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Asian Carp, The Chicago Area Water System, and Aquatic Invasive Species Management in the Great Lakes

Charles A. Lyons¹

Abstract

Aquatic Invasive Species (AIS) management is an essential component to the health, integrity, and conservation of the Great Lakes as a whole. Asian carp is the most recent AIS threat to the region. While litigation and interstate agreements have not stemmed the fear of the potential effects of the introduction of Asian carp to the Great Lakes, it has encouraged agency action to address the issue. However, the success of implementing proposed measures requires funding and congressional approval with questions regarding their efficacy remaining unknown. Due to the lack of a comprehensive overarching federal statute addressing AIS management in its varied forms, and the unwillingness of the courts to act in an area better suited to legislative solutions, potential solutions that are currently in place simply do not address the problems posed by AIS quickly enough. Based on the history and contentious nature of the Chicago Area Water System (CAWS) in relation to other Great Lakes states, the Asian carp problem may just be another chapter in an ongoing saga that will only conclude with complete hydrological separation of the Mississippi River from the Great Lakes system.

Introduction

In 2010, several Great Lakes states filed a complaint in the wake of the discovery of a live Asian carp found beyond the electric barriers designed to block their passage from the Mississippi River basin into the Great Lakes.² Asian carp have steadily made their way north through the Mississippi River toward the Great Lakes ever since they were first introduced to the southern United States in the 1970s.³ The states' fears that it was only a matter of time before Asian carp would enter and establish itself in the Great Lakes prompted the states to seek preliminary

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2. *Michigan v. U.S. Army Corps of Eng'rs*, No. 10-CV-4457, 2010 WL 5018559, at *1 (N.D. Ill. Dec. 2, 2010).

3. Justin Bonebrake, *Carpe Lacum: Asian Carp and the Great Lakes*, 24 COLO. NAT. RESOURCES, ENERGY & ENVTL L. REV. 459, 464 (2013).

and permanent injunctions to prevent the emigration of Asian carp through the CAWS into Lake Michigan.⁴

The Great Lakes, consisting of Lakes Superior, Michigan, Huron, Erie, and Ontario, form the largest fresh water system on earth.⁵ They were formed about 10,000 years ago at the end of the last ice age when glaciers receded from North America.⁶ The lakes cover more than 94,000 square miles, containing about 20% of the world's fresh water supply and about 90% of the fresh water in the United States.⁷ This immense fresh water system provides drinking water for 48 million people, creates 1.5 million jobs worth \$60 billion in wages each year, and forms the foundation of a \$5 trillion regional economy.⁸ Recreational activities on the Great Lakes alone generate upwards of \$52 million annually for the region.⁹

The Great Lakes fisheries are valued at \$7 billion annually and support more than 75,000 jobs.¹⁰ The lakes contain 139 native fish species, with whitefish, walleye, yellow perch, and ciscoes forming the backbone of the commercial fishing industry, while salmon, walleye, trout, and muskellunge attract recreational fisherman to the region.¹¹ However, native fish are not the only inhabitants. The Great Lakes are home to 34 non-native fish species introduced by various means, such as migration, intentional introduction, ballast water discharge, escape from aquaculture facilities, and release of live bait.¹² This paper will focus on one non-native species that does not yet call the Great Lakes home, but poses a significant threat to the region's economy, ecology, and cultural values: Asian carp.

Asian carp were introduced to the southern United States in the early 1970s to help clean aquaculture facilities of unwanted plankton build-up.¹³ They have steadily made their way north through the Mississippi River toward the Great Lakes ever since.¹⁴ The two species of Asian carp that are of concern are the bighead carp (*Hypophthalmichthys nobilis*) and the silver carp (*H. molitrix*).¹⁵ These species are big feeders, capable of consuming 40% of their total body weight

4. Michigan v. U.S. Army Corps of Eng'rs, 2010 WL 5018559, at *1.

5. *About The Lakes*, GREAT LAKES COMMISSION, (May 2, 2019), <https://perma.cc/KV84-RSDF>.

6. *The Fishery*, GREAT LAKES FISHERY COMMISSION, (May 2, 2019), <https://perma.cc/NK3R-2UEK>.

7. GREAT LAKES COMMISSION, *supra* note 5.

8. *Id.*

9. *Id.*

10. GREAT LAKES FISHERY COMMISSION, *supra* note 6.

11. *Id.*

12. *Id.*

13. Bonebrake, *supra* note 3, at 464.

14. *Id.*

15. Conover, G., R. Simmonds, and M. Whalen, *Management and Control Plan for Bighead, Black, Grass, and Silver Carps in the United States*, ASIAN CARP WORKING GRP., 8, 29 (2007), <https://perma.cc/4MDT-UB2Q>.

in one day,¹⁶ which is significant because Asian carp can weigh up to one hundred pounds and grow up to three feet long.¹⁷ Because the fish primarily feed on plankton, they can impose catastrophic losses on food sources for native fish.¹⁸ The carp also raise significant safety and property damage concerns for recreators because of their trademark leaping ability, which is why many people refer to them as flying fish.¹⁹ Because Asian carp reproduce rapidly, they very quickly become the dominant species in ecosystems.²⁰ Many people fear that they will become a permanent species in the Great Lakes once they establish breeding populations.²¹ Despite many years of experience trying to deal with unwanted foreign species in the region, never before has there been so much fear and build-up to the imminent introduction of a species to the region.

Part I of this paper will define aquatic invasive species (AIS) and highlight three examples of AIS that have affected and continue to affect the Great Lakes. Part II will discuss key pieces of legislation that have been enacted in response to the issues posed by invasive species, as well as executive policy that has developed over time with the issuance of executive orders addressing invasive species. Part III explores multiple interstate agreements related to Great Lakes water quality and water usage, as well as committees formed to develop interstate and interagency management programs in the Great Lakes region. Part IV discusses the history of litigation involving the Great Lakes and the Chicago Area Water System (CAWS), the development of which linked the Great Lakes watershed with the Mississippi River drainage basin. Finally, Part V will provide an update about the current status of the plan to keep Asian carp out of the Great Lakes, which was the culmination of litigation between the Great Lakes states, the U.S. Army Corp of Engineers (USACE), and the Metropolitan Water Reclamation District of Greater Chicago (MWRD).

Aquatic Invasive Species (AIS): Definitions and Case Studies from the Great Lakes

There are presently more than 180 nonnative aquatic species in the Great Lakes, but luckily not all of these have established breeding populations and become invasive.²² In 1999, President Clinton issued Executive Order 13112, which defined invasive species as “alien species whose introduction does or is

16. Bonebrake, *supra* note 3, at 465.

17. Robin Kundis Craig, *Asian Carp and the Great Lakes: When Is Irreparable Harm “Likely” and “Imminent” Enough?*, 42 TRENDS 1, Mar.-Apr. 2011, at 1.

18. *Id.*

19. *Id.* at 14.

20. Bonebrake, *supra* note 3, at 463.

21. *Id.*

22. GREAT LAKES FISHERY COMMISSION, *supra* note 6, at *Invasive Species*.

likely to cause economic or environmental harm or harm to human health.”²³ President Obama amended this definition in 2016 to mean, “with regard to a particular ecosystem, a non-native organism whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health.”²⁴ Additionally, the National Invasive Species Act of 1996 defines an aquatic nuisance species (ANS) as “a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural or recreational activities dependent on such waters.”²⁵

The Asian carp certainly fits the mold of an invasive species and an ANS, making it an aquatic invasive species (AIS). The Great Lakes has had its share of issues related to AIS over the years, which has had a lasting impact on the region. Understanding and learning from this history of past AIS introductions is imperative when implementing successful management plans for any new AIS—such as Asian carp. What follows is a brief summary of some of the most notable AIS to affect the Great Lakes region and the efforts to manage them: zebra mussels, sea lamprey, and viral hemorrhagic septicemia (VHS).

Zebra Mussels

The zebra mussel (*Dreissena polymorpha*) is a freshwater bivalve native to the drainage basins of the Black, Caspian, and Aral Seas in Eastern Europe and Western Asia.²⁶ Cargo ships likely introduced zebra mussels to the Great Lakes from freshwater ballast discharge around 1985.²⁷ They spread throughout the Great Lakes by 1990.²⁸

Zebra mussels are filter feeders that primarily consume phytoplankton.²⁹ They attach themselves to and colonize water supply pipes of hydroelectrical and nuclear power plants, public water supply plants, and industrial facilities, constricting waterflows and causing multiple problems.³⁰ They also attach themselves to boats, fishing gear, navigational buoys, and docks, leading to corrosion and damage to structural integrity.³¹ They disrupt the ecosystems they

23. Exec. Order No. 13112, 64 Fed. Reg. 6183 (Feb. 3, 1999).

24. Exec. Order No. 13751, 81 Fed. Reg. 88609 (Dec. 5, 2016).

25. National Invasive Species Act of 1996 § 2; 16 U.S.C.A. § 4702 (West 2018).

26. Andrew Szocka, *The Impact of the Nonindigenous Zebra Mussel on the Great Lakes Region: An Ethical Analysis of Impacts and Control Strategies*, 4 U. BALT. J. ENVTL. L. 208, 208 (1994).

27. Szocka, *supra* note 26, at 209.

28. *Status and Strategy for Zebra and Quagga Mussel Management*, STATE OF MICHIGAN 5 (2014), <https://perma.cc/54M2-4A2W>.

29. *Status and Strategy for Zebra and Quagga Mussel Management*, STATE OF MICHIGAN 5 (2014), <https://perma.cc/54M2-4A2W> at 2.

30. *Id.* at 3.

31. *Id.* at 4.

invade in a number of ways, such as by removing particles from the water column and increasing the transparency of the water, affecting fish habitats and spawning and increasing water temperatures.³²

The zebra mussel prompted Congress to pass the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990 (*discussed more below*).³³ NANPCA deals with zebra mussels specifically, emphasizing management of ballast discharge and prevention of introduction.³⁴ The act estimated that the zebra mussel would cause \$5 billion of economic disruption by the year 2000.³⁵ Management and control efforts of zebra mussels are ongoing; however, the mussels are now a permanent member of the Great Lakes ecosystem.³⁶

Sea Lamprey

Sea lamprey (*Petromyzon marinus*) are parasitic fish native to the Atlantic Ocean.³⁷ They attach to fish with their suction cup mouth and feed on the fish's body fluids.³⁸ Interestingly, they developed in their native ocean habitat to feed on their hosts without killing them, thanks to coevolution.³⁹ However, this coevolution did not occur with host fish in the Great Lakes, such as lake trout, whitefish, sturgeon, and ciscoes, which often do not survive a lamprey's attachment.⁴⁰

Sea lamprey became widespread in the Great Lakes during the 1930s.⁴¹ Niagara Falls provided a natural barrier until the early 1900s, when improvements were made to the Welland Canal, giving the sea lamprey access to the Great Lakes that it successfully exploited.⁴² Prior to the lamprey's presence in the Great Lakes, the United States and Canada were recording 15 million pounds of annual fish harvests.⁴³ After its introduction, this number dropped to about 300,000 pounds annually by the 1960s.⁴⁴

32. *Id.*

33. Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990; 16 U.S.C. §§ 4701–4751 (1990).

34. 16 U.S.C. § 4701 (2020).

35. *Id.* at § 4701(a)(4).

36. Szocka, *supra* note 26, at 232.

37. GREAT LAKES FISHERIES COMMISSION, *supra* note 6.

38. *Id.*

39. *Id.*

40. *Id.*

41. GREAT LAKES FISHERIES COMMISSION, *supra* note 6.

42. *Id.*

43. *Id.*

44. *Id.*

Thankfully, the effects of sea lamprey have dramatically decreased because of successful control methods.⁴⁵ The Great Lakes Fisheries Commission, in partnership with U.S. Fish and Wildlife Service, Fisheries and Oceans Canada, and the U.S. Army Corps of Engineers, controls the lamprey population throughout the Great Lakes region.⁴⁶ The population is controlled through a system of lampricide application, barriers, traps, and pheromones.⁴⁷ These control measures have decreased the sea lamprey population by 90%, and without them the species would bounce back and wreak havoc throughout the region.⁴⁸

Viral Hemorrhagic Septicemia (VHS)

Viral hemorrhagic septicemia (VHS) is a deadly fish virus and the first virus to affect many different fish species from many fish families in the Great Lakes.⁴⁹ In 2005, scientists detected VHS in Great Lakes freshwater fish for the first time.⁵⁰ Twenty-eight species of Great Lakes fish are susceptible to VHS.⁵¹ Symptoms include hemorrhaging, bulging eyes, unusual behavior, anemia, bloated abdomens, and rapid onset of death.⁵² The virus spreads through urine, reproductive fluids, and when fish eat infected fish.⁵³ Infected fish develop antibodies that protect the fish from new infections; however, these levels of antibodies drop over time, causing the fish to release the virus back into the water.⁵⁴ The fear is that such re-releases may create a cycle of fish kills that occur on a regular basis.⁵⁵

With this much history and experience dealing with AIS, it is no wonder the Great Lakes states are so concerned about the impending introduction of Asian carp. State management plans have proven to be successful in some cases, and collaboration with federal agencies is imperative when dealing with such a large ecosystem like the Great Lakes.⁵⁶ The federal government recognizes the threats that invasive species pose to the nation and the next section will summarize

45. *Id.*

46. *Id.*

47. GREAT LAKES FISHERIES COMMISSION, *supra* note 6.

48. *Id.*

49. *Fishing Wisconsin: Viral Hemorrhagic Septicemia fish virus*, WISCONSIN DEPARTMENT OF NATURAL RESOURCES, (May 2, 2019), <https://perma.cc/67PA-EE7D>.

50. WIS. DEP'T OF NAT. RESOURCES, *supra* note 49.

51. *Id.*

52. *Id.*

53. *Id.*

54. WIS. DEP'T OF NAT. RESOURCES, *supra* note 49.

55. *Id.*

56. The Great Lakes Fisheries Commission has collaborated with the U.S. Fish and Wildlife Service, Fisheries and Oceans Canada, and the U.S. Army Corps of Engineers to maintain their successful sea lamprey management program for example.

legislative and executive actions taken in response to the issues that invasive species create.

Federal Legislative and Executive Action in Response to Invasive Species

The Lacey Act

Congress passed the Lacey Act in response to the rapid decline of the passenger pigeon and other native bird populations in 1900.⁵⁷ It acts as a federal support mechanism to help enforce state wildlife laws in the realm of interstate commerce.⁵⁸ The act makes it “unlawful for any person to import, export, transport, sell, receive, acquire, or purchase any fish or wildlife or plant taken, possessed, transported, or sold in violation of any law, treaty, or regulation of the United States or in violation of any Indian tribal law.”⁵⁹ Thus, the Lacey Act operates under a two-tiered system dependent on an underlying predicate law of federal, state, or tribal origin.⁶⁰

Another section of the Lacey Act contains a forbidden list of species, which the U.S. Fish and Wildlife Service (USFWS) assembles.⁶¹ These species can be imported only through a USFWS permitting process.⁶² The process of placing a species on this “dirty list” takes an average of over four years,⁶³ and in order for a species to be a candidate for listing, it has to have already done considerable damage.⁶⁴ For example, a variety of Asian carp, the bighead carp, became listed with passage of the Asian Carp Prevention and Control Act⁶⁵ in 2010, many years after it had posed a problem, and yet no other varieties of Asian carp have made the list.⁶⁶

In order for the Lacey Act to be enforceable, the underlying predicate law must be able to pass strict scrutiny under dormant Commerce Clause doctrine.⁶⁷

57. Laura T. Gorjanc, *Combating Harmful Invasive Species Under the Lacey Act: Removing the Dormant Commerce Clause Barrier to State and Federal Cooperation*, 16 *FORDHAM ENVTL. L. REV.* 111, 114 (2004).

58. *Id.* at 118.

59. 16 U.S.C.A. § 3372(a)(1) (West 2018).

60. Gorjanc, *supra* note 57, at 119.

61. 18 U.S.C.A. § 42(a)(1) (West 2018).

62. Jane Cynthia Graham, *Snakes on a Plain, or in a Wetland: Fighting Back Invasive Nonnative Animals-Proposing a Federal Comprehensive Invasive Nonnative Animal Species Statute*, 25 *TUL. ENVTL. L.J.* 19, 37 (2011).

63. *Id.* at 38.

64. Bonebrake, *supra* note 3, at 483.

65. Asian Carp Prevention and Control Act of 2010, 124 Stat 3282 (2010).

66. 18 U.S.C.A. § 42(a)(1) (West 2018).

67. Bonebrake, *supra* note 3, at 484–485.

The seminal case highlighting this connection with the dormant Commerce Clause is *Maine v. Taylor* where Maine had outlawed the importation of baitfish from out-of-state.⁶⁸ The defendant's defense was that the state law unconstitutionally burdened interstate commerce.⁶⁹ The U.S. Supreme Court noted that the law was discriminatory on its face, but that alone did not render the law unconstitutional.⁷⁰ The Court ultimately held that the ban served a "legitimate local purpose that could not adequately be served by available nondiscriminatory alternatives."⁷¹ The Court agreed with expert testimony that Maine's indigenous fish population would be placed at risk by parasites prevalent in out-of-state baitfish, which would disrupt Maine's aquatic ecology.⁷² Therefore, the Court considered the state's interest in protecting itself from invasive species a legitimate local purpose, but any law restricting the transportation of species across state lines will be subject to strict scrutiny.⁷³

The Lacey Act imposes penalties on individuals intentionally transporting prohibited species across state lines.⁷⁴ However, the act has no applicability to situations where potentially invasive species migrate into an ecosystem on their own volition. State and federal governments have recognized this shortcoming, which is why the Lacey Act is not the only piece of legislation addressing the AIS issue.

The Non-Indigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA)

Congress passed NANPCA in the wake of the discovery of the zebra mussel in the Great Lakes.⁷⁵ The act directly addresses zebra mussels and the Great Lakes, but it has broader applicability beyond that species and region.⁷⁶ Importantly, the act dealt with the prevention of unintentional introductions of nonindigenous aquatic species via ballast water discharge.⁷⁷ The act also created the Aquatic Nuisance Species Task Force.⁷⁸

USFWS and the National Oceanic and Atmospheric Administration (NOAA) co-chair the task force, which consists of seven representatives from

68. *Maine v. Taylor*, 477 U.S. 131, 132 (1986).

69. *Id.* at 133.

70. *Id.* at 137–38.

71. *Id.* at 151.

72. *Id.* at 141.

73. *Id.* at 148–52.

74. 16 U.S.C.A. § 3373 (West 2018).

75. Christopher Grubb, *Worthy of Their Name? Addressing Aquatic Nuisance Species with Common Law Public Nuisance Claims*, 87 CHI.-KENT L. REV. 237, 242 (2012).

76. 16 U.S.C.A. § 4701 (West 1996).

77. 16 U.S.C.A. §§ 4712–4714 (West 2018).

78. 16 U.S.C.A. § 4721(a) (West 1996).

various federal agencies and eight ex-officio members, including a representative from the Great Lakes Commission.⁷⁹ The task force coordinates governmental efforts related to nonindigenous aquatic species in the United States with those of the private sector and other North American interests.⁸⁰ The task force emphasizes prevention, detection and monitoring, and controls as its core elements, as well as research, education, and technical assistance for support.⁸¹

The act calls for regional coordination by encouraging the development of regional panels to identify priorities, coordinate with federal and other ongoing AIS activities in the region, and provide advice to public and private individuals regarding AIS control.⁸² The act also encourages international cooperation.⁸³ Additionally, it established the Great Lakes and Lake Champlain Invasive Species Program with the purpose to:

- (i) monitor for the introduction and spread of aquatic nuisance species;
- (ii) detect newly introduced aquatic nuisance species; (iii) inform, and assist with, management and response actions to prevent or stop the establishment or spread of an aquatic nuisance species; (iv) establish a watch list of candidate aquatic nuisance species that may be introduced or spread, and that may survive and establish; (v) monitor vectors likely to be contributing to the introduction or spread of aquatic nuisance species, including ballast water operations; (vi) work collaboratively with the Federal, State, local, and Tribal agencies; (vii) develop, achieve type approval for, and pilot shipboard or land-based ballast water management systems installed on, or available for use by, commercial vessels operating solely within the Great Lakes and Lake Champlain Systems; and (viii) facilitate meaningful Federal and State implementation of the regulatory framework in this subsection, including monitoring, shipboard education, inspection, and compliance conducted by States.⁸⁴

The act was an important step for federal management of AIS pertaining to unintentional introductions of species. However, with its emphasis on ballast water discharge, it again has limited applicability and would not apply to the Asian carp problem threatening the Great Lakes.

79. *ANS Task Force Members*, AQUATIC NUISANCE SPECIES TASK FORCE (May 2, 2019, 9:42 PM), <https://perma.cc/M6EY-8LNG>.

80. *Aquatic Nuisance Species Program*, AQUATIC NUISANCE SPECIES TASK FORCE (2014), <https://perma.cc/WU7V-EHBK>.

81. *Id.* at 2–3.

82. 16 U.S.C.A. § 4723 (West 1996).

83. 16 U.S.C.A. § 4723 (West 1996); 16 U.S.C.A. § 4726 (West 1996).

84. 16 U.S.C.A. § 4730(B) (West 2018).

The National Invasive Species Act of 1996 (NISA)

NISA reauthorized and amended NANPCA, but like NANPCA, it is limited to ballast water discharge.⁸⁵ Therefore, NISA is a bit of a misnomer because it applies only to aquatic nuisance species.⁸⁶ The law has no applicability to terrestrial or avian species.⁸⁷ Additionally, NISA is only voluntary and gives agencies too much discretion regarding enforcement, lacks meaningful substantive standards, and contains loopholes that render it ineffective in many circumstances.⁸⁸

Executive Orders

A few Presidents have taken the initiative to address the issue of invasive species on their own, addressing the nation and government agencies about the extent of the problem and how to respond to the issue.

Executive Order 11987

President Carter was the first president to directly address the issue of invasive species in an executive order in 1977.⁸⁹ The order, entitled *Exotic Organisms*, defined an “exotic species” as “all species of plants and animals not naturally occurring, either presently or historically, in any ecosystem of the United States.”⁹⁰ The order emphasized restricting intentional introduction of exotic species into ecosystems, as well as the exportation of native species to areas outside the United States where they do not naturally occur.⁹¹ However, the order did not provide much in terms of substance.⁹²

Executive Order 13112

In 1999, President Clinton improved upon President Carter’s effort by issuing Executive Order 13112.⁹³ The purpose of President Clinton’s order, entitled *Invasive Species*, was to “prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human

85. National Invasive Species Act of 1996, Pub.L. 104–332, 110 Stat. 4073 (1996).

86. Graham, *supra* note 62, at 44–45.

87. *Id.* at 46.

88. *Id.*

89. Exec. Order No. 11987, 42 Fed. Reg. 26949 (May 24, 1977).

90. *Id.* at § 1(c).

91. *Id.* at § 2.

92. Bonebrake, *supra* note 3, at 486.

93. Exec. Order No. 13112, 64 Fed. Reg. 6183 (Feb. 3, 1999).

health impacts that invasive species cause.”⁹⁴ This order defined “invasive species” as “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.”⁹⁵ The order used more scientific language than Executive Order 11987 and expanded the scope beyond intentional introductions of invasive species to policies emphasizing more sound ecological management on behalf of federal agencies.⁹⁶

The order also established the National Invasive Species Council (NISC).⁹⁷ The NISC was created to:

(a) oversee the implementation of [the] order and see that the federal agency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective; (b) encourage planning and action at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of [the] order; (c) develop recommendations for international cooperation in addressing invasive species; (d) develop, in consultation with the Council on Environmental Quality, guidance to Federal agencies pursuant to the National Environmental Policy Act on prevention and control of invasive species; (e) facilitate development of a coordinated network among Federal agencies to document, evaluate, and monitor impacts from invasive species on the economy, the environment, and human health; (f) facilitate establishment of a coordinated, up-to-date information-sharing system; and (g) prepare and issue a national Invasive Species Management Plan as set forth in section 5 of this order.⁹⁸

Although this order has more substance than its predecessor and took positive steps toward interagency collaboration to address the issue of invasive species, it struggled from lack of funding and shortage of staff support to successfully implement its goals.⁹⁹

Executive Order 13751

President Obama issued Executive Order 13751, entitled *Safeguarding the Nation From the Impacts of Invasive Species*, in 2016 to reauthorize and amend Executive Order 13112.¹⁰⁰ The order defines an “invasive species” as “with regard

94. *Id.*

95. *Id.* at § 1(f).

96. *Id.* at § 2.

97. *Id.* at § 3.

98. Exec. Order No. 13112, 64 Fed. Reg. 6183, § 4 (Feb. 3, 1999).

99. Bonebrake, *supra* note 3 at 487–488.

100. Exec. Order No. 13751, 81 Fed. Reg. 88609 (Dec. 5, 2016).

to a particular ecosystem, a nonnative organism whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health.”¹⁰¹ The order expanded the membership of the NISC, clarified its operation, and incorporated considerations for human and environmental health, climate change, technological innovation, and other emerging priorities into federal efforts to address invasive species.¹⁰² The order emphasizes technological innovation and climate change, and additionally calls for the NISC to “publish an assessment by 2020 that identifies the most pressing scientific, technical, and programmatic coordination challenges to the Federal Government’s capacity to prevent the introduction of invasive species, and that incorporate recommendations and priority actions to overcome these challenges into the National Invasive Species Council Management Plan.”¹⁰³

The various legislative acts outlined above were passed in response to specific invasive species problems that were prevalent at the time of passage. However, they do not adequately address the threat posed by Asian carp. The executive orders articulate executive policy and show how the government’s perception of invasive species has developed over time, but due to lack of funding and lack of ability to hold individual’s accountable, their efficacy as related to management of AIS is minimal. Therefore, more comprehensive legislation may be required to adequately address the threat posed by Asian carp to the Great Lakes region. Additionally, interstate agreements and management plans may be necessary to bolster any goals set forth in future legislation and executive policy directives.

Interstate Agreements, Commissions, and Committees Working in the Great Lakes

This section will provide some background on current interstate compacts and agreements in effect in the Great Lakes, while also providing some information about the various organizations involved. These interstate agreements and commissions may be essential to the success of any legislation or executive policy addressing Asian carp and other AIS. Additionally, interstate agreements related to Great Lakes water usage may provide a good model for structuring interstate AIS management and an interstate commission devoted to comprehensive AIS management could be created to address future management concerns.

101. *Id.* at § 1(e).

102. *Id.*

103. *Id.* at § 4(d).

Interstate Agreements

The Great Lakes-St. Lawrence River Basin Compact

The United States and Canada created the Great Lakes-St. Lawrence River Basin Compact under the Boundary Waters Treaty of 1909.¹⁰⁴ The two countries originally signed that treaty to ensure open navigability of transboundary waters and to ensure each country's right to the use of such waters.¹⁰⁵ President George W. Bush signed the compact into law in 2008, which acknowledges congressional approval of an interstate water resources agreement between the states of the Great Lakes region.¹⁰⁶ The Compact created The Great Lakes-St. Lawrence River Basin Water Resources Council, consisting of the governors of the member states, to act as an agency of instrumentality for the state governments.¹⁰⁷

The parties to the agreement found they have "a shared duty to protect, conserve, restore, improve and manage the renewable but finite Waters of the Basin for the use, benefit and enjoyment of all their citizens, including generations yet to come."¹⁰⁸ The purposes of the compact provide that the parties will:

- (a) act together to protect, conserve, restore, improve and effectively manage the Waters and Water Dependent Natural Resources of the Basin; (b) remove causes of present and future controversies; (c) provide for cooperative planning and action by the Parties with respect to such Water resources; (d) facilitate consistent approaches to Water management across the Basin while retaining State management authority over Water management decisions within the Basin; (e) facilitate the exchange of data; (f) prevent significant adverse impacts of Withdrawals and losses on the Basin's ecosystems and watersheds; (g) promote interstate and State-Provincial comity; and (h) promote an Adaptive Management approach to the conservation and management of Basin Water resources.¹⁰⁹

The compact primarily deals with water quality and water resource allocations among the Great Lakes states and does not directly contemplate AIS. However, it has produced some promising subsequent documents that do directly address AIS.

104. The Boundary Waters Treaty, U.S.-G.B., Jan. 11, 1909, T.S. No. 548.

105. *Id.*

106. Great Lakes-St. Lawrence River Basin Compact, PL 110-342, 122 Stat 3739 (2008).

107. *Id.* at Art. 2, §§ 2.1-2.2.

108. *Id.* at § 1.3.1(f).

109. The Boundary Waters Treaty, *supra* note 104.

The Great Lakes Water Quality Agreement

The Great Lakes Water Quality Agreement is an agreement between the United States and Canadian governments for the purpose of restoring and maintaining the chemical, physical, and biological integrity of the Waters of the Great Lakes.¹¹⁰ The original agreement went into effect in 1978 and was updated in 2012.¹¹¹ The agreement acts as a recognition between the two countries of the importance of the water quality and overall health of the Great Lakes region.

The agreement has incorporated several Annexes, and Annex 6 addresses AIS.¹¹² It calls for the countries to establish a binational strategy to prevent the introduction of AIS, to control or reduce the spread of existing AIS, and to eradicate existing AIS in the Great Lakes Ecosystem.¹¹³ The agreement represents a positive effort for effective communication and collaboration between the two countries.

Commissions and Committees

The International Joint Commission

The United States and Canada formed the International Joint Commission (IJC) under the Boundary Waters Treaty of 1909.¹¹⁴ The IJC has two main responsibilities: (1) approving projects that affect water levels and flows across the boundary; and (2) investigating transboundary issues and recommending solutions.¹¹⁵ The IJC has the authority to issue orders of approval for projects, such as dams, diversions or bridges, that would affect water levels and recommends solutions to transboundary issues between the national governments.¹¹⁶ The IJC acknowledges that “[a]lthough IJC reference recommendations are not binding, they are usually accepted by the Canadian and United States governments.”¹¹⁷ The IJC has not issued any recommendations regarding AIS because its primary objective is related water levels and flows. However, it may be asked to do so if any proposed AIS management solutions may impact water levels or flows in the Great Lakes.

110. Great Lakes Water Quality Agreement, 5 (2012), <https://perma.cc/TCE9-DT4N>.

111. *Id.* at 1.

112. *Id.* at 44.

113. *Id.*

114. The Boundary Waters Treaty, *supra* note 104, at Art. II

115. *Role of the IJC*, INT'L JOINT COMMISSION (May 2, 2019), <https://perma.cc/D7PQ-CBJG>.

116. *Id.*

117. *Id.*

The Great Lakes Commission

The Great Lakes Basin Compact of 1955 established the Great Lakes Commission (GLC).¹¹⁸ Congress consented to the compact in 1968¹¹⁹ and it essentially outlines the purposes and duties of the Great Lakes Commission.¹²⁰ As stated above, the GLC has members who serve on the Aquatic Nuisance Species Task Force formed under NANPCA and has a broader mission “to promote economic prosperity and environmental protection and to achieve the balanced and sustainable use of Great Lakes-St. Lawrence River basin water resources.”¹²¹ The GLC recognizes AIS as one of the most significant threats to the ecological and economic health of the Great Lakes region.¹²² It oversees multiple projects devoted to AIS prevention and control, such as an innovative software development project that detects the sale and purchase of AIS on the internet that pose a risk to the Great Lakes.¹²³

The Great Lakes Fishery Commission

The 1954 Convention on Great Lakes Fisheries established the Great Lakes Fishery Commission (GLFC).¹²⁴ The GLFC is a bi-national joint commission with representatives from the United States and Canada working together to improve and perpetuate the fishery through cooperative efforts.¹²⁵ Article IV of the 1954 charges the commission with five major duties:

- (a) to develop a binational research program aimed at sustaining Great Lakes fish stocks;
- (b) to coordinate or conduct research consistent with that program;
- (c) to recommend measures to governments that protect and improve the fishery;
- (d) to formulate and implement a comprehensive sea lamprey control program;
- and (e) to publish or authorize publication of scientific and other information critical to sustaining the fishery.¹²⁶

118. *Great Lakes Basin Compact*, GREAT LAKES COMMISSION (1955), <https://perma.cc/RRY3-MCEP>.

119. Great Lakes Basin Compact of 1955, PL 90-419, July 24, 1968, 82 Stat. 414 (1968).

120. GREAT LAKES COMMISSION, *supra* note 5.

121. *Id.*

122. *Id.*

123. GREAT LAKES COMMISSION, *supra* note 5.

124. *Convention on Great Lakes Fisheries Between The United States and Canada*, GREAT LAKES FISHERY COMMISSION (1954), <https://perma.cc/K7MF-B3NK>.

125. GREAT LAKES FISHERY COMMISSION, *supra* note 6.

126. *Convention on Great Lakes Fisheries*, *supra* note 124.

The work that the GLFC does regarding AIS is notable because it is the entity in charge of the successful sea lamprey management program.¹²⁷ In fact, the devastating effect of sea lampreys on the Great Lakes led the two countries coming together to create the GLFC.¹²⁸ The GLFC website provides copious amounts of research and documentation of its efforts,¹²⁹ and the GLFC itself sets a good example of successful collaboration toward a common goal for both countries.

The GLFC believes that the United States' and Canada's ballast regulations should be harmonized, should apply nationally, and should apply to foreign as well as domestic ships.¹³⁰ Additionally, the GLFC believes that separation of the Mississippi River and Great Lakes basins through their artificial connection at Chicago is critical for AIS management.¹³¹

The Asian Carp Regional Coordinating Committee

International, federal, state and municipal agencies specifically dealing with the spread of Asian carp into the Great Lakes established the Asian Carp Regional Coordinating Committee (ACRCC) in 2010.¹³² The committee initially came together in 2009 after scientists discovered Asian carp eDNA (environmental DNA, or residual DNA left in the environment by a species)¹³³ in the Chicago Area Water System and has been working to prevent Asian carp introduction ever since.¹³⁴

The committee consists of the U.S. Army Corps of Engineers (USACE), U.S. Coast Guard, U.S. Department of Transportation, White House Council on Environmental Quality, Great Lakes Fishery Commission, the City of Chicago, and departments of natural resources of the Great Lakes states.¹³⁵ The ACRCC's main objectives are to:

- (a) promote collection of biological information on Asian carp, their impacts, preferred habitats, and biological and ecological requirements;
- (b) identify additional research, technology, and data needed to effectively inform and support Asian carp management strategies; (c)

127. GREAT LAKES FISHERY COMMISSION, *supra* note 6.

128. *Id.*

129. *Id.*

130. GREAT LAKES FISHERY COMMISSION, *supra* note 6.

131. *Id.*

132. *About the Asian Carp Regional Coordinating Committee*, ASIAN CARP REGIONAL COORDINATING COMMITTEE (May 2, 2019), <https://perma.cc/G2RX-AS7E>.

133. ASIAN CARP REGIONAL COORDINATING COMMITTEE, *supra* note 132.

134. *Id.*

135. Jessica A. Lordi, *Environmental Organizations Working with Respect to Aquatic Nuisance Species in the Great Lakes Area*, 19 OCEAN & COASTAL L.J. 93, 111 (2013), <https://perma.cc/6GSY-7VTU>.

support development of technologies and methods that will result in the control and management of Asian carp; and the transferability of these new tools for use in the control of other invasive species, where possible; (d) encourage the exchange of information between member agencies and stakeholders, and seek opportunities to transfer and further leverage control technologies developed as part of the Action Plan to other areas of the United States and Canada. Work under this objective by the ACRCC fulfills the coordination and notification requirements of the United States-Canada Great Lakes Water Quality Agreement; (e) coordinate implementation and evaluate the effectiveness of collaborative Asian carp assessment, prevention and control measures, as described in the Action Plan.¹³⁶

ACRCC coordinates implementation of the Asian Carp National Management and Control Plan,¹³⁷ Asian Carp Action Plan,¹³⁸ and the Great Lakes Asian Carp Monitoring and Response Plan.¹³⁹ The ACRCC website¹⁴⁰ is the best source for current information related to the status and efforts of Asian carp management in the United States.

The entities listed above are representative of the overall effort to work cooperatively to manage and control Great Lakes AIS effectively. However, a comprehensive overarching federal agency may streamline the efforts of these groups more effectively.¹⁴¹ Agency priorities, funding, and gaps and loopholes in various regulatory efforts frustrate the overall effectiveness of AIS management in the Great Lakes.¹⁴² Whether or not Asian carp successfully migrate and establish themselves in the Great Lakes system may be a signifier of how necessary an overarching federal agency may be in light of all of the ongoing efforts to prevent migration and establishment from happening.

136. *Id.*

137. ASIAN CARP WORKING GROUP, *supra* note 15.

138. *Asian Carp Action Plan*, ASIAN CARP REGIONAL COORDINATING COMMITTEE (2018), <https://perma.cc/3GTF-GJQH>.

139. *Action Plans and Reports*, *supra* note 132.

140. ASIAN CARP REGIONAL COORDINATING COMMITTEE, *supra* note 138.

141. Lordi, *supra* note 135, at 114–115.

142. *Id.*

The Chicago Area Water System and Its Rich History of Public Nuisance Litigation

The Chicago Area Water System (CAWS) is the only navigable link between two of the largest freshwater drainage basins in the world, the Great Lakes and the Mississippi River.¹⁴³ It is also the potential pathway through which Asian carp migrating through the Mississippi River may enter the Great Lakes system.¹⁴⁴

The CAWS is a segment of the Illinois waterway that the USACE maintains.¹⁴⁵ It consists of a network of canals and locks created at the turn of the 20th century for commercial navigational purposes.¹⁴⁶ With their construction, the “flows of the Chicago River and the Calumet River were permanently reversed away from Lake Michigan and toward the Mississippi River drainage basin through structural modifications and pumping.”¹⁴⁷ This reversal prevented sewage contamination of Chicago’s drinking water supply which is taken from Lake Michigan.¹⁴⁸

This decision proved beneficial for the City of Chicago in many regards. Not only is it important for commercial shipping and sewage treatment, but it has become a popular destination for city residents to go kayaking, canoeing, boating and jet and water skiing.¹⁴⁹ Additionally, numerous residential, retail and restaurant developments exist along the banks of the CAWS.¹⁵⁰ Nevertheless, the controversial water system has been the subject of numerous, sometimes landmark, court decisions involving public nuisance claims brought by multiple Great Lakes states against the State of Illinois.

The Restatement (Second) of Torts § 821B defines public nuisance as “an unreasonable interference with a right common to the general public.”¹⁵¹ A public right is one common to all members of the general public.¹⁵² Interference with a public right is unreasonable where: (a) the conduct involves a significant interference with the public health, the public safety, the public peace, the public comfort or the public convenience, or (b) [where] the conduct is proscribed by a statute, ordinance or administrative regulation, or (c) [where] conduct is of a

143. *Asian Carp and the Great Lakes Region*, CRS REPORT, 11 (2017), <https://perma.cc/28SQ-CR4H>.

144. *Id.*

145. *Id.*

146. *Id.*

147. *Id.*

148. *Id.*

149. ENVTL. PROTECTION AGENCY, *EPA in Illinois* (May 2, 2019), <https://perma.cc/8CTR-T3UU>.

150. *Id.*

151. Restatement (Second) of Torts § 821B(1) (1979).

152. Restatement (Second) of Torts § 821B cmt. g (1979).

continuing nature or has produced a permanent or long-lasting effect, and, as the actor knows or has reason to know, has a significant effect upon the public right.¹⁵³

Missouri v. Illinois (1906)

Missouri v. Illinois is a landmark public nuisance doctrine case covered in most environmental law courses.¹⁵⁴ Missouri filed the initial complaint in 1901.¹⁵⁵ When Chicago reversed the flow of the Chicago River to deal with contamination of its drinking water from sewage, Missouri took exception and filed a complaint against Illinois, alleging public nuisance.¹⁵⁶ Illinois filed for demurrer; however, the U.S. Supreme Court allowed the complaint to proceed and requested the State of Illinois to respond, which led to the 1906 decision.¹⁵⁷

Justice Holmes delivered the opinion of the Court and stated that Missouri's case depended on two points. "First, that typhoid fever has increased considerably since the change, and that other explanations have been disproved; and second, that the bacillus of typhoid can and does survive the journey and reach the intake of St. Louis in the Mississippi."¹⁵⁸ The case was dealing with the frontiers of science at the time and the Court noted that "if this suit had been brought fifty years ago it almost necessarily would have failed . . . [and it] depends upon an inference of the unseen."¹⁵⁹

The case became a battle of the experts for both sides in disagreement about whether or not the bacteria could survive the journey and be responsible for an alleged increase in deaths from typhoid in St. Louis.¹⁶⁰ In the end, the Court held that Missouri had not sufficiently proven that Chicago's sewage was the cause of the typhoid complained of and ruled in favor of Illinois.¹⁶¹ However, the Court did provide its thoughts about the fact that Chicago does not exist within the Mississippi watershed:

Some stress was laid on the proposition that Chicago is not on the natural watershed of the Mississippi . . . *We perceive no reason for distinction on this ground. The natural features relied upon are of the smallest.* And if, under any circumstances, they could affect the case,

153. *Id.*

154. *See Missouri v. Illinois*, 180 U.S. 208 (1901); *see also Georgia v. Tenn. Copper Co.*, 206 U.S. 230 (1907) (explaining the relationship between public nuisance and environmental law).

155. *Missouri*, 180 U.S. at 208.

156. *Id.* at 212–216.

157. *Id.* at 248–249.

158. *Missouri v. Illinois*, 200 U.S. 496, 522–523 (1906).

159. *Id.*

160. *Missouri v. Illinois*, 200 U.S. 496, 522–523 (1906).

161. *Id.*

it is enough to say that Illinois brought Chicago into the Mississippi watershed in pursuance, not only of its own statutes, but also of the acts of Congress . . . the validity of which is not disputed. Of course these acts do not grant the right to discharge sewage, but the case stands no differently in point of law from a suit because of the discharge from Peoria into the Illinois, or from any other or all the other cities on the banks of that stream.¹⁶²

This excerpt from the opinion provides a glimpse into the justification for future U.S. Supreme Court holdings regarding public nuisance claims involving the CAWS. The Court did not view Illinois as imposing itself on the Mississippi watershed by bringing Chicago into it as a public nuisance, in part because Congress had authorized the connection.¹⁶³ Although *Missouri v. Illinois* was decided on other grounds, the Courts position on this matter has not changed much more than a century later.

Wisconsin v. Illinois (1980)

In 1929, Wisconsin, Minnesota, Michigan, Ohio, Pennsylvania, and New York all filed for injunctive relief against Illinois and the Sanitary District of Chicago to stop the withdrawal of 8,500 cubic feet of water a second from Lake Michigan via the CAWS.¹⁶⁴ The states complained that the diversion of water had dropped the levels of the Great Lakes and the St. Lawrence River by six inches and was done without congressional authority.¹⁶⁵ Missouri, Kentucky, Tennessee, Louisiana, Mississippi and Arkansas all intervened as defendants to support Illinois thanks to the improved navigation of the Mississippi river aiding commerce in the Mississippi Valley.¹⁶⁶ Illinois' purpose for maintaining the water diversions was in the interest of sanitation, considering the amount of sewage being created by Chicago.¹⁶⁷ This complaint and the positions taken by the various states involved set in motion fifty years of litigation concerning the amount of water being diverted from the Great Lakes by Illinois.

Justice Holmes summed the situation up when he stated:

[T]he defendants are doing a wrong to the complainants and . . . they must stop it. They must find out a way at their peril. We have only to consider what is possible if the State of Illinois devotes all its powers to dealing with an exigency to the magnitude of which it seems not yet

162. *Id.* (emphasis added).

163. *Id.*

164. *Wisconsin v. Illinois*, 278 U.S. 367, 399 (1929).

165. *Id.* at 400.

166. *Wisconsin v. Illinois*, 278 U.S. 367, 401 (1929).

167. *Id.* at 401–05.

to have fully awaked. It can base no defenses upon difficulties that it has itself created. If its Constitution stands in the way of prompt action it must amend it or yield to an authority that is paramount to the State.¹⁶⁸

It was determined that the diversion was illegal, but in the interest of sanitation and public health the “restoration of the just rights of the complainants was made gradual rather than immediate” to avoid the problems of immediately shutting down the sanitation system.¹⁶⁹ The Court laid out a system of gradually decreasing the amount water being diverted to be an annual average of no more than 6,500 cubic feet per second (c.f.s.) in 1930, 5,000 c.f.s. by 1935, and 1,500 c.f.s. by 1938.¹⁷⁰

Illinois and the Chicago Sanitation District failed to raise the finances required to construct improvement that were required in order to meet these goals.¹⁷¹ However, the two defendants convinced the Court that there was a more economical solution to the construction and design of the project and that they would still be able to meet the goal set for 1938.¹⁷² It was not until 1967 that it was decided that Illinois would be allowed an annual diversion averaging 3,200 c.f.s. that it had to meet by 1970.¹⁷³ This number considered all of the state’s requirements for Great Lakes water beyond needs for just sanitation.¹⁷⁴ This amount was amended in 1980 to consider variations from year to year over a forty-year period, with the ultimate goal of maintaining the 3,200 c.f.s annual diversion.¹⁷⁵ The complications involved with this issue, spanning a fifty-year period worth of litigation, paved the way for interstate agreements to manage water allocations in the Great Lakes.¹⁷⁶

Milwaukee v. Illinois and Michigan (1981)

The *Milwaukee v. Illinois* decisions, otherwise known as *Milwaukee I* and *Milwaukee II*, do not directly involve the CAWS. However, because of their importance in subsequent litigation involving the CAWS and Asian carp—as well as the case’s geographic proximity and parties involved—they are included here.

168. *Wisconsin v. Illinois*, 281 U.S. 179, 197 (1930).

169. *Id.* at 196.

170. *Id.* at 201.

171. *Wisconsin v. Illinois*, 289 U.S. 395, 399 (1933).

172. *Id.* at 408–411.

173. *Wisconsin v. Illinois*, 388 U.S. 426, 427–431 (1967).

174. *Id.* at 427.

175. *Wisconsin v. Illinois*, 449 U.S. 48 (1980).

176. Noah D. Hall, *Toward A New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405, 419 (2006).

In 1972, Illinois filed a public nuisance claim against the City of Milwaukee and four other Wisconsin cities, as well as the Sewerage Commission of the City of Milwaukee and the Metropolitan Sewerage Commission of the County of Milwaukee, for discharging inadequately treated sewage into Lake Michigan.¹⁷⁷ Illinois attempted to invoke the U.S. Supreme Court's original jurisdiction as a matter between two states.¹⁷⁸ However, after a discussion of jurisdiction and the existence of federal common law nuisance doctrine, the Court dismissed the claim, encouraging Illinois to file its claim in the appropriate district court.¹⁷⁹

The case made its way back to the Supreme Court in 1981.¹⁸⁰ By this time, Congress had enacted the Federal Water Pollution Control Act Amendments of 1972, otherwise known as the Clean Water Act (CWA).¹⁸¹ The CWA established a new system of regulation that required a permit for anyone discharging pollutants into the Nations' waters.¹⁸² Permits can be granted by a qualifying state agency and the Wisconsin Department of Natural Resources filed an enforcement action in state court after Milwaukee's discharges were not in compliance with its permit.¹⁸³ This was the new regulatory regime and federal common law could not be used to impose more stringent effluent standards than those set forth under the CWA.¹⁸⁴

The U.S. Supreme Court determined that the federal government had "occupied the field through the establishment of a comprehensive regulatory program supervised by an expert administrative agency"¹⁸⁵ and "Congress' intent . . . was clearly to establish an all-encompassing program of water pollution regulation."¹⁸⁶ It stated that "[t]he establishment of such a self-consciously comprehensive program by Congress, which certainly did not exist when *Illinois v. Milwaukee (Milwaukee I)* was decided, strongly suggests that there is no room for courts to attempt to improve on that program with federal common law."¹⁸⁷ In doing so, the U.S. Supreme Court identified and articulated when federal common law will be effectively displaced by federal regulation.

Michigan v. Army Corps of Engineers (2014)

This section outlines the series of cases involving the most recent chapter of litigation involving Illinois, the CAWS and the Great Lakes states. However, in

177. *Illinois v. City of Milwaukee*, 406 U.S. 91, 93 (1972).

178. *Id.* at 93–98.

179. *Id.* at 108.

180. *City of Milwaukee v. Illinois*, 451 U.S. 304 (1981).

181. *Id.* at 310.

182. *Id.*

183. *Id.* at 311.

184. *Id.* at 320.

185. *Illinois*, 451 U.S. at 317.

186. *Id.* at 318.

187. *Id.* at 319.

contrast to previous litigation involving the diversion of water from the Great Lakes for the needs of the city of Chicago, this line of cases involves the looming threat of what may be allowed into the Great Lakes—Asian carp.

Asian Carp I – The Initial Complaint

On July 19, 2010, the states of Michigan, Wisconsin, Minnesota, Ohio, and Pennsylvania filed a complaint in the U.S. District Court for the Northern District of Illinois against the U.S. Army Corps of Engineers (USACE) and the Metropolitan Water Reclamation District of Greater Chicago (MWRD), the original entity established by Illinois to reverse the flow of the Chicago river to send wastewater downstream.¹⁸⁸ The complaint was filed in the wake of the discovery of a live Asian carp found beyond the electric barriers designed to block their passage.¹⁸⁹ The plaintiffs sought a preliminary and permanent injunction to prevent the emigration of Asian carp through the CAWS into Lake Michigan.¹⁹⁰ The plaintiffs offered a number of measures for doing so, while also requesting the court to “enter an injunction requiring the Corps to expedite the preparation of a feasibility study which develops and evaluates options for the permanent physical separation of the CAWS from Lake Michigan . . . and to order Defendants to implement, as soon as possible, permanent measures to physically separate Illinois waters from Lake Michigan.”¹⁹¹

The court determined that the plaintiffs did not meet the high burden for issuance of a mandatory preliminary injunction because they did not show a sufficient likelihood of success on the merits or a sufficient prospect of irreparable harm absent the requested injunction.¹⁹² The court pointed out that USACE is statutorily mandated to operate the Chicago Sanitary and Ship Canal (CSSC) to sustain navigation from Chicago Harbor on Lake Michigan to Lockport on the Des Plaines River.¹⁹³ It also noted the importance of the locks involved for flood control purposes and water diversion.¹⁹⁴ The court went on to summarize the efforts of the ACRCC and various federal agencies to prevent the introduction of Asian carp to the Great Lakes, as well as describing the electric barriers that had been in place.¹⁹⁵

At the time, Congress proposed legislation to amend the Water Resources Development Act of 2007 to require the Corps’ long-term feasibility study to

188. Metropolitan Water Reclamation District of Greater Chicago, *The District to the MWRD: A history of protecting our water environment* (May 2, 2019), perma.cc/G2RX-AS7E.

189. Michigan v. U.S. Army Corps of Eng’rs, No. 10-CV-4457, 2010 WL 5018559, *1 (N.D. Ill. Dec. 2, 2010) [hereinafter *U.S. Army Corps of Eng’rs*].

190. *Id.*

191. *U.S. Army Corps of Eng’rs* at 2.

192. *Id.*

193. *Id.* at 3.

194. *Id.*

195. *Id.* at 4–5.

include a “fully developed analysis of an alternative for hydrologic separation between the Great Lakes and the Mississippi River basins.”¹⁹⁶ Additionally, the proposed Permanent Prevention of Asian Carp Act of 2010¹⁹⁷ would have required the Corps to “study the feasibility and best means of implementing the hydrological separation of the Great Lakes and Mississippi River basins” and prepare a final report within eighteen months.¹⁹⁸ USACE had also begun the Great Lakes and Mississippi River Inter-Basin Study (GLMRIS) at this time to figure out how to prevent transfers of AIS between the Mississippi River basin and the Great Lakes basin.¹⁹⁹

The plaintiffs based their claims on the Administrative Procedure Act (APA)²⁰⁰ and public nuisance.²⁰¹ The court dismissed the APA claim because there simply was not enough evidence to show that USACE had been arbitrary and capricious in its decision making or operation of the barriers, locks, and dams—after all, there was only one fish discovered and traces of eDNA, which the Court did not find persuasive enough to rule in the plaintiff states’ favor.²⁰² On the second claim regarding public nuisance, the defendants argued that the Federal Tort Claims Act (FTCA) limits recovery against the United States to monetary damages, and, therefore, they were immune from the requested injunction in this case.²⁰³ However, the court found the plaintiffs’ argument that §702 of the APA waived sovereign immunity in public nuisance claims persuasive enough (just) to continue with the analysis of their claim.²⁰⁴

The court addressed the defendants’ argument that a number of statutes displaced the plaintiffs’ public nuisance claim. However, the statutes cited did not “approach the level of comprehensiveness, specificity, and all-inclusiveness found by the Supreme Court to have displaced the common law nuisance action” as it did in *Milwaukee v. Illinois and Michigan*.²⁰⁵ On the merits of their public nuisance claim, the court determined that the evidence did not support the existence of “an actual, ongoing injury or imminent threat of injury to the water and aquatic resources of Lake Michigan and the other Great Lakes” or any unreasonable nuisance in maintaining and operating the CAWS.²⁰⁶

196. *Id.* at 6.

197. *U.S. Army Corps of Eng’rs*.

198. *Id.*

199. *Michigan v. U.S. Army Corps of Eng’rs (Asian Carp I)*, 2010 WL 5018559 at *11.

200. Admin. Proc. Act, 5 U.S.C.A. §§ 551–559, 701–706, 1305, 3105, 3344, 4301, 5335, 5372, 7521 (West 2018).

201. *Michigan v. U.S. Army Corps of Eng’rs (Asian Carp I)*, 2010 WL 5018559 at *14 [hereinafter *U.S. Army Corps Asian Carp I*].

202. *U.S. Army Corps Asian Carp I* at 16.

203. *Id.*

204. *Id.* at 18.

205. *Id.* at 20.

206. *Id.* at 21.

In sum, the Court found the balance of harms did not weigh in the plaintiffs' favor, they only had a modest likelihood of success on the merits, and the threat of harm simply was not imminent enough to warrant injunctive relief.²⁰⁷ The Court made a point to recognize that the “*potential* harm in a worst-case scenario is great;” however, the high burden for injunctive relief had not been met.²⁰⁸

Asian Carp II – On Appeal to the U.S. Court of Appeals for the Seventh Circuit

The plaintiff states filed their appeal in the Court of Appeals for the Seventh Circuit, which affirmed the lower court's decision, finding no abuse of discretion.²⁰⁹ However, the Seventh Circuit's analysis differed in many respects from the district court's decision.²¹⁰ It found that “the plaintiffs presented enough evidence at this preliminary stage of the case to establish a good or perhaps even a substantial likelihood of harm . . . that the carp will invade Lake Michigan in numbers great enough to constitute a public nuisance.”²¹¹ Nevertheless, the Seventh Circuit reasoned that an injunction at this stage would only get in the way of promising ongoing regulatory efforts on behalf of the various federal agencies involved.²¹²

The court made note of the defendants' claim that they are not emitting “traditional pollutants” but simply operating the facilities of the CAWS and the invasive fish already living in the waters involved may move on their own.²¹³ It stated that although the defendants might not be physically picking fish up and moving them from one place to another, that fact does not mean that their normal operation of the CAWS cannot cause a nuisance.²¹⁴ “While it may be true that the introduction of an invasive species of fish into a new ecosystem does not fit the concept of nuisance as neatly as a spill of toxic chemicals into a stream, we do not think the Supreme Court has limited the concept of public nuisance as much as the defendants suggest.”²¹⁵

Addressing the defendants' claim for immunity under the FTCA, the Seventh Circuit noted that “the FTCA does not apply to *any* federal common-law tort claim, no matter what relief is sought . . . state tort law—not federal law—is the source

207. *U.S. Army Corps Asian Carp I*.

208. *Id.*

209. *Michigan v. Army Corps of Eng'rs (Asian Carp II)*, 667 F. 3d 765, 800 (7th Cir. 2011).

210. *Id.* at 769.

211. *Michigan v. Army Corps of Eng'rs (Asian Carp II)*, 667 F. 3d 765 (2011).

212. *Id.*

213. *Id.* at 771.

214. *Id.*

215. *Id.*

of substantive liability under the FTCA.”²¹⁶ Therefore, because the plaintiff states based their tort claim entirely on federal common law, the FTCA had no application in this regard and the defendants are subject to the claims for declaratory and injunctive relief.²¹⁷ Additionally, the Court of Appeals agreed with the lower court’s displacement analysis, similarly holding that the defendants were subject to the plaintiffs’ public nuisance claim because Congress had not passed any substantive statute speaking directly to the interstate nuisance of AIS.²¹⁸

Speaking to the merits of the case, the Seventh Circuit highlighted the difference between preliminary relief and permanent relief.²¹⁹ As a result of the preliminary posture of the case, the plaintiffs “were not required to prove that they will ultimately win on the merits in order to secure preliminary relief,” but only a likelihood of success.²²⁰ The plaintiffs only needed a claim plausible enough that the entry of a preliminary injunction would be an appropriate step, because preliminary injunctions maintain the status quo until the merits at issue are resolved at trial.²²¹ Additionally, based on developments since the district court’s opinion, the Seventh Circuit found it difficult to believe that the Asian carp would have a hard time establishing itself in the Great Lakes.²²² It concluded that, “[g]iven the magnitude of the harm, we are inclined to give the benefit of the doubt to the states on the question whether they have shown enough of a risk of nuisance to satisfy the likelihood-of-success requirement at this preliminary stage.”²²³

However, in balancing the harms to the respective parties, the court found the pendulum to swing in favor of the defendants.²²⁴ In light of the regulatory and control efforts in place, the Seventh Circuit feared “an injunction operating at cross-purposes with their efforts or imposing needless transactional costs that divert scarce resources from science to bureaucracy,” adding that the courts are not suited to solve the problem at hand.²²⁵ It made a point of emphasizing that it takes the threat of the Asian carp invasion “very seriously” and suggested that the balance of equities would shift in favor of the plaintiffs if the federal government’s efforts stalled and were unable to continue for any reason.²²⁶

216. *Id.* at 776.

217. *Michigan v. Army Corps of Eng’rs (Asian Carp II)*, 667 F. 3d 776 (2011).

218. *Id.* at 780.

219. *Id.* at 782.

220. *Michigan v. Army Corps of Eng’rs (Asian Carp II)*, 667 F. 3d 776 (2011).

221. *Id.* at 783.

222. *Id.* at 785.

223. *Id.*

224. *Id.* at 790.

225. *Id.*

226. *Id.* at 800.

Asian Carp III – On Remand in District Court

In 2012, USACE and MWRD filed a motion to dismiss the plaintiff states' lawsuit for failing to state a claim.²²⁷ The district court determined that the plaintiffs' claim hinged on "whether harms arising from actions or omissions that are required by a federal statute can constitute a public nuisance."²²⁸ It found that the statutorily mandated actions could not be a public nuisance.²²⁹ The court urged the plaintiffs to go through the legislative process to achieve their goals and dismissed their claim.²³⁰ However, the court also granted plaintiffs leave to amend their complaint because "Congress has not occupied the field of environmental management of invasive species generally, or of the Asian carp specifically, so completely as to have displaced the common law."²³¹

The court explained that the plaintiffs "did not allege any specific failures by the defendants to take lawful actions that have caused or will cause a public nuisance."²³² It suggested that the complaint could be amended by alleging USACE's failure to take steps to prevent the Asian carp introduction into the Great Lakes—that offered alternatives to full hydrological separation of the two water systems—would be a possible correction.²³³ These alternatives would help avoid the issue that USACE is mandated to operate the CAWS in a way that allows for navigability by the Rivers and Harbors Act,²³⁴ a goal that Congress expressly spoke to in the Energy and Water Development Appropriations Act of 1982²³⁵ and a Supplemental Appropriations Act²³⁶ in 1983. However, the court remained skeptical and stated, "the plaintiffs 'must come to grips' with the fact that this Court cannot order the defendants to do what Congress has barred them from doing."²³⁷

Asian Carp IV – Final Decision of the Seventh Circuit

The plaintiff states filed their appeal of this final judgment to the Seventh Circuit, which ultimately agreed with the district court's decision to dismiss the

227. Michigan v. U.S. Army Corps of Eng'rs (Asian Carp III), 911 F. Supp.2d 739, 743 (N.D. Ill. 2012).

228. *Id.*

229. *Id.*

230. Michigan v. U.S. Army Corps of Eng'rs (Asian Carp III), 911 F.Supp.2d 744 (2012).

231. *Id.* at 744.

232. *Id.* at 761.

233. *Id.*

234. River and Harbors Act, 33 U.S.C.A. § 401 (West 2018).

235. Energy and Water Development Appropriations Act of 1982, Pub. L. 97–88, 95 Stat. 1135, 1137 (1982).

236. Supplemental Appropriations Act of 1983, Pub. L. 98–63, 97 Stat. 301, 309 (1983).

237. Asian Carp III, 911 F.3d at 762.

claim, but pointed out that its analysis differed significantly.²³⁸ Particularly, the Seventh Circuit did not agree with the “district court’s conclusion that the Corps and the District are “authorized” to operate a navigable waterway no matter what the environmental cost, nor that any such authorization would relieve them of the duty to try to stop the spread of the Asian carp.”²³⁹

The Seventh Circuit pointed to two events that changed the case since the last appeal.²⁴⁰ First, Congress enacted the Progress in the 21st Century Act²⁴¹ in 2012, which required the Corps to expedite completion of the GLMRIS Report originally ordered in the Water Resources Development Act of 2007.²⁴² The Progress Act additionally directed the Corps to address the possibility of hydrological separation and to proceed with engineering designs if warranted.²⁴³ Second, the Corps completed the GLMRIS Report²⁴⁴ and outlined eight alternative plans without endorsing any of them.²⁴⁵ The Seventh Circuit highlighted that the estimate for lakefront hydrological separation would be \$18.389 billion.²⁴⁶

The court went on to discuss at length that “none of the statutes . . . mentioned *requires* the Corps to keep the CAWS open for navigation at all times and under all circumstances.”²⁴⁷ It viewed congressional intent as implying that “the Corps must try to facilitate navigation . . . that is all.”²⁴⁸ Nevertheless, the court found that the Corps was exercising its due diligence to come up with a solution to the matter, as shown by the GLMRIS report, and did not want to interfere with the ongoing process of finding that solution.²⁴⁹ It pointed out that the Corps was not required to promote one of the alternatives presented in the GLMRIS Report, but the Corps may be exposed to a future APA claim if no action was taken and the Asian carp do successfully make their way into the Great Lakes.²⁵⁰

With a lack of statutory and regulatory assurances given by federal laws lacking in comprehensiveness to manage AIS, particularly as related to the pending threat posed by Asian carp, the Great Lakes states correctly determined that the

238. Michigan v. Army Corps of Eng’rs (Asian Carp IV), 7588 F. 3d 892, 895 (7th Cir. 2014).

239. *Id.*

240. Michigan v. Army Corps of Eng’rs (Asian Carp IV), 7588 F. 3d 898 (2014).

241. Progress in the 21st Century Act of 2012, Pub.L. No. 112–141, 126 Stat. 405 (2012).

242. Asian Carp IV, 758 F. 3d at 898.

243. *Id.*

244. U.S. Army Corps of Eng’rs, *Great Lakes and Mississippi River Interbasin Study Report* (2014), <https://perma.cc/2N58-ZFGN>.

245. Asian Carp IV at 898–99.

246. *Id.* at 899.

247. *Id.* at 903.

248. *Id.*

249. *Id.* at 905.

250. *Id.* at 907.

most immediate remedy had to be in Court. The states relied on a federal common law public nuisance claim to convince the Court that immediate action was necessary, and changes needed to be made where the Mississippi River Basin meets the Great Lakes – the Chicago Area Water System (CAWS).

The Brandon Road Project and Where Things Currently Stand

After the conclusion of litigation, the Corps went on to recommend one of the proposed alternatives featured in the GLMRIS Report. Specifically, it recommended a Technology Alternative as opposed to complete hydrological separation.²⁵¹ The Corps proposed constructing an acoustic fish deterrent with electric barrier at the Brandon Road Lock and Dam, which is located south of the confluence of the Des Plaines River and the Chicago Sanitary and Ship Canal (CSSC).²⁵² The GLMRIS Report identified this as site the only single location that can block upstream transfer of Mississippi River species through all CAWS pathways.²⁵³

The proposed barrier would include: (1) an acoustic fish deterrent to generate underwater sound to deter ANS fish species from entering the Brandon Road Lock approach channel; (2) an electric dispersal barrier to create an electric field that repels and stuns fish; (3) an engineered concrete channel to increase the effectiveness of ANS controls, reduce control impacts and serves as a platform to test and add new technologies in the future; (4) a flushing lock to remove floating Mississippi River Basin ANS from the lock; and (5) an air bubble curtain designed to remove small and stunned fish that may become entrained in recesses of barges.²⁵⁴ This plan was discussed at four public meetings that took place in 2017.²⁵⁵ Additionally, public comments were accepted from August 7, 2017 to December 8 2017, which were largely in support of the proposed project.²⁵⁶

Public support for the project is one thing, but financial support and political commitment to follow through with the project has been difficult to come by. The cost of the project was initially estimated at \$275 million, but that price was increased to \$778 million.²⁵⁷ Illinois was skeptical of the price increase, because as the project's non-state sponsor required to fund 35% of the project, this would

251. U.S. ARMY CORPS OF ENG'RS – ROCK ISLAND DISTRICT, *GLMRIS – Brandon Road*, (May 3, 2019), <https://perma.cc/7VG9-V93A>.

252. U.S. ARMY CORPS OF ENG'RS – ROCK ISLAND DISTRICT, *supra* note 252.

253. *Id.*

254. *Id.*

255. *Id.* at *Public Meetings*.

256. *Id.* at *Public Comments*.

257. U.S. ARMY CORPS OF ENG'RS, *GLMRIS - Brandon Road Final Integrated Feasibility Study and Environmental Impact Statement*, 459 (2018), <https://perma.cc/T6F5-9RYL>.

increase the amount Illinois would have to pay by \$176 million.²⁵⁸ The state scoffed at an \$8 million contribution offered by the former governor of Michigan, Rick Snyder, in December 2018.²⁵⁹ However, Illinois recently elected a new governor, J.B. Pritzker, who has stated that he supports the project, although he also has concerns about the cost.²⁶⁰ If the project gets approval with financial support, the Corps predicts that the Brandon Road Project would be completed by 2028.²⁶¹

Conclusion

The federal court refuses to act on the Asian carp issue on grounds that it is better left to the states in dispute, Congress, and relevant federal agencies. However, the federal court's position inevitably prolongs the problem of inaction. Massive engineering projects take a long time to develop, let alone get the approval and financial backing required to get them off the ground. The supposed solution to preventing Asian carp from entering and establishing themselves into the Great Lakes, nearly twenty years after the eDNA testing showed Asian carp may have already breached the barriers that were in place at the time, remain the only line of defense until the Brandon Road Project comes to fruition. A line of defense that would take nearly an additional ten years to complete if construction began today.

The delays in implementing possible management solutions exist to the detriment of the Great Lakes ecosystem and the communities that depend on its health and integrity. The history of AIS introductions to the Great Lakes highlights the need for a solution to address this perennial problem proactively, rather than waiting for harm to occur before any actions are taken. Attempting to create retroactive solutions only ensures management of permanent non-native populations, rather than preventing their introduction, which should be the ultimate goal of any invasive species management program.

One way to fix this would be to pass overarching comprehensive legislation to address the threats posed by invasive species, while at the same time creating a federal agency specifically tasked with implementing the goals of the legislation. This would better serve issues related to agency priorities that do not put invasive species management first and accountability. The current gaps left behind, from a fragmented statutory regime that addresses invasive species problems only after the harm has already been created, opens windows of opportunity for new invasive species to exploit. Until there exists a proactive regulatory scheme, states and private parties will continue to rely on the court system to issue injunctions related

258. Melissa Nann Burke, *Army Corps hikes cost to \$778M for project to combat Asian carp*, DETROIT NEWS (Nov. 21, 2018), <https://perma.cc/4QKF-YN64>.

259. Melissa Nann Burke, *Illinois governor signals support for project to block Asian carp*, DETROIT NEWS (Mar. 5, 2019), <https://perma.cc/4QKF-YN64>.

260. *Id.*

261. Gary Wilson, *Advocate: Getting "great signals" from the Pritzker administration*, GREAT LAKES NOW (Mar. 18, 2019), <https://perma.cc/MWQ6-AZX4>.

to public nuisance, when the court itself has acknowledged that this is an area better suited for the political process and congressional action.

Another solution specifically addressing the introduction of AIS to the Great Lakes is the hydrological separation of the Mississippi River basin from the Great Lakes basin. The number of times states from the Great Lakes have been in court arguing about issues created by the CAWS points to this inevitable re-separation. However, this solution is arguably impractical and infeasible because of the amount of money it would cost to make happen and the economic effects of closing the CAWS in relation to commercial shipping. Nevertheless, without a demonstrably successful alternative, states will continue to argue against the threats posed to the Great Lakes because of the existence of the CAWS. Therefore, Illinois and Congress should approve the funding for the Brandon Road Project to address the current Asian carp issue and representatives should begin working on comprehensive legislation to address invasive species management proactively. Hopefully, this will help address future invasive species issues before they create similar or even larger problems moving forward.
