

Finding of No Significant Impact

Emergency Measures Associated with Maintenance of the CSSC Fish Dispersal Barriers – Environmental Assessment

Background

The Chicago Sanitary and Ship Canal fish dispersal barrier project was constructed to prevent the interbasin transfer of invasive aquatic species between the Mississippi River and the Great Lakes Basins. The Dispersal Barrier project has 3 primary components that are in varying stages of operation and construction. Barrier I, has been operating at a low voltage since April 2002 and will be upgraded and made permanent in the future. Barrier IIA is permanent and in operation since April 2009. Barrier IIB is in the design stage and will be under construction in the near future. The current electric dispersal barrier project needs to be maintained to properly function. Periodic shutdowns of the system are required in order to perform necessary maintenance tasks such as inspection, replacement of worn or broken parts, cleaning, etc. The recent detection of Asian carps, silver and bighead carp, in the Lockport pool has brought new needs to light. When the Asian carps were far removed from the barrier system, shut downs were easily accomplished with minimal concern of Asian carps dispersal through the system. Now that the Asian carps may be challenging the barrier system, caution and attention must be paid to prevent Asian carps from dispersing upstream of the barrier array. The upstream barrier, Barrier I can easily be turned on and off for maintenance since the downstream barrier in operation, Barrier IIA provides a barrier to dispersal of all sizes of fishes. However, when Barrier IIA is turned off for maintenance as currently scheduled, fishes can swim up to Barrier I. Because of the lower operating voltage of Barrier I it is questionable if Barrier I can repel juvenile Asian carps. Therefore to reduce the risk of Asian carps moving up stream of Barrier I fish should be eradicated from the downstream reach.

Implementing Authority

Since the Dispersal Barriers project is 100% Federal, and there are no non-Federal sponsors, operation and maintenance (O&M) of the project is the responsibility of the Federal government that is to be carried out by the U.S. Army Corps of Engineers (USACE). There are 2 authorizations for the activities covered in the environmental assessment (EA). The typical O&M actions (i.e. inspection, replacement of worn or damaged parts, cleaning etc.) are authorized in the following legislation:

WRDA 2007 SEC. 3061. CHICAGO SANITARY AND SHIP CANAL DISPERSAL BARRIERS PROJECT, ILLINOIS.

(a) TREATMENT AS SINGLE PROJECT.—The Chicago Sanitary and Ship Canal Dispersal Barrier Project (in this section referred to as “Barrier I”), as in existence on the date of enactment of this Act and constructed as a demonstration project under section 1202(i)(3) of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4722(i)(3)), and the project relating to the Chicago Sanitary and Ship Canal Dispersal Barrier, authorized by section 345 of the District of Columbia Appropriations Act, 2005 (Public Law 108–335; 118 Stat. 1352) (in this section referred to as “Barrier II”) shall be considered to constitute a single project.

(b) AUTHORIZATION.—

(1) IN GENERAL.—The Secretary, at Federal expense, shall—

(A) upgrade and make permanent Barrier I;

(B) construct Barrier II, notwithstanding the project cooperation agreement with the State of Illinois dated June 14, 2005;

(C) operate and maintain Barrier I and Barrier II as a system to optimize effectiveness;

(D) conduct, in consultation with appropriate Federal, State, local, and nongovernmental entities, a study of a range of options and technologies for reducing impacts of hazards that may reduce the efficacy of the Barriers; and

(E) provide to each State a credit in an amount equal to the amount of funds contributed by the State toward Barrier II.

The proposed emergency action (use of rotenone) which is not part of the typical O&M activity is authorized by:

Section 126 of the Energy and Water Development and Related Agencies Appropriations Act, 2010 (Public Law 111-85)

Sec. 126. During the 1-year period beginning on the date of enactment of this Act, the Secretary of the Army shall implement measures recommended in the efficacy study, or provided in interim reports, authorized under section 3061 of the Water Resources Development Act of 2007 (121 Stat. 1121), with such modifications or emergency measures as the Secretary of the Army determines to be appropriate, to prevent aquatic nuisance species from bypassing the Chicago Sanitary and Ship Canal Dispersal Barrier Project referred to in that section and to prevent aquatic nuisance species from dispersing into the Great Lakes.

Alternatives Considered

The following are the alternatives considered in detail:

No Action - The “No Action” alternative would be to shut down barrier 2A and provide no measures to eradicate Asian carps and other fishes. This would allow Asian carps to gain access to the area between the two barrier arrays I and II. This would effectively eliminate the redundancy of the barrier project and eventually allow Asian carps and native Mississippi basin fishes not endemic to the Great Lakes basin to disperse, as it is questionable if Barrier I can repel juvenile Asian carps.

Physical Alternatives

Containment/Herding/Physical Removal (Electrofishing/Netting) - This option was evaluated because it is protective of human health and the environment, reduces the use of chemicals and can be implemented; however, physical removal is not likely to be effective in the canal. The configuration of the canal and the extensive barge traffic make physical removal in that reach an unlikely option. Since effectiveness cannot be assured as a control strategy, this method was ruled-out.

Acoustic and Bubble Barriers with Strobe Lights - This option was evaluated because it is protective of human health and the environment, reduces the use of chemicals and can be implemented. Fish do respond to noise, light and electricity and some or many of the fish could

be herded into a confinement area using this technique. It would be difficult to assure that all the fish were contained. Since effectiveness cannot be assured as a control strategy, this method was ruled-out.

Oxygen Depletion via Nitrogen or Carbon Dioxide - This option was evaluated because it can be implemented. There is a supplemental aeration station about seven miles upstream of the electric barrier which is used during certain parts of the year to maintain the oxygen concentration in the Canal water. However, shutting off the aerator would not reduce the oxygen sufficiently to kill fish. Further removal of oxygen could be achieved by bubbling nitrogen gas into the water. Unfortunately, with existing technology this would be very expensive with an estimated cost of \$250,000 per day for the nitrogen. This option was ruled-out.

Chemical Alternatives

Rotenone - This option is viable because it has both short- and long-term effectiveness and can be implemented. Removal of fish by use of chemical treatment with Rotenone (5% emulsifiable concentrate) was selected as the most viable option. This alternative includes detoxifying with potassium permanganate (and citric acid if need be).

Antimycin A - This option was evaluated because it has both short- and long-term effectiveness and can be implemented. Although Antimycin A is toxic to the target organisms, cost and product availability preclude this from further considerations. During the toxicity testing, difficulties were discovered with maintaining target concentrations and predicted delivery for selected locations would be problematic. Additionally, this product has recently changed ownership further complicating delivery schedules, and the large quantity in stockpiles is very aged, making efficacy unpredictable. For these reasons, this method was ruled-out.

Finquel (MS222) - This option was evaluated because it has both short- and long-term effectiveness. Finquel bears future consideration for possible use in limited reaches for selective removal efforts; however, the label currently does not allow use of this drug in open water systems, or allow for discharge to natural or flowing waters. For these reasons, this method was ruled-out.

Preferred Alternative

The preferred alternative for reducing the risk of Asian carps dispersing through the barrier array during maintenance shut-downs is the use of rotenone. This action would occur from river mile 296.7 to 291.1 in the Lockport pool of the CSSC. This action includes the application of rotenone, fish removal and disposal, detoxification, and monitoring. Eradication of fishes from the CSSC in the Lockport Pool will be accomplished by use of Rotenone 5% emulsifiable concentrate. Rotenone disperses readily in water both laterally and vertically.

Discussion of Major Environmental Compliance

Clean Air Act – Due to the small scale, short duration and existing quality of the immediate project area, the project is considered below the de minimis level of particulate matter of 100

tons per year. As a reference, other Chicago District projects that are much grander in scale and earthwork have readings well below the particulate matter of 100 tons per year.

Section 404(b)(1) of the Clean Water Act – Wetlands or waters of the United States would not be filled or impacted. The small amount of fish pesticide that would be released into the water under the preferred alternative would be such that the action is not considered placing fill in waters of the US.

Section 401 Compliance – This action would not physically affect water quality or wetlands. 401 Water Quality Certification is not required. The Illinois Department of Natural Resources will be applying the rotenone. This agency is already permitted by the Illinois EPA to perform this action. Coordination with ILEPA is in progress and they are expected to concur.

USF&WS Coordination – Consultation with the USFWS under Section 7 is completed and documented via letters dated 16 November 2009 and 23 November 2009. Concurrence was reached that the action may have minimal effects on two T&E species, but would not have significant, adverse effects to the Hine's emerald dragonfly or the Indiana bat.

SHPO Coordination – There is no significant effects to cultural, historical or archaeological resources associated with the preferred alternative. The Illinois Historic Preservation officer is expected to concur with this determination.

Cumulative Impacts Analysis

Along with direct and indirect effects, cumulative effects of the preferred alternative were assessed following the guidance provided by the President's Council on Environmental Quality. There have been numerous effects to resources from past and present actions, and reasonably foreseeable future actions can also be expected to produce both beneficial and adverse effects. In this context, the increments of effects from the proposed risk reduction measures are relatively minor in terms of adverse effects, but very important in terms of the long term viability of the Great Lakes ecosystem. Assessment of cumulative effects indicates that long-term sustainability of Great Lakes as a resource is dependent on the preferred alternative. Based on the expectation of continued sustainability of all resources, cumulative effects are not considered significantly adverse.

Public Interest

An Environmental Assessment was completed for the proposed emergency measures. A 7-day Public Review period was held from 17 November 2009 to 24 November 2009 for the Environmental Assessment. The proposed project has been determined to be in compliance with appropriate statutes, executive orders, the National Environmental Policy Act and Corps of Engineer's regulations.

One letter from an individual and two agency letters (USFWS & USEPA) were received. Dr. Frank Rink supported the effort to rotenone and remove Asian carp from the Lockport Pool. He is a member of the Carp Anglers Group and agreed that common carp would soon recolonize the CSSC from up and downstream locations. The USEPA concurred with the findings of the EA and provided no further comment. The USFWS recommend prompt clean up of fish carcasses to

prevent migratory raptors from consuming the fish; the ILDNR will be expeditious in their clean up efforts.

Conclusion

In accordance with the National Environmental Policy Act of 1969 and Section 122 of the River and Harbor and Flood Control Act of 1970, the U.S. Army Corps of Engineers (Chicago District) has assessed the environmental impacts associated with this project. The purpose of the EA is to evaluate the impacts that would be associated with emergency risk reduction measures and determine if it is necessary to prepare an Environmental Impact Statement.

The overwhelming majority of fishes in the canal are non-native fishes including a potential population of Asian carps. It was concluded the use of rotenone in the CSSC on the fishes would not cause significant effects on the quality of the human environment. The assessment process indicates that this project would not have adverse impacts to significant resources of the CSSC and would provide protection to the Great Lakes watershed. The findings indicate that the proposed action is not a major Federal action significantly affecting the quality of the human environment. Therefore, it was determined that an Environmental Impact Statement is not required.



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