SWPPP) and any other necessary engineering plans and specifications for pollution prevention and control. The SWPPP and other appropriate plans shall clearly identify and specify:

a. use of erosion and sediment-control best management practices (BMPs), including construction techniques that will reduce the potential for runoff as well as other measures to be implemented during construction. These may include but not be limited to sedimentation ponds, inlet protection, perforated riser pipes, check dams and silt fences;

b. means of waste disposal;

c. implementation of approved local plans, non-storm-water management controls, permanent post-construction BMPs, and inspection and maintenance responsibilities;

d. the pollutants that are likely to be used during construction that could be present in storm-water drainage and non-storm-water discharges, and other types of materials used for equipment operation;

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e. spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills;

f. personnel training requirements and procedures that will be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP; and

g. appropriate personnel responsible for supervisory duties related to implementation of the SWPPP.

4. BMPs identified in the SWPPP shall be in place throughout all site work and construction and shall be used in all subsequent site development activities. BMPs may include but not be limited to the following measures:

a. Implementing temporary erosion-control measures in disturbed areas to minimize discharge of sediment into nearby drainage conveyances. These measures shall include combinations of silt fences, staked straw bales or wattles, sediment/silt basins and traps, geofabric, sandbag dikes, and temporary vegetation.

b. Establishing permanent vegetative cover to reduce erosion in areas disturbed by construction by slowing runoff velocities, trapping sediment, and enhancing filtration and transpiration.

c. Using drainage swales, ditches, and earth dikes to control erosion and runoff by conveying surface runoff down sloping land, intercepting and diverting runoff to a watercourse or channel, preventing sheet flow over sloped surfaces, preventing runoff accumulation at the base of a grade, and avoiding flood damage along roadways and facility infrastructure.

d. All construction contractors shall retain a copy of the approved SWPPP on the construction site.

e. On completion of the Project, the applicant shall submit to the IEPA a Notice of Termination to indicate that construction is completed.

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5. As part of the proposed Project, cofferdam construction and sediment dredging shall be required. This would result in the requirement for a Dredge and Fill material analysis pursuant to Section 401 requirements. The sediment study is not sufficient to address this requirement because the nearest study sampling site was approximately 14 miles downriver of the proposed Project site, and therefore the potential for localized contaminants at the proposed Project site was not examined. Therefore, a dredged materials analysis shall be performed to evaluate sediment quality at the site as follows:

a. Composite samples shall be collected from the areas of the proposed Project areas that would be excavated, including the isthmus separating the north and south head races, the berm areas, and the north head race. This material sampling plan shall be submitted to the IEPA for review.

b. These samples shall be tested in accordance with the Materials Analysis for Dredge and Fill Activities, Section 401 Water Quality Certification handout from IEPA. Sampling and testing shall be performed by a certified analytical laboratory and the results submitted to IEPA.

c. Material deemed suitable for use on-site by the IEPA based on the sampling analysis shall be accepted at the site for use as fill in areas where the fill would be prevented from returning to the waterway.

d. Material unsuitable for use on-site must demonstrate compliance with Title 40 of the Code of Federal Regulations (CFR) Part 230, Section 404 (b)(1) "Guidelines for Specification of Disposal Sites for Dredged or Fill Material" regarding proper disposal.

6. The effective period of this authorization may be altered by mutual agreement between the MLWC and the Department only.

7. This authorization may be revoked pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.80] if the Department finds that the MLWC [via completion of the Marseilles Lock and Dam Project (MLDP) – FERC Project No. 13351] has failed to comply with any of these terms and conditions and/or has been responsible for the unauthorized taking of the State endangered greater redhorse fish (*Moxostoma valenciennesi*) and the State threatened river redhorse fish (*Moxostoma carinatum*) impacting the Illinois River in LaSalle County, Illinois.

8. The Marseilles Land and Water Company (MLWC) Official(s) identified below is authorized to execute this agreement. Execution by MLWC Official(s) indicates acceptance of all terms and conditions described in this agreement.

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For the IL. Department of Natural Resources

Dr. James Herkert, Director
IDNR-Office of Resource Conservation

5/31/11
Date Signed

For the MLWC

Lee W. Mueller
Signature

LEE W. MUELLER
VICE PRESIDENT
Please print name and official title

16 MAY, 2011
Date Signed

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