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Gone Fishing: Angling for an Answer to Asian Carp Migration After the Seventh Circuit's Refusal to Allow Hydrological Separation

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Gone Fishing: Angling for an Answer to Asian Carp Migration After the Seventh Circuit's Refusal to Allow Hydrological Separation.

MATTHEW A. KRATKY*

Asian carp are the latest addition to an extensive list of invasive species that pollutes American waterways. But unlike other prominent invasive species, Asian carp were intentionally brought into the United States to control algae growth in Southern aquaculture ponds. Torrential flooding provided an avenue for these fish to escape into the Mississippi River, and since then, the Asian Carp have migrated northward into the Illinois River and the Chicago Area Waterway System. Along the way, their incessant hunger and prolific breeding habits have enabled Asian carp to monopolize food sources to the detriment of native fish populations. Asian carp have now reached the doorsteps of Lake Michigan, and while methods such as electric fences and the application of poison have temporarily kept the fish out of Lake Michigan, the expense and unreliable nature of these measures will prevent their prolonged success. Once Asian carp breach Lake Michigan, these fish will have a limitless conduit to enter the rest of the Great Lakes.

*This Comment discusses the judicial and legislative actions taken in response to the looming threat Asian carp pose to the Great Lakes. Specifically, this Comment addresses how the recent or proposed actions taken to stop the Asian carp migration are either infeasible or ineffective. This Comment argues that the most advocated solution, hydrological separation, which involves permanently separating Lake Michigan from the Chicago Area Waterway System and the Chicago Sanitary and Ship Canal, would impose too great a burden on commercial navigability to be a viable option. Despite the Seventh Circuit's refusal to grant a permanent injunction requiring hydrological separation in *Michigan v. U.S. Army Corps of Engineers*, state and federal agencies tasked with devising solutions to keep Asian carp out of the Great Lakes remain fixated on hydrological separation. Furthermore, this Comment will argue that besides from being impractical, hydrological separation conflicts with the U.S. Army Corps of Engineers' statutory duties to maintain navigable waterways, and without*

* Juris Doctor Candidate, May 2016, and Research Editor of the Northern Illinois University Law Review. I would like to dedicate this article to my mother and father for their perpetual support and encouragement. I would also like to thank the entire Northern Illinois University Law Review for their diligent efforts and methodical review.

legislative action, these waterways cannot be separated. This Comment argues that the recently enacted Asian Carp Prevention and Control Act, as is, fails to either prevent or control Asian carp from infesting Lake Michigan. This Comment then proposes adopting a program currently used to combat another invasive species, the pike minnow, in which fishermen are nominally paid for catching and removing Asian carp before they have an opportunity to enter Lake Michigan.

I.	INTRODUCTION.....	178
II.	HISTORY AND BACKGROUND.....	180
	A. FEEDING HABITS.....	181
	B. SPAWNING HABITS.....	182
	C. ECONOMIC MENACES.....	182
III.	CURRENT PROPOSAL.....	186
IV.	RECENT LITIGATION.....	187
	A. ASIAN CARP I.....	189
	B. ASIAN CARP II.....	190
V.	INVASIVE SPECIES LEGISLATION.....	191
	A. THE ASIAN CARP PREVENTION AND CONTROL ACT....	194
VI.	ANALYSIS.....	197
	A. IMPACT ON NAVIGABILITY AND COMMERCE.....	197
	B. IMPACT ON WATER QUALITY.....	198
	C. STATUTORY BARRICADE TO HYDROLOGICAL SEPARATION.....	200
VII.	PROPOSED ACTION.....	202
	A. THE OREGON MODEL.....	203
	B. APPLICATION TO ASIAN CARP.....	204
VIII.	CONCLUSION.....	206

I. INTRODUCTION

Invasive species in the Great Lakes are not a new revelation. In fact, the Great Lakes can appropriately be deemed “ground zero” for aquatic invasive species, with more than 185 non-native species residing in the lakes.¹ However, the current invasive species in the Great Lakes pale in comparison to the latest threat knocking on the lakes’ door—the Asian carp. Asian carp is a catch-all term used to characterize four subspecies of carp:

1. Michael J. Hansen, Chair, *The Asian Carp Threat to the Great Lakes*, GREAT LAKES FISHERY COMM’N (Feb. 9, 2010), perma.cc/SF8Q-WJEE (describing the Great Lakes as an open door to invasive species, and estimating that a new non-native species penetrates the ecosystem every nine to twelve months) [hereinafter Hansen].

bighead, silver, black, and grass carp.² Particularly troublesome is the fact that experts stress that neither science nor money will prevent Asian carp from migrating into the Great Lakes.³ Unlike past invasive species, Asian carp and humans have a greater degree of interaction as the carp frequently collide with boaters, often causing serious injuries.⁴ Their feeding habits allow the fish to outgrow native fish species, and their spawning behavior enables Asian carp to overrun any ecosystem.⁵ As globalization took hold, an increase in pathways to facilitate global commerce provided Asian carp with a plethora of avenues to move closer to the Great Lakes.⁶ “Once the carp reach one of the [Great] Lakes, they have reached all of them.”⁷ Believing that Asian carp are on the brink of, or perhaps already have breached the Great Lakes, the five states bordering the Great Lakes along with an Indian Tribe requested the Seventh Circuit to issue an injunction to ensure the non-native fish do not penetrate the Great Lakes.⁸ Regardless of the remedial measures taken, geography and the global transportation of goods indicates that invasive species, and specifically the Asian carp, are not a regional problem, but rather a national problem.⁹

Asian carp’s propensity to spread to other ecosystems requires any response to be “large in scope” and based on the assumption that the fish will continue to multiply and impregnate new ecosystems.¹⁰ The purpose of this Comment is to provide a comprehensive analysis of the measures taken to stem the tide of the Asian carp migration while arguing that separating the Great Lakes and Mississippi River basins ignores the aforementioned assumption. I will argue in support of the Seventh Circuit’s refusal to issue the states a permanent injunction requiring hydrological separation and advocate for an additional measure as we patiently wait for a more enduring solution. Part II will address the history of the Asian carp odyssey and explain why this foreign species presents a much greater problem than past invasive species. Part III discusses hydrological separation while arguing that competing interests such as navigability and commerce renders this proposal unfeasible. Part IV will discuss the recent litigation and how the

2. Mark Guarino, *Asian Carp: How One Fish Could Ruin the Great Lakes*, CHRISTIAN SCI. MONITOR (Mar. 16, 2010), perma.cc/49FL-XBKW.

3. Margaret E. Vroman, *The Asian Carp: An Imminent Threat to the Great Lakes?*, 90 MICH. B. J., 25, 26 (May 2011) [hereinafter Vroman].

4. *Id.*

5. *See id.*

6. Hansen, *supra* note 1, at 2.

7. *Michigan v. U.S. Army Corps of Eng’rs*, 758 F.3d 892, 894 (7th Cir. 2014) (stating that due to the Ice Age and man-made canals to enhance shipping between the Great Lakes, Asian carp have a myriad of ways to infiltrate the Great Lakes).

8. *Id.*

9. *See* Hansen, *supra* note 1, at 2.

10. *Id.*

rulings affect remedial efforts moving forward. Part V explains the legislative response to Asian carp, and will be analyzed according to legislation passed prior to 2010 and that passed since 2010. Finally, Part VI will argue for implementing a new proposal under the authority of the Asian Carp Prevention and Control Act.

II. HISTORY AND BACKGROUND OF ASIAN CARP

As the name suggests, Asian carp hail from Asia.¹¹ Unlike other foreign species, and perhaps most depressing, Asian carp were brought into the United States *intentionally*.¹² Asian carp were introduced into the United States in the 1970's when southern aquaculturists brought the fish from overseas to alleviate unwanted algae growth in fish-breeding ponds.¹³ Chronic flooding throughout the 1980's and 1990's washed the carp out of the contained ponds and into nearby tributaries.¹⁴ The carp quickly adapted to their new environment and migrated northward through the Mississippi and Illinois Rivers.¹⁵ As the waters receded after the massive floods, the United States received its first warning as to the severity of the Asian carp invasion.¹⁶ The river's receding shores were littered with dead fish specimens, and Asian carp outnumbered native fish species by a factor of nine to one.¹⁷

Since the late 1990's, scientists and biologists of the United States Fish and Wildlife Service have been warning about the spreading Asian carp populations.¹⁸ Such warnings went by virtually unheard, but had the government acted on these concerns, the Asian carp problem would be non-existent.¹⁹ Asian carp continued to migrate, and as of 2011, more than one-third of the central states had Asian carp populations.²⁰ The invasive species can be found from Louisiana to Minnesota, and have made their way into

11. *Asian Carp Overview*, NAT'L PARK SERV., perma.cc/9UA3-R8D3 (last visited Sept. 28, 2014).

12. See Vroman, *supra* note 3 (emphasis added).

13. E.g., *Asian Carp Study*, U.S. FISH AND WILDLIFE SERV., perma.cc/HJ9W-EKR4 (last visited Oct. 2, 2014); see also *Asian Carp Species*, U.S. ENVTL. PROTECTION AGENCY (2010), <http://yosemite.epa.gov/110/ECOCOMM.NSF/Invasive+Species/Asian-Carp>.

14. Hansen, *supra* note 1, at 2.

15. *Id.*

16. *Brief History of Asian Carp in North America and Related Initiatives in Canada* (May 2010), perma.cc/G92T-LEGN (illustrates the Asian carp migration by tracking the fish decade- by- decade).

17. *Id.*

18. Justin Bonebrake, Comment, *Carpe Lacum: Asian Carp and the Great Lakes*, 24 COLO. NAT. RES., ENERGY & ENVTL. L. REV. 459, 462 (2013).

19. *Id.*

20. *Id.*

the Pacific Northwest.²¹ Specimens of bighead carp have been collected in over twenty-six states and silver carp specimens have been found in sixteen states.²² Since escaping their confines in the Deep South, Asian carp have become one of the most prevalent and costly non-native species to invade the United States.²³

A. FEEDING HABITS

Asian carp have appropriately been characterized as “eating machines” and the “locusts of rivers.”²⁴ These fish are filter feeders,²⁵ and this allows Asian carp to consume between twenty and forty percent of their body weight every day.²⁶ Asian carp have a diverse diet, regularly eating anything from native mussels to fish eggs.²⁷ However, Asian carp’s preferred food is plankton, which consists of algae and microscopic organisms that create the building blocks for the diets of all native aquatic species.²⁸ Because Asian carp voraciously consume plankton, native populations of salmon, trout, bass, and bluegill have suffered, as they cannot locate enough food to survive.²⁹ Such indiscriminate feeding habits enable Asian carp to grow absurdly large very quickly.³⁰ Not only do Asian carp eat more than native populations, but they outgrow any freshwater species. Bighead carp can grow to more than five feet in length and weigh close to 110 pounds.³¹ Because of their ability to consume pounds of food quickly, Asian carp’s size and power allows the fish to outcompete native fish for the ideal feed-

21. See Tina Lam, *The Truth About Asian Carp*, DET. FREE PRESS (July 17, 2011) <http://www.freep.com/article/20110717/NEWS06/307170001>.

22. *Id.*

23. *Id.*

24. See Vroman, *supra* note 3 (quoting Walsh, *Asian Carp in the Great Lakes? This Means War!* (Feb. 9, 2010), <http://content.time.com/time/health/article/0,8599,1962108,00.html>.)

25. Hansen, *supra* note 1, at 3.

26. See *Asian Carp Overview*, *supra* note 11.

27. Guarino, *supra* note 2.

28. Hansen, *supra* note 1, at 3. Asian carp’s propensity to eat large amounts of plankton was the reason they were imported and used in the aquaculture industry. *Id.* Asian carp eliminated the unwanted algae growth that accumulated when plankton levels were high. *Id.*

29. See Vroman, *supra* note 3, at 2.

30. See, e.g., Hansen, *supra* note 1, at 3.

31. Although the bighead carp is the largest, the other species of Asian carp also grow very large. Silver carp can reach thirty-nine inches and weight upwards of sixty pounds. Grass carp can reach a maximum of fifty-nine inches and weigh close to one hundred pounds. Black carp peak at forty-eight inches and approximately seventy pounds. The average size of Asian carp ranges from twenty to forty pounds. *Asian Carp: Huge Fish with Huge Impacts*, U.S. FISH & WILDLIFE SERV. (Oct. 2, 2014), perma.cc/NWU9-XPPF.

ing grounds.³² Quite literally, they are the biggest fish in the pond. With no known predators big enough to affect them, Asian carp continue to dominate the United States' waterways at the expense of native fish populations.³³

B. SPAWNING HABITS

Asian carp possess two key characteristics of a successful invasive species: they constantly eat and they reproduce rapidly.³⁴ A female Asian carp can carry more than one million eggs in a lifetime,³⁵ and multiple times a year, the female will lay hundreds of thousands of eggs at once.³⁶ Just as the floods facilitated Asian carp to plague nearby rivers and tributaries, the floods would enable the fish to sustain a breeding population that traveled to distant waterways.³⁷ The floods created the ideal spawning habitats as the high water levels produced an endless amount of deep, fast moving tributaries.³⁸ This ideal breeding environment "nearly guaranteed [a] high survival rates for offspring."³⁹ Thus, the population of Asian carp swelled as the desired rearing habitats and lack of natural predators allowed the fish to thrive and expand.⁴⁰ Such prolific breeding enabled Asian carp to become the dominant aquatic species in the Illinois, Mississippi, and Missouri Rivers in a few decades.⁴¹

C. ECONOMIC MENACES

Asian carp are quickly becoming an economic nuisance in addition to being an ecological menace. As Asian carp migrated up the Mississippi River, commercial and recreational fisherman became acclimated with the seriousness of the non-native species.⁴² In fall of 1999, a fish kill near St. Louis revealed that Asian carp accounted for ninety-seven percent of the biomass.⁴³ This shows how dominant Asian carp can become once they infest a waterway and establish a breeding population. Commercial fisher-

32. Guarino, *supra* note 2, at 2.

33. *See id.*

34. *Id.*

35. *Id.*

36. *Asian Carp Overview*, *supra* note 11, at 462.

37. *See Bonebrake*, *supra* note 18, at 462.

38. *Id.*

39. *Id.*

40. *See Vroman*, *supra* note 3, at 25

41. *Id.*

42. *See Hansen*, *supra* note 1, at 2.

43. *Id.* (In just three years, commercial harvest of bighead carp increased from five and a half tons in 1994 to over fifty-five tons caught in 1997.).

men on the Illinois River have had to abandon their fishing hotspots because when they try to retrieve their nets, they are littered with Asian carp to the point where the nets cannot be lifted from the water.⁴⁴ “A half an acre can often yield thousands of pounds of Asian carp . . . , an astonishing amount of fish and an indicator of just how much of total fish biomass Asian carp can represent.”⁴⁵

Besides afflicting commercial fisheries, Asian carp taunt leisure aquatic motorists.⁴⁶ Specifically, the silver carp possesses a telltale trait that earned them the moniker “flying fish.”⁴⁷ Vibrations from nearby boat motors startle the fish, causing the whole school to jump more than ten feet out of the water.⁴⁸ Biologist Duane Chapman of the United States Geological Survey, who works closely with the Asian carp, described their behavior:

You may imagine it would be quite novel for a 20-pound fish to jump into your boat, but being hit by a large Asian carp would be similar to being hit in the head with a bowling ball. . . . Even if the fish don’t hit you, they can break fishing rods, windshields, electronics, or anything else in your boat. As if adding insult, the carp will leave slime, blood, and excrement on everything it touches.⁴⁹

As the largest freshwater bodies in the United States, the Great Lakes are extremely valuable.⁵⁰ The Great Lakes’ fishing industry is massive, being valued at more than \$7 billion annually.⁵¹ Several species native to the Great Lakes and relied upon by local fishermen would be in jeopardy if

44. *See id.*

45. *Id.* (citations omitted). Today, commercial fisheries along the Illinois River are swarmed with Asian carp. The fishermen regularly catch upwards of 25,000 pounds of big-head and silver carp *per day*. *Id.* Not only do the carp force fishermen to find new fishing grounds, but attempting to find a place to fish without Asian carp has proved to be a hassle.

46. Hansen, *supra* note 1, at 2.

47. *Id.* at 3.

48. *Id.* Operating boats and jet skis has become hazardous on certain rivers. Broken bones and concussions have become a common occurrence along the Mississippi, Missouri, and Illinois Rivers. In 2004, a woman nearly died while jet skiing on the Illinois River after being knocked unconscious into the water. *See also Asian Carp: Huge Fish with Huge Impacts*, U.S. FISH & WILDLIFE SERV. (Oct. 2, 2014), perma.cc/NWU9-XPPF.

49. Duane Chapman, *Carp Lemonade: Making the Best out of Some Bigheaded Invaders*, MO. CONSERVATIONIST (July 20, 2004), perma.cc/7YS4-VN7X.

50. *See* Hansen, *supra* note 1.

51. Eugene H. Buck et al., CONG. RESEARCH SERV., R41082, ASIAN CARP AND THE GREAT LAKES REGION (2012) [hereinafter Buck] (In 2006, Great Lakes fisheries employed more than 58,000 jobs. Fishermen spent more than \$1.2 billion to fish the Great Lakes and spent another \$1.3 billion on fishing equipment.).

Asian carp arrived.⁵² Estimating Asian carp's impact on the Great Lakes is troublesome since each lake has its own diverse and unique ecosystem, but that does not mean the impact will not be drastic.⁵³ Some detractors view the carp's imminent siege as an opportunity for a new emerging market for local fisheries.⁵⁴ However, current commercial value for Asian carp is extremely low, and the carp are significantly less valuable and marketable than the native fish they harm.⁵⁵ Although accurate predictions about the Great Lakes' impending doom are speculative, the ravaged rivers and streams feeding the Great Lakes provide a fairly clear indicator.⁵⁶ The Great Lakes Fishery Commission has grown concerned with uncoordinated efforts and proposals, and urged Congress that the explicit end goal must be ecological separation as opposed to "maintaining the status quo."⁵⁷ However, ecological separation can only be achieved through permanent blockades along the Chicago Area Waterway System (CAWS).⁵⁸ Such a blockade would cause a slew of problems including impeding commerce and reversing the flow of the CAWS, which would lead to Chicago land sewage flowing into neighboring states.⁵⁹ Until a viable proposal receives authorization through the legislative process, the Great Lakes are operating on borrowed time.⁶⁰

Asian carp have many avenues into the Great Lakes,⁶¹ but none are more prevalent as the Chicago Area Waterway System.⁶² The CAWS serves as the sole navigational link between the two largest freshwater basins in the world—the Great Lakes and the Mississippi River.⁶³ With the completion of the Chicago Sanitary and Ship Canal (CSSC) in 1900, these two grand

52. *Id.* Commercial and recreational fishermen count on salmon, perch, trout, wall-eye, and other species to make a living.

53. *See id.*

54. *See id.*

55. *Id.*

56. *See* Hansen, *supra* note 1, at 7. Increased concern about how to prevent Asian carp from entering the Great Lakes System has been fueled by observations from the Mississippi and Illinois Rivers' large-scale ecosystem disruption, loss of once viable commercial fisheries, and human harm.

57. *See id.* at 6.

58. Buck, *supra* note 51, at 6-8.

59. *Asian Carp and the Great Lakes: Hrg. Before the Subcomm. on Water Res. and Env't of the Comm. on Transp. and Infrastructure*, 111th Cong. 69 (2010) (statement by Cameron Davis, Senior Advisor to the Adm'r of the U.S. Env'tl. Prot. Agency) (discussing how closing the CAWS would cause lost jobs, and would effectively be swapping one harm for another).

60. *See* Hansen, *supra* note 1, at 6; Buck, *supra* note 51, at 6-10.

61. *Asian Carp and the Great Lakes: Hrg. Before the Subcomm. on Water Res. and Env't of the Comm. on Transp. and Infrastructure*, 111th Cong. 193 (2010) (testimony of Henry L. Henderson, Dir. of the Midwest Program Nat'l. Res. Def. Council).

62. Buck, *supra* note 51.

63. *Id.*

drainage basins have been permanently connected.⁶⁴ The CAWS was originally constructed to facilitate Chicago's ability to dispose of and dilute wastewater without discharging all sewage into Lake Michigan.⁶⁵ Once heralded as a modern marvel of engineering,⁶⁶ the CAWS has become a haven for nonindigenous aquatic species.⁶⁷ The CAWS includes modified rivers, channels, creeks, locks, and other structures that control the flow of water throughout the region.⁶⁸ Such a diverse and complete waterway system allowed for the successful diversion of wastewater,⁶⁹ but at the expense of providing invasive species with a limitless labyrinth of highways to spread throughout the country.⁷⁰ Aside from introducing Asian carp to American waterways, society has played a large role in making the CAWS habitable for the Asian carp.⁷¹ Simply put, the maintenance of the CAWS became an environmentally good deed that went wrong.⁷² Traditionally, the sewage-filled CAWS was uninhabitable because low oxygen levels could not sustain aquatic species like Asian carp.⁷³ Unfortunately, successful environmental efforts to increase water quality on the CAWS in the past few decades opened the door for aquatic invasive species.⁷⁴ Once the oxygen levels recovered, the CAWS became ground zero for invasive species, and culminated into an ideal environment for foraging species like the Asian carp.⁷⁵

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

65. *Id.* To achieve sewage drainage, the CAWS reversed the flow of the North and South parts of the Chicago and Calumet Rivers away from Lake Michigan and diverted the water towards the Mississippi River.

66. *See Permanent Prevention of Asian Carp in the Great Lakes: Hrg. Before the Subcomm. on Water Res. and Env't of the Comm. on Transp. and Infrastructure*, 111th Cong. 58-69 (2010) (testimony of Joel Brammeier, President and CEO, Alliance for the Great Lakes).

67. *See, e.g.,* Buck et al., CONG. RESEARCH SERV., R41082, ASIAN CARP AND THE GREAT LAKES REGION 11-12 (2012).

68. *See id.*

69. *See id.*

70. *See Asian Carp and the Great Lakes: Hrg. Before the U.S. H. of Rep. Comm. on Transp. and Infrastructure, Subcomm. on Water Res. and Env't*, 111th Cong. 112-13 (2010) (testimony of Dr. David M. Lodge, Dir., Ctr. for Aquatic Conservation) (discussing and comparing Asian carp to another invasive species, the zebra mussel, who used the CAWS to infiltrate Lake Michigan) [hereinafter Lodge].

71. *S. Hrg. 111-386: Asian Carp, Hrg. Before the Sub. Comm. on Water and Power of the Comm. on Energy and Nat. Res.*, 111th Cong. 6-8 (2010) (testimony of Leon Carl, Midwest Area Reg'l Exec., United States Geological Survey, Dept. of the Interior).

72. *Id.*

73. *Id.*

74. *Id.*

75. *Id.*

III. CURRENT PROPOSAL

The CAWS represents a problematic and formidable defense against controlling the Asian carp migration. As part of the 327 mile Illinois Waterway Channel, the CAWS receives and deposits its water and ecosystem into numerous rivers.⁷⁶ The Des Plaines and Calumet Rivers, along with the Illinois and Michigan Canal and the Calumet Sag Canal, have created a melting pot ecosystem that permits the Asian carp to vastly expand its territory.⁷⁷ Generally, the U.S. Army Corps of Engineers are charged with a statutory duty to maintain the CAWS for navigation.⁷⁸ However, the ability to implement a plan to halt the Asian carp advance has proved to be futile.⁷⁹ Any management plan must conform to other agencies that have authority to regulate the CAWS such as the Fish and Wildlife Service, the Environmental Protection Agency, and the U.S. Coast Guard.⁸⁰ So far, the Army Corps and related government entities have failed to apply a meaningful response that balances the need to maintain navigable commerce with the desire to prevent another invasive species disaster.⁸¹ Until such a balanced approach is achieved, Asian carp will continue to flow alongside commercial barges as commerce is transported throughout the CAWS region.⁸²

Thus far, the competing interests have prevented the adoption of a uniform game plan. Federal and state agencies have issued both long and short-term goals, but have not decided the order or timing on implementing any remedial measures.⁸³ However, since 2003, the most advocated position by scientist and government officials has been ecological or hydrological separation.⁸⁴ Permanently separating the Great Lakes from the Mississippi

76. See Buck et al., CONG. RESEARCH SERV., R41082, ASIAN CARP AND THE GREAT LAKES REGION (2012).

77. See *id.* Additionally, these major rivers or channels host a large amount of interconnected streams and tributaries that constantly evolve based on erosion and climate change.

78. See *Michigan*, 2010 WL 5018559 at *3; Water Resources and Development Act of 1986, Pub. L. No. 99-662, § 1135, 100 Stat. 4082, 4082-85 (codified as amended at 33 U.S.C. § 2201 et. seq. (2002)); District of Columbia Appropriations Act of 2005, Pub. L. No. 108-335, 118 Stat. 1326 § 345 (authorizing \$9 million to fund an electrical barrier that would maintain navigability).

79. See Buck, *supra* note 51.

80. *Id.*

81. See *id.*

82. See *id.*

83. S. Hrg. 111-386: *Asian Carp*, Hrg. Before the Subcomm. on Water and Power of the Comm. on Energy and Nat. Res., 111th Cong. 28-30 (2010) (testimony of Ken Debeaussaert, Dir., Mich. Off. Of the Great Lakes, Dep't of Nat. Res. and Env't).

84. *Asian Carp and the Great Lakes*: Hrg. Before the Subcomm. on Water Res. and Env't of the Comm. on Transp. and Infrastructure, 111th Cong. 9 (2010) (testimony of Rebecca Humphries, Dir., Mich. Dep't. Of Nat. Res. and Env't).

River Basin would, ideally, make further Asian carp migration unlikely.⁸⁵ However, such a massive undertaking would entail significant changes to the way people navigate and operate on the CAWS.⁸⁶ Using hydrological separation to possibly halt the Asian carp advance is likely too, and has been trumped by the myriad of problems certain to occur.⁸⁷ Based on concerns over the impacts on shipping freight,⁸⁸ navigation,⁸⁹ and water quality, a more conservative approach of temporarily closing the three nearby locks has been gaining momentum.⁹⁰ Although restricting the flow of the CAWS by closing the locks would be cheaper,⁹¹ this plan is likely to yield problems similar to those resulting from total separation.⁹² The ability to operate locks like an on-off switch would be a simple, convenient solution, but an inconsistent, sporadic operating schedule would impede commercial navigation, and such an impact would be felt throughout the area's economy.⁹³ Thus, any action involving separation, either permanently or temporary, will have to reconcile the prospect of succeeding in stopping the Asian carp with the protracted time, cost, and impact on the surrounding region.⁹⁴

IV. RECENT LITIGATION

From its inception, the connection between the Great Lakes and the Mississippi River Basin has fueled inter-state controversy.⁹⁵ In 1906, Missouri sued to stop Illinois from operating the CSSC.⁹⁶ Justice Holmes denied Missouri's claim, concluding that Missouri failed to provide sufficient evidence to show that the sewage flowing from the CSSC created a public

85. See Buck et al., CONG. RESEARCH SERV., R41082, ASIAN CARP AND THE GREAT LAKES REGION 1,19 (2012).

86. See *id.* See also Jerry L. Rasmussen, *Dividing the Waters: The Case for Hydraulic Separation of the North American Great Lakes and Mississippi River Basins*, 37 J. OF GREAT LAKES RESEARCH 588-93 (2011).

87. *Michigan v. U.S. Army Corps of Eng'rs*, 758 F.3d 892, 899 (7th Cir. 2014).

88. See *infra* notes 193-201 and accompanying text.

89. See *infra* notes 193-201 and accompanying text.

90. *Asian Carp and the Great Lakes: Hrg. Before the Subcomm. on Water Res. and Env't of the Comm. on Transp. And Infrastructure*, 111th Cong. 91-93 (2010) (testimony of Dr. Michael J. Hansen, Chair, Great Lakes Fishery Comm'n).

91. *Michigan*, 758 F.3d at 899. ("The plans involving hydrological separation are among the most expensive: the estimate for lakefront hydrological separation is \$18.389 billion, and for mid-system separation \$15.512 billion.")

92. *S. Hrg. 111-386: Asian Carp, Hrg. Before the Subcomm. on Water & Power of the Comm. on Energy & Nat. Res.*, 111th Cong. 35-37 (2010) (statement of Jim Farrell, Exec. Dir., Infrastructure Council, Ill. Chamber Infrastructure Council Waterway Comm).

93. See *id.*

94. See *infra* notes 192-99 and accompanying text.

95. *Michigan v. U.S. Army Corps of Eng'rs*, 667 F.3d 765, 768 (7th Cir. 2011).

96. *Missouri v. Illinois*, 200 U.S. 496 (1906).

nuisance.⁹⁷ The Supreme Court's reluctance to find CSSC water and whatever is found in it to constitute a public nuisance was reaffirmed in *Wisconsin v. Illinois*.⁹⁸ The Court refused to grant Wisconsin's request because issuing an injunction against the diversion of water without other available means to manage the sewage would threaten public safety.⁹⁹ However, the Court issued a decree that would gradually reduce the acceptable diversion rate as the sewage management systems were upgraded.¹⁰⁰ This decree paved the way for future challenges as the Court expressly authorized any party involved in the decree to petition the Court to modify or supplement the decree for issues that continue to affect the operation of the waterway.¹⁰¹ In 2009, Michigan invoked the Court's original jurisdiction to amend the 1967 decree to suppress the diversion of water infested with Asian carp.¹⁰² Michigan sought for the Court to declare the CAWS a public nuisance that threatens natural resources, and thus requested the Court to order Illinois and the U.S. Army Corps of Engineers to close all shipping locks and take any and all measures to prevent the Asian carp from entering Lake Michigan.¹⁰³ The Court denied Michigan's request without comment.¹⁰⁴ In February of 2010, Michigan renewed its motion and again requested the Court to order the locks closed based on new evidence that Asian carp were present in Lake Michigan.¹⁰⁵ Once again, the Supreme Court denied Michigan's motion without comment.¹⁰⁶ Despite the possibility of amending the Court's 1967 decree, thus far, the Court appears unwilling to tamper with the water diversion without sufficient evidence that the states surrounding the Great Lakes are currently being injured by the operation on the CAWS and CSSC.

97. *Id.* at 502. *See also* *Missouri v. Illinois*, 180 U.S. 208 (1901).

98. *Wisconsin v. Illinois*, 388 U.S. 426 (1967).

99. *See id.* at 427.

100. *Id.*

101. *See id.*

102. Motion to Reopen and For a Supplemental Decree, Petition, and Brief and Appendix in Support of Motion, *Wisconsin v. Illinois* 388 US 426 (1967), <http://www.supremecourt.gov/SpecMastRpt/Orig%201,%202%20&%203%20Motion%20to%20Reopen.pdf>.

103. *Wisconsin v. Illinois*, 388 U.S. at 429 (1967).

104. *Wisconsin v. Illinois*, 200 U.S. 496 (1967) Nos. 1, 2, 3, Orig., (Jan. 19, 2010) (order denying Michigan's motion for preliminary injunction).

105. Renewed Motion for Preliminary Injunction, *Wisconsin v. Illinois*, 388 U.S. 426 (2010), <http://www.supremecourt.gov/SpecMastRpt/1-Renewed%20Motion%20for%20PI.pdf>.

106. *Wisconsin v. Illinois*, 559 U.S. 1003, Nos. 1, 2, 3, Orig., (March 22, 2010) (order denying Michigan's renewed motion for preliminary injunction).

A. ASIAN CARP I

When a live Asian carp was found beyond the electric barrier in 2010, Michigan, Minnesota, Wisconsin, Ohio, and Pennsylvania sued the U.S. Army Corps of Engineers and the Metropolitan Water Reclamation District of Greater Chicago (MWRD).¹⁰⁷ Plaintiffs sought the court to issue a preliminary and permanent injunction requiring the defendants to abate the public nuisance cause by the Asian carp.¹⁰⁸ The relief demanded that defendants block the passage of Asian carp, temporarily close several locks, install permanent gates or screens, and apply the poison rotenone to strategic locations.¹⁰⁹ The District Court held that the plaintiffs failed to meet the high burden of demonstrating imminent, irreparable harm, and denied the preliminary injunction.¹¹⁰ According to the plaintiffs' evidence, the court found "the harms associated with the potential for increased flooding and sanitary issues and the economic hardships associated with the requested relief outweigh the more remote harm associated with the possibility that Asian carp will breach the electronic barriers in significant numbers . . . and establish a sustainable population in Lake Michigan."¹¹¹ Furthermore, Judge Dow found the recent measures taken by defendants and other agencies significant.¹¹² Relying on a positive test for Asian carp environmental DNA (eDNA) and the discovery of a single live fish and one dead fish past the barrier, the court noted that plaintiffs' evidence was too remote to establish the requisite level of harm.¹¹³ This evidence was deemed insufficient to show that defendant's preventative actions were ineffective, finding that "the presence of a single live fish (or a small number of individual live fish) above the barrier is far too thin a basis from which to infer that the barrier is not effective."¹¹⁴ However, the court stressed that it is not ignorant to the Asian carp problem, and recognized the potential harm is great in a worst-case scenario.¹¹⁵

107. *Michigan v. U.S. Army Corps of Eng'rs*, 2010 WL 5018559 (N.D. Ill. 2010).

108. *Id.* at *1-2; *see also supra* notes 97-110 and accompanying text. The complaint and relief requested mirrors the States' attempt to seek a remedy by amending the Supreme Court's 1967 decree.

109. *Id.* The plaintiffs stressed that the strategic location to unleash the requested remedial measures was in those areas north of the O'Brien Lock and Dam.

110. *Id.* at *33 ("Plaintiffs have not carried their burden of showing that the balance of the harms weighs in their favor.").

111. *Michigan*, 2010 WL 5018559 at *34.

112. *Id.* at *30.

113. *See id.* at *24.

114. *Id.* at *27.

115. *Id.* at *34.

B. ASIAN CARP II

After denying the motion for a preliminary injunction, plaintiffs appealed the District Court's judgment.¹¹⁶ The plaintiffs reasserted their prayer for relief, and the Court of Appeals affirmed the District Court's judgment, finding the decision to deny preliminary relief was not an abuse of discretion.¹¹⁷ However, the Seventh Circuit's ruling is much more favorable to the plaintiffs.¹¹⁸ Although the District Court decision was affirmed, Judge Wood opined that the plaintiffs presented sufficient evidence, at least during the preliminary stage of the case, to support a finding that there is substantial likelihood of harm.¹¹⁹ The court found unpersuasive defendant's argument that they are not responsible for creating a public nuisance since the defendant did not physically place the carp in the river and the fish migrate on their own.¹²⁰ The Court of Appeals echoed the District Court's sentiment about the efforts to contain the Asian carp.¹²¹ For the time being, the court found the large-scale effort by many state and federal agencies to prevent the Asian carp from reaching Lake Michigan to be sufficient, and the agencies' promise to implement additional measures in the future would negate the value of equitable relief.¹²² Furthermore, the court assured the parties that its holding only applied to the current state of the invasion.¹²³ "We stress, however, that if the agencies slip in somnolence or if the record reveals new information at the permanent injunction stage, this conclusion can be revisited."¹²⁴ In announcing the opinion, Judge Wood stated, and both parties agreed, that "if invasive carp were to achieve a sustainable population in the Great Lakes, the environmental and economic impact would qualify as an unreasonable interference with a public right."¹²⁵ Thus, the Seventh Circuit does not foreclose on the possibility that Asian carp can cause a public nuisance; rather, the court adopts a wait and see approach.¹²⁶

116. See generally *Michigan v. U.S. Army Corps of Eng'rs*, 667 F.3d 765 (7th Cir. 2011).

117. *Id.* at 769.

118. *Id.* ("We are less sanguine about the prospects of keeping the carp at bay.").

119. *Id.* at 771. "That they [defendants] are not themselves physically moving fish from one body of water to the other does not mean that their normal operation of the CAWS cannot cause a nuisance. See, e.g., RESTATEMENT (SECOND) OF TORTS § 834 ("One is subject to liability for a nuisance caused by an activity, not only when he carries on the activity but also when he participates to a substantial extent in carrying it on . . .")."

120. See *Michigan*, 667 F.3d at 766.

121. See *id.* at 765.

122. See *id.* at 769.

123. *Id.*

124. *Id.* at 769.

125. *Michigan v. U.S. Army Corps. Of Eng'rs*, 667 F.3d 765, 781 (7th Cir. 2011).

126. See *id.*

After being denied relief by the Court of Appeals, the states refiled their claim in District Court.¹²⁷ The court quickly granted defendant's motion to dismiss for failure to state a claim,¹²⁸ finding that any interference caused by defendant's maintenance of the CAWS cannot meet the unreasonable threshold required to state a claim for public nuisance.¹²⁹ Simply put, conduct that is authorized or mandated by statute cannot *cause* a public nuisance.¹³⁰ "[E]ven if the defendants' actions would otherwise suffice to constitute a public nuisance . . . that harm is not "unreasonable"—and therefore cannot constitute a nuisance—because it is the inevitable by-product of the defendants' compliance with the requirements set forth in valid statutes."¹³¹ Thus, the court found the statutory duty precluded the Army Corps from implementing the actions deemed necessary by the plaintiffs.¹³²

In 2014, the Court of Appeals granted review of the District Court ruling.¹³³ The court did not afford as much weight to the District Court's finding that because the defendant is authorized by statute, it is exempted from taking further action to prevent the Asian carp migration.¹³⁴ Yet again, the court found the plaintiffs failed to proffer sufficient facts to show the defendant operated the CAWS in a way to facilitate the carp's path into Lake Michigan.¹³⁵ The court reemphasized that relief could be granted if plaintiffs provide evidence that Asian carp represent a more imminent threat to the Great Lakes.¹³⁶

V. INVASIVE SPECIES LEGISLATION

Invasive species have been infiltrating the Great Lakes since the 1800s, with over 186 known species causing irreparable damage to the ecosystem.¹³⁷ Yet, in comparison to other environmental concerns, invasive

127. *Michigan v. U.S. Army Corps of Eng'rs*, 911 F.Supp.2d 739 (N.D. Ill. 2012).

128. *See* FED. R. CIV. P. 12(b)(6).

129. *Michigan*, 911 F.Supp.2d at 754-55.

130. *Id.* at 755 (emphasis in original) ("Although it would be a nuisance at common law, conduct that is fully authorized by statute, ordinance or administrative regulation does not subject the actor to tort liability" (quoting RESTATEMENT (SECOND) OF TORTS §821(a) cmt. f)).

131. *Id.*

132. *Id.* at 761.

133. *Michigan v. U.S. Army Corps of Eng'rs*, 758 F.3d 892 (7th Cir. 2014).

134. *See id.* at 895-96.

135. *Id.* at 896.

136. *See id.*

137. *Asian Carp and the Great Lakes: Hrg. Before the Subcomm. on Water Res. and Env't of the Comm. on Transp. and Infrastructure House of Representatives*, 111th Cong. 192-93 (2010) (testimony of Jennifer McKay, Policy Specialist, Watershed Council).

species have received a neglectful amount of attention.¹³⁸ “For better or for worse, congressional efforts to curb the migration of invasive species, and of invasive carp in particular, have yet to reach the level of detail one sees in the air or water pollution schemes.”¹³⁹ Congress has passed legislation regarding Asian carp that appears satisfactory in theory, but when applied, the actions taken amount to nothing more than a political punt. To date, Congress has failed to empower any agency to actively regulate the Asian carp migration, and Congress has not mandated a single, uniform standard to address this expanding problem.¹⁴⁰ Legislative attention concerning Asian carp will be parsed below by analyzing pre-2010 and post-2010 actions.

The first administrative attempt to mitigate exotic species was adopted by President Carter in 1977 through Executive Order 11,987.¹⁴¹ Under the Order, executive agencies were directed to take measures to limit the introduction of exotic species¹⁴² into natural ecosystems on property owned or held by the federal government.¹⁴³ The Order charged the Secretary of the Interior with the duty to classify and designate those exotic species that would have an adverse effect on American ecosystems.¹⁴⁴ Despite the Order’s good intentions, its application amounted to nothing more than an empty promise because the authorized guidelines were neither complete nor implemented.¹⁴⁵ Unfortunately, Executive Order 11,987 never played a role in the fight against invasive species.¹⁴⁶

In 1990, Congress passed the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 in order to curb the spread of invasive nuisance species.¹⁴⁷ The Act created the Aquatic Nuisance Species Task

138. See *Michigan v. U.S. Army Corps of Eng’rs*, 667 F.3d 765, 778-79 (7th Cir. 2011).

139. *Id.*

140. *Id.*

141. Daniel P. Larsen, *Combatting The Exotic Species Invasion: The Role of Tort Liability*, 5 DUKE ENVTL. L. & POL’Y F. 21, 31 (1995).

142. Exec. Order No. 11,987, 42 Fed. Reg. 26,949 (May 24, 1977), *reprinted as amended in* 42 U.S.C. § 4321 et seq. (1983). The order defined exotic species as “all species of plants and animals not naturally occurring, either presently or historically, in any ecosystem of the United States.” *Id.* at s1(c).

143. *Id.* at s2(a).

144. *Id.* at s3.

145. Julianne Kurdila, Comment, *The Introduction of Exotic Species into the US: There Goes the Neighborhood!*, 16 B.C. ENVTL. AFF. L. REV. 95, 103 (1988)(citing U.S. FISH AND WILDLIFE SERV., POLICIES FOR REDUCING RISKS ASSOCIATED WITH INTRODUCTIONS OF AQUATIC ORGANISMS (1987)).

146. See Exec. Order No. 13,112, 64 Fed. Reg. 6,183 (Feb. 3, 1999), *revoked* Exec. Order No. 11,987, 42 Fed. Reg. 26,949 (May 24, 1977); See Larsen, *supra* note 141, at 31.

147. 16 U.S.C. § 4701 (1996); *Michigan v. U.S. Army Corps of Eng’rs*, 667 F.3d 765, 779 (7th Cir. 2011).

Force (ANS Task Force),¹⁴⁸ and prior to 2010, the ANS Task Force had implemented a nationwide program to study Asian carp.¹⁴⁹ However, the efforts to stem the tide against invasive species have proved to be obsolete because any action taken was directed at studying and compiling data as opposed to active implementation.¹⁵⁰ By 1996, the 1990 Act was amended by the National Invasive Species Act.¹⁵¹ Under the amended Act, Congress directed the ANS Task Force and the Army Corps to “‘investigate and identify environmentally sound methods for preventing and reducing the dispersal of aquatic nuisance species between the Great Lakes . . . through the Chicago River and Shipping Canal,’ including any methods that could be incorporated in the normal operation and construction of the CAWS.”¹⁵² This directive led to the construction of an electric barrier on the CSSC.¹⁵³ However, due to administrative and construction delays, the barrier was not operational in time to achieve its goal, and by 1999, the round goby was found beyond the barrier heading towards Lake Michigan.¹⁵⁴

The lack of a unified, comprehensive federal statute has plagued the government’s ability to manage invasive species, and specifically the Asian carp.¹⁵⁵ To deal with the ever-increasing number of invasive species, Congress sought to ban the importation and transportation of certain species under the Lacey Act.¹⁵⁶ The Lacey Act employs a “dirty list” approach to identify species that are injurious to native ecosystems.¹⁵⁷ However, new amendments that add injurious species to the Lacey Act consistently fall short of providing any significant impact to the introduction of invasive species.¹⁵⁸ In order to amend the “dirty list,” the species must be shown to

148. 16 U.S.C. § 4722 (2006).

149. *See id.* The ANS Task Force is composed of state and federal agencies including the Fish and Wildlife Service (FWS), the U.S. Geological Survey (USGS), and the Environmental Protection Agency (EPA).

150. *See also S. Hrg. 111-386: Asian Carp, Hrg. Before the Subcomm. on Water & Power of the Comm. on Energy & Nat. Res.*, 111th Cong. 6-7 (2010) (testimony of Leon Carl, Midwest Area Reg’l Exec., United States Geological Survey, Dept. of the Interior) (The ANS Task Force created a database with the goal of providing updated and reliable data about the presence and distribution of aquatic invasive species.).

151. 16 U.S.C.A. § 4701 et. seq. (West 2006).

152. *Michigan*, 667 F.3d at 779; *see also* 16 U.S.C.A. § 4722(i)(3)(A) (West 2006).

153. *Id.* The demonstrative barrier was built to expel multiple invasive species, but the primary goals were to impede the newest nuisance species, the round goby, from moving downstream into Lake Michigan.

154. *See* Buck, *supra* note 51.

155. *See* Larsen, *supra* note 140, at 26-27.

156. *See generally* 18 U.S.C. § 42 (2010); 16 U.S.C. §§ 3372-75 (which makes it unlawful to import, export, sell, acquire, or purchase fish, wildlife or plants taken, possessed, transported, or sold in violation of U.S. law).

157. *See id.*

158. Larsen, *supra* note 141, at 28-29.

be harmful.¹⁵⁹ Consequently, often times the potential harm is not realized until after the species is introduced and acclimated to the new environment.¹⁶⁰ Since 2001, the Fish and Wildlife Service has been sounding the alarm about Asian carp, but these warnings were largely unheard.¹⁶¹ Almost ten years went by before Asian carp were deemed injurious.

A. THE ASIAN CARP PREVENTION AND CONTROL ACT

In 2010, President Obama signed the Asian Carp Prevention and Control Act¹⁶² to amend the Lacey Act to place Asian carp on the “dirty list.”¹⁶³ However, the Act falls short of addressing how to handle the spreading Asian carp population. The Lacey Act only pertains to intentional introductions rather than addressing how to prevent natural fish migration.¹⁶⁴ Since amending the Lacey Act, only one arrest has been made for illegally transporting Asian carp.¹⁶⁵ Still, the Asian Carp Prevention and Control Act brought the problem into the arena of public knowledge. However, this Act is toothless, and any remedy to keep Asian carp away from the Great Lakes will have to have the bite to regulate unintentional migration as the fish move closer.¹⁶⁶

Despite good intentions and diligent planning, the lack of consistent authority delegated to combat aquatic invasive species has become problematic.¹⁶⁷ Congress attempted to prevent the spread of nuisance species via the Chicago River Ship and Sanitary Canal by amending the Aquatic Nuisance Prevention and Control Act.¹⁶⁸ However, since the amendment in

159. *Id.*

160. *Id.*

161. C.S. Kolar, D.C. Chapman, *Asian Carps of the Genus Hypophthalmichthys (Pisces, Cyprinidae): A Biological Synopsis & Env't Risk Assessment*, U.S. GEOLOGICAL SURVEY, Report to the Fish and Wildlife Serv., perma.cc/XLC7-PJNM (2005).

162. Asian Carp Prevention and Control Act, Pub. L. No. 111-307, § 2, 124 Stat. 3282 (2010) (codified as amended at 18 U.S.C. § 42(a)(1) (2010)).

163. Injurious Wildlife Species: Silver Carp and Large Scale Carp, 72 Fed. Reg. 37459-01 (2007) (to be codified at 50 C.F.R. § 16.13(v) (A)-(D)). The factors considered while coining Asian carp as injurious include: the likelihood to outcompete native species for food, the capability to multiply and spread, and the dexterity to negatively impact humans. *Id.*

164. See Larsen, *supra* note 141, at 4.

165. A man in Arkansas was arrested for selling live invasive Asian carp to an undercover Department of Natural Resources investigator. He was charged with twelve felonies for illegally possessing, transporting, and selling Asian carp. *Man Pleads Guilty to Illegally Selling Live Asian Carp*, NBC CHICAGO (OCT. 25, 2012), perma.cc/65ZD-E794.

166. See Larsen, *supra* note 141, at 27.

167. *E.g.*, Michigan v. U.S. Army Corps of Eng'rs, 667 F.3d 765, 779 (7th Cir. 2011).

168. See 16 U.S.C.A. § 4722(i)(3)(A) (West 2006).

1996, more than three-dozen new invasive species have utilized the CSSC to infiltrate Lake Michigan.¹⁶⁹ Congress recognized the need for a coordinated effort to regulate Asian carp, and attempted to satisfy this need by passing the Water Resources Development Act.¹⁷⁰ Under the Act, Congress consolidated the multiple authorizations for electric barrier construction and authorized the Corps to permanently operate both barriers at complete federal cost.¹⁷¹ More recently, Congress extended the Corps's authority to construct an additional barrier and to enhance the operation of the existing barriers.¹⁷² Such legislation demonstrates that Congress is cognizant about invasive species, and specifically the Asian carp, but Congress is yet to require any agency to establish a concrete standard on how to handle the fish.¹⁷³ To date, Congress has been unwilling to pass laws besides to appropriate funds for routine maintenance on the CAWS or for the electric barrier project.¹⁷⁴

Beyond requiring the construction of electric barriers, Congress has charged agencies and informal task forces with the limited duty to study Asian carp.¹⁷⁵ The carp have proved to be a more challenging invasive species because agencies and executive actors have been conducting studies for seven years, and are still years away from implementing a proposed solution.¹⁷⁶ Most recently, the Corps was instructed to undertake two studies. Both studies were aimed at compiling short-term and long-term solutions that will keep Asian carp from migrating towards Lake Michigan.

First, the Water Resources Development Act instructed the Corps to conduct a short-term examination of how the electric barrier systems might be more effective at stopping exotic species.¹⁷⁷ The Efficacy Study deter-

169. *Permanent Prevention of Asian Carp in the Great Lakes: Hrg. Before the Subcomm. on Water Res. and Env't. Comm. on Transp. & Infrastructure*, 111th Cong. 59-60 (2010) (testimony of Joel Brammeier, President and CEO, Alliance for the Great Lakes).

170. Water Resources and Development Act, Pub. L. No. 110-114 § 3061, 121 Stat. 1121 (2007) (codified as amended at 33 U.S.C. § 2201) (2008)).

171. Buck et al., CONG. RESEARCH SERV., R41082, ASIAN CARP AND THE GREAT LAKES REGION 14 (2012).

172. Energy & Water Development & Related Agencies Appropriations Act 2010, Pub. L. No. 111- 85, § 126, 123 Stat. 2845, 2853 (2009) (codified as amended at 16 U.S.C.A. § 668dd (West 2012)).

173. *Michigan v. U.S. Army Corps of Eng'rs*, 667 F.3d 765, 780 (7th Cir. 2011).

174. *Id.*

175. *E.g., S. Hrg. 111-386: Asian Carp, Hrg. Before the Subcomm. on Water & Power, Comm. on Energy & Nat. Res.*, 111th Cong. 28-29 (2010) (testimony of Ken DeBeaussnert, Dir., Michigan Office of the Great Lakes, Dept. of Nat. Res.).

176. Water Resources and Development Act, Pub. L. No. 110-114 § 3061(b), 121 Stat. 1121 (2007) (codified as amended at 33 U.S.C. § 2201) (2008)).

177. *Efficacy Studies*, U.S. ARMY CORPS OF ENG'RS (2010), perma.cc/DLN6-GBVJ.

mined that the existing barriers have not been continuously operational.¹⁷⁸ Most troubling, the study concluded that the barriers do not provide a guarantee that they will keep the carp from entering Lake Michigan.¹⁷⁹ These barriers are complicated electrical systems that continuously break, and even when the barriers are functional, they must be turned off periodically for maintenance.¹⁸⁰ The study proposed many possible solutions, but none of them have been adopted.¹⁸¹ Like recent legislative action, the Efficacy Study has had no significant impact on the Asian carp besides from further illuminating a serious problem.

Next, the Army Corps conducted the Great Lakes and Mississippi River Interbasin Study¹⁸² (hereinafter GLMRIS). GLMRIS consists of a long-term study on how the Mississippi River and Great Lakes' basins can be separated on a more permanent basis.¹⁸³ The report presented eight alternative plans, which the Corps predicts can impact the spread of Asian carp.¹⁸⁴ Of the eight, the Corps believes six of the proposed actions could stop the Asian carp migrations within twenty-five years.¹⁸⁵ The other two options involve maintaining the current electric barriers and "nonstructural measures" such as netting and chemical control, but the Corps concluded these options would not deter the fish from migrating.¹⁸⁶ However, the GLMRIS report has little practical value. The Corps declined to put forth a recommendation amongst the alternatives.¹⁸⁷ Instead, the GLMRIS report concluded "additional technical investigation, policy evaluation, NEPA [National Environmental Policy Act] analysis, site-specific detailed design,

178. *Asian Carp and the Great Lakes: Hrg. Before the S. Subcomm. on Water Res. & Env't. of the Comm. on Transp. & Infrastructure*, 111th Cong. 172 (2010) (statement of Major Gen. John Peabody, Commander, U.S. Army Corps of Eng'rs).

179. *Id.* During routine maintenance in December 2010, an Asian carp was found beyond the electrical barriers despite applying rotenone, a poison that is designed to ensure the fish do not breach the barrier.

180. *Id.* at 175.

181. *Id.*

182. Pub. L. No. 110-114, § 3062, 121 Stat. 1041 (Nov. 8, 2007); Water Resources and Development Act Pub. L. No. 110-114 § 3061, 121 Stat. 1121 (2007) (codified as amended at 33 U.S.C. § 2201 (2008)).

183. *Michigan v. U.S. Army Corps of Eng'rs*, 667 F.3d 765, 779 (7th Cir. 2011).

184. *See generally*, U.S. ARMY CORPS OF ENG'RS, GREAT LAKES AND MISSISSIPPI RIVER INTERBASIN STUDY ch. 3, at 93-87 (2014) [hereinafter GLMRIS Report], perma.cc/C27V-S55K.

185. *Michigan v. U.S. Army Corps of Eng'rs*, 758 F.3d 892, 898 (7th Cir. 2014) (The Corps estimates that it will take twenty-five years for Asian carp to breach Lake Michigan.).

186. *Id.* at 899.

187. *Id.*

and public and state/agency reviews would need to be accomplished prior to the recommendation of a specific alternative.”¹⁸⁸

VI. ANALYSIS

Although there is no readily agreed upon solution, hydrologic separation has become the most advocated solution. The only discrepancy amongst the proponents is between complete and partial separation.¹⁸⁹ Both involve attempting to separate tributaries from the CAWS and CSSC from Lake Michigan, either through permanent blockades like fixed dams, or fluid barricades that allow the waterways to remain operational.¹⁹⁰ Common sense should dictate that complete separation would be a foolproof way to block the carp, but nothing involving Mother Nature is ever that simple. There are several reasons why hydrologic separation is not only impossible, but likely would not be guaranteed to keep the Asian carp out of Lake Michigan.¹⁹¹

A. IMPACT ON NAVIGABILITY AND COMMERCE

The costs alone make hydrologic separation impractical. Either lake-front or mid-system hydrologic separation is amongst the most expensive proposal, costing an estimated \$15 to \$18 billion.¹⁹² Besides out of pocket costs, significant separation would adversely affect the water quality in Lake Michigan, requiring additional curative measures.¹⁹³ Likewise, separation would drastically impact local economies because freight could no

188. *Michigan*, 758 F.3d at 899 (quoting Summary of the GLRMIS Report (2014), at ES4, perma.cc/9DUF-9KK7).

189. See Hansen, *supra* note 1, at 4.

190. See *Michigan*, 758 F.3d at 899. Partial separation would allow some of the waterways to remain open. Fluid barricade like locks and sluice gates would add a “buffer” zone where the Asian carp could be more easily managed. *Id.*

191. S. Hrg. 111-386: *Asian Carp*, Hrg. Before the Subcomm. on Water & Power of the Comm. on Energy & Nat. Res., 111th Cong. 43 (2010) (statement of Andy Buchsbaum, Dir., Great Lakes Reg'l Ctr., Nat'l. Wildlife Fed'n).

192. *Michigan*, 758 F.3d at 899. (“The ‘cheapest’ of the options that would prevent the spread of carp would require an estimated \$7.806 billion to complete.”).

193. See also S. Hrg. 111-386: *Asian Carp*, Hrg. before the Subcomm. on Water & Power of the Comm. on Energy & Nat. Res., 111th Cong. 36 (2010) (statement of Jim Farrell, Exec. Dir., Infrastructure Council, Ill. Chamber Infra. Council Waterway Comm.) (discussing the costs that would be incurred to ensure the water would not be toxic to the people who rely on Lake Michigan water); *Asian Carp and the Great Lakes: Hrg. Before the Subcomm. on Water Res. & Env't. of the Comm. on Transp. & Infrastructure*, 111th Cong. 192-93 (2010) (testimony of Henry Henderson, Dir. of Midwest Nat. Res. Def. Council) (estimating that separation would threaten the drinking water of forty million people in the Great Lakes region).

longer be shipped.¹⁹⁴ Over nineteen million tons of cargo annually passes through the O'Brien and Chicago locks, and shipping that cargo by other means would cost approximately \$70 million.¹⁹⁵ Everyday commodities shipments like coal, oil, and steel would have to be re-routed at an inflated price.¹⁹⁶ The Illinois Chamber of Commerce suggests that lock and dam closures could prevent the shipping and receiving of over \$29 billion worth of commodities that depend on Illinois waterways.¹⁹⁷

B. IMPACT ON FLOOD CONTROL

Additionally, implementing any form of permanent barrier system will prevent the CAWS from diverting floodwaters.¹⁹⁸ The Chicagoland area utilizes an intricate system of sluice gates, tunnels, and reservoirs that has taken decades to construct.¹⁹⁹ During severe rain occurrences, closed locks and solid blockades would overwhelm that delicate tunnel system.²⁰⁰ Even a remotely intense storm would expose vulnerable populations to massive flooding.²⁰¹ The result would be possibly fixing one environmental concern at the expense of certainly creating another.²⁰² Therefore, any discussion on permanent ecological separation must first be squared with a proposal to rectify the harm caused by flooding.²⁰³

194. *Id.*

195. *S. Hrg. 111-386: Asian Carp, Hrg. Before the Subcomm. on Water & Power of the Comm. on Energy & Nat. Res.*, 111th Cong. 38-40 (2010) (statement of John C. Taylor, Prof. & Dir. of Supply Chain Mgmt. Programs, Wayne St. Univ.) (hereinafter Taylor).

196. *Asian Carp and the Great Lakes: Hrg. Before the Water Res. & Dev. Subcomm. of the Comm. on Transp. & Infrastructure H. of Rep.*, 111th Cong. 187-89 (2010) (testimony of Rep. Judy Biggert) (hereinafter Biggert).

197. *Id.* at 188. These closures would become problematic because there is no viable cost-effective alternative to re-route the affected commerce. A single barge carries an amount of liquid cargo, such as petroleum or asphalt that would fill 144 semi-trailers or forty-six rail cars. *Id.*

198. Robin Craig, *Asian Carp and The Great Lakes: When is Irreparable Harm "Likely" And "Imminent" Enough?*, 42 NO. 4 ABA TRENDS 1, 13 (March/April 2011).

199. Biggert, *supra* note 196, at 188.

200. *See id.*

201. *See id.* The Metropolitan Water Reclamation District of Chicago (MWRD), who is responsible for managing the area's wastewater and storm water, estimates that 124 municipalities would be affected. Permanent hydrologic separation would make more than three million people, over one million structures, and fifty-one suburbs vulnerable to massive floods. *Id.*

202. *See id.* and accompanying text.

203. *See S. Hrg. 111-386: Asian Carp, Hrg. Before the Subcomm. on Water & Power of the Comm. on Energy & Nat. Res.*, 111th Cong. 37-39 (2010) (response of Hon. Nancy H. Sutley to questions from Sen. Stabenow).

Furthermore, separation sounds good in theory, but artificial separation risks facilitating the Asian carp's migration into the Great Lakes.²⁰⁴ Closed locks would provide the carp with more avenues into the Great Lakes.²⁰⁵ Excess floodwater could not retreat back into Lake Michigan, and would have nowhere to go but over the lock.²⁰⁶ The floodwaters would create a labyrinth of new avenues into Lake Michigan to be used by fish that are predisposed to migrate via small creeks and tributaries.²⁰⁷ Even with total separation, the likelihood of blocking every waterway into the Great Lakes is slim because soil erosion carves new streams that are suitable for carp migration.²⁰⁸ The prospect of facilitating the Asian carp migration under the guise of environmental justice, coupled with the detriment to life and property in the area, paints hydrologic separation as a bleak gamble.

Regardless what plan is adopted, there is evidence that requires any action to be conducted with the assumption that Asian carp have breached the current barriers.²⁰⁹ Recent water sampling conducted by biologists and the Corps revealed Asian carp eDNA in waters above the barriers.²¹⁰ Yet, experts and government agencies have been critical of eDNA testing because water can test positive without live carp being present.²¹¹ As Judge Dow noted: "At this stage, eDNA testing cannot identify whether one or more individual fish are responsible for a positive result. Additionally, the testing cannot yet identify whether . . . the presence of one fish may generate multiple positive results."²¹² Furthermore, the eDNA test results cannot accurately or comprehensively track the carp's migration because the northerly reaches of the CAWS have never been tested, and neither has the Indiana portion of the Grand Calumet and Little Calumet Rivers.²¹³

204. Biggert, *supra* note 196, at 188.

205. *Id.*

206. *Id.*

207. *See id.*

208. *See S. Hrg. 111-386: Asian Carp, Hrg. Before the Subcomm. on Water & Power of the Comm. on Energy & Nat. Res.*, 111th Cong. 64-65 (2010) (response of Andy Buchsbaum to questions from Sen. Brownback).

209. *E.g., Asian Carp and the Great Lakes: Hrg. Before U.S. H. of Rep. Comm. on Transp. & Infrastructure., Subcomm. on Water Res. & Env't.*, 111th Cong. 112-18 (2010) (testimony by David M. Lodge, Dir., Ctr. For Aquatic Conservation).

210. *Id.* at 114-16 A positive sample of eDNA is triggered by tissue routinely shed through normal biological processes such as defecation.

211. *See id.*

212. *Michigan v. U.S. Army Corps of Eng'rs*, 2010 WL 5018559, at *7 n. 10; *see also Lodge Audit Report*, DEPT. OF BIO. SCIENCES, UNIV. OF NOTRE DAME (Feb. 5, 2010) (discussing how feces from waterfowl that consumed Asian carp can trigger a positive eDNA water sample).

213. *See Lodge, supra* note 209, at 114.

However, additional evidence indicates the presence of Asian carp.²¹⁴ Both silver and bighead carp have been detected in multiple locations lakeside of the electric barriers.²¹⁵ Since the advent of eDNA testing, consistent positive water samples suggest that at least one Asian carp has been near Lake Michigan at the opening of the Calumet River and has been within one hundred yards of the Wilmette pumping station.²¹⁶ An eDNA sampling conducted in 2011 indicated eDNA in approximately a dozen locations, and experts argue that the presence of eDNA at multiple locations covering such a vast amount of territory indicates that more than one Asian carp has entered the surrounding area.²¹⁷ The most alarming evidence arrived in 2010 in the form of a live bighead carp being caught beyond the barriers, approximately six miles from Lake Michigan.²¹⁸ Within eight months, a dead, fully mature Asian carp was found on the shores of Lake Calumet.²¹⁹

C. STATUTORY BARRICADE TO SEPARATION

Recent attempts to task the Corps with achieving ecological separation have proven to be futile.²²⁰ The main reason attempts have been unsuccessful is due to a misunderstanding of the Corps' congressional duty.²²¹ In 2009, Congress determined:

The Secretary of the Army shall implement measures recommended in the efficacy study, or provided in the interim reports, authorized under section 3061 of the Water Resources Development Act of 2007 . . . 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

214. Lodge, *supra* note 209, at 115.

215. *Id.* at 114.

216. *Id.*

217. See *Asian Carp Reg'l Coordinating Comm. Press Release* (July 29, 2011), perma.cc/3X86-G2F3.

218. See Craig, *supra* note 198, at 13-14.

219. *Id.* at 15.

220. See generally, *Michigan v. U.S. Army Corps of Eng'rs*, 911 F. Supp. 2d 739 (7th Cir. 2012); *aff'd in*, *Michigan v. U.S. Army Corps of Eng'rs*, 758 F.3d 892 (7th Cir. 2014).

221. See, e.g., *Michigan*, 911 F. Supp. 2d at 760-61.

to prevent aquatic nuisance species from dispersing into the Great Lakes.²²²

Congress has not directly tasked the Corps to determine how to achieve separation.²²³ Instead, during a Congressional Conference Committee, Congress proffered that “[t]he conferees do not consider hydrologic separation of the Great Lakes Basin from the Mississippi River Basin to be an emergency measure authorized by this Act.”²²⁴

Besides from misunderstanding the Corps’ license to effectuate emergency measures, any plan for implementing significant separation between the basins will conflict with the Corps’ statutory duty. The Corps was appropriated funds to operate the CSSC,²²⁵ but Congress clarified that the funds were to be used to *maintain the canal’s navigability*.²²⁶ Furthermore, the Corps, along with other Federal agencies, are prohibited from placing blockades in navigable waterways without congressional consent.²²⁷ The Rivers and Harbors Act states:

It shall not be lawful to construct or commence the construction of any bridge, causeway, dam, or dike over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States until the consent of Congress to the building of such structure shall have been obtained and until the plans for . . . the dam or dike shall have been submitted to and approved by the Chief of Engineers and Secretary of the Army.²²⁸

The funding granted to the Corps is not meant to supersede their statutory duty.²²⁹ The Corps is mandated to operate and maintain the CAWS and CSSC in such a manner that allows vessels to travel between the two river basins.²³⁰ Clearly, anything close to permanent hydrological separation would conflict with the “navigation” requirement in the statute.

222. *Michigan*, 667 F.3d at 779 (citing Energy & Water Development & Related Agencies Appropriations Act, 2010, Pub. L. No. 111-85, § 126, 123 Stat. 2845, 2853 (2009)); Energy & Water Development Appropriations Act of 2012, Pub. L. No. 112-74, 125 Stat. 786 (2012).

223. *Michigan*, 911 F. Supp. 2d at 760.

224. *Id.*

225. See Energy & Water Development Appropriations Act of Dec. 4, 1981, Pub. L. No. 97-88, § 107 95 Stat. 1135, 1137 (1981).

226. Supplemental Appropriations Act of July 30, 1983, Pub. L. No. 98-63, 97 Stat. 301, 309 (1983) (emphasis added).

227. *Michigan*, 911 F. Supp. 2d at 757.

228. 33 U.S.C. § 401 (2012).

229. *Michigan*, 911 F. Supp. 2d at 760.

230. See *id.*

The states' command to complete hydrological separation is based upon the mistaken presumption that the Corps must take steps towards separation because Congress has tasked the Corps with investigating sound methods to keep Asian carp out of the Great Lakes. However, the right to impede waterway navigation must be expressly granted; such a right cannot be presumed or conferred by implication.²³¹ The states can seek judicial review if the Corps stall in implementing its plans,²³² but the Seventh Circuit's consistent refusal to grant an injunction requiring hydrological separation illustrates the belief that the Corps has not slackened in their efforts to halt Asian carp. "If Congressional authorization is required before separation can be implemented, then the Corps' failure to effect that separation cannot be the proximate cause of the alleged nuisance."²³³

By continuing to argue for separation, the plaintiffs in *Army Corps* remain mesmerized by the prospect of a "foolproof" solution. Yet, the Corps does not have the luxury or the authority to adopt an act-fast approach that would be required for hydrological separation.²³⁴ The Corps has to analyze a wide range of public interest factors before implementing or recommending any action regarding Asian carp.²³⁵ The Seventh Circuit's refusal to grant the state's injunction proves that until Asian carp establish a population in Lake Michigan, the impact on water quality and local economies is too costly to mandate hydrological separation.²³⁶ Likewise, the United States Supreme Court reinforced the importance of considering public interest factors when the Court refused the states' request to close all Chicagoland locks.²³⁷

V. PROPOSED ACTION

Recent legislative attempts at separating the invasive carp from the Great Lakes have failed.²³⁸ Despite the false bravado, hydrologic separation will not occur without congressional intervention.²³⁹ "Neither the Corps nor any other agency has been empowered actively to regulate the problem of invasive carp, and Congress has not required any agency to establish a single standard to deal with the problem or to take any other action."²⁴⁰ The

231. 78 AM. JUR. 2d *Waters* § 175 (2014).

232. 5 U.S.C.A. § 706(1) (West 1966).

233. *Michigan*, 911 F. Supp. 2d at 758.

234. *See* *United States v. Alaska*, 503 U.S. 569, 573 (1992).

235. *See id.*

236. *See Michigan v. U.S. Army Corps of Eng'rs*, 758 F.3d 892, 899 (7th Cir. 2014).

237. *See Michigan v. U.S. Army Corps of Eng'rs*, 132 S. Ct. 1635 (2012).

238. *Michigan*, 667 F.3d at 780 (discussing Close All Routes and Prevent Asian Carp Today Act, H.R. 4472, 111th Cong. § 2(a)-(c) (2010)).

239. *Id.*

240. *Id.*

Seventh Circuit's ruling refuses to hold the Corps responsible for the carp's advance when they are obeying their statutory obligations by seeking a more efficient solution than hydrological separation.²⁴¹ Yet, the constant infatuation with separating the two river basins has left a void in management efforts. Because of political, judicial, and institutional barriers, any attempt to proactively manage Asian carp has produced nominal results.²⁴²

The Asian Carp Control Strategy Framework (hereinafter "Framework") echoed the sentiments of separation, but also provided other options for management.²⁴³ However, no state or agency has committed to applying a possible short-term solution under the Framework.²⁴⁴ Rather than waiting around for statutory permission, the states should consider lessons learned from past invasive species management that do not involve hydrologic separation.

A. THE OREGON MODEL

The northern pike minnow is an invasive species that infested the Columbian and Snake Rivers.²⁴⁵ Like the Asian carp, pike minnows affected native fish populations.²⁴⁶ Pike minnows reproduce and grow rapidly, and each year, the fish consume millions of salmon and steelhead fry.²⁴⁷ Because the juvenile fish were not making their way to sea, native populations of salmon species disappeared.²⁴⁸

To manage the pike minnow's population and to help rejuvenate salmon, Oregon created the Pike minnow Sport Reward Fishery Program.²⁴⁹ The program operates like a bounty system, paying anglers for each pike minnow they catch that is nine inches or larger.²⁵⁰ Anglers are paid between \$4

241. *See id.*

242. *S. Hrg. 111-386: Asian Carp, Hrg. Before the Subcom. on Water & Power of the Comm. on Energy & Nat. Res.*, 111th Cong. 44 (2010) [hereinafter *Energy Hearing*] (statement of Andy Buchsbaum, Dir., Nat. Wildlife Fed.)

243. *See generally, Asian Carp Control Strategy Framework*, Asian Carp Reg'l Coordinating Comm., (May 2014), perma.cc/L3Q5-7M26 (May 2014).

244. *See Energy Hearing*, *supra* note 242, at 45 (statements of Andy Buchsbaum).

245. Adam J. Storch, *Northern Pikeminnow Management Program Evaluation*, OREGON DEPT. OF FISH & WILDLIFE, 4 (2013).

246. *Id.* at 6.

247. *Id.*

248. *Id.* Within ten years of their introduction, the pike minnow caused salmon populations to drop by over seventy percent.

249. *Id.* at 1. The program is funded by the Bonneville Power Administration and implemented by the Pacific States Marine Fisheries Commission.

250. *Save a Salmon (And Make Money Doing it)*, PIKEMINNOW.ORG, perma.cc/3E7J-KVU4 (last visited Dec. 19, 2014).

and \$8 per fish, with special tagged fish fetching \$500.²⁵¹ The program's goal is to reduce the average size and regulate the number of larger, adult fish.²⁵² Thus far, results indicate that the program is a success, with over 4.2 million pike minnows being harvested since 1990.²⁵³ Predation on salmonid fry has been reduced by forty percent, and in some areas, the salmon population has more than doubled.²⁵⁴

B. APPLICATION TO ASIAN CARP

The inability to agree upon a long-term solution has stalled the implementation of a short-term, rapid remedy to Asian carp. Even if the Corps was granted congressional permission, ecological separation does nothing more than exacerbates the problem. Proponents of separation erroneously assume that the structures used would provide watertight barriers to fish, but past attempts at blocking Asian carp have proved this misconception wrong.²⁵⁵ The impact from invasive carp would fester to anyone who relies on Chicago waterways for employment, commerce, leisure activities, or drinking water.²⁵⁶ As long as Asian carp remain in the CAWS, the fish represent a significant threat to the Great Lakes' ecosystem.²⁵⁷

Adopting a program like Oregon's would permit an offensive response while trying to formulate a viable long-term solution. Thus far, the agencies responsible have employed an either-or mentality by focusing on utilizing one control method. Such a narrow-minded view on how to achieve population control ignores the array of data and recommendations compiled by the Corps in the Framework.²⁵⁸ Past invasive species management has operated under the illusion that there is one "ultimate" solution to purge the unwanted species, and not surprisingly, there has been little success.²⁵⁹

Our current practices such as barriers and poison, while not completely effective on their own, should be used in tandem with carp harvesting.²⁶⁰

251. *Id.* In 2013, the top anglers caught on average of 3,200 fish and earned average payments around \$26,000 for the five-month season.

252. *Id.*

253. *Id.*

254. *See* Storch, *supra* note 245, at 11.

255. *Asian Carp and the Great Lakes: Hrg. Before the Subcomm. On Water Res. & Env't of the Comm. on Transp. & Infrastructure*, 111th Cong. 78, 184-85 (2010) (testimony of Del Wilkins, Vice President of Terminal Operations & Bus. Dev).

256. *See* Taylor, *supra* note 195, at 41.

257. *See* Biggert, *supra* note 196, at 189.

258. For a comprehensive summary of the recommendations, see *Asian Carp Control Strategy Framework*, ASIAN CARP REG'L COORDINATING COMM., perma.cc/L3Q5-7M26 (last visited May 15, 2014).

259. *See supra* notes 240-242.

260. *See* Lodge, *supra* note 209, at 120. *See also* *The Growing Problem of Invasive Asian carp in the Great Lakes and Mississippi River System Oversight Hrg. Before the Sub-*

Unlike past management efforts, the Oregon Model implemented several techniques to optimize the chance at removing pike minnows.²⁶¹ Excessive research was conducted to determine the minnow's ideal location, and once the research was confirmed, additional measures were applied to keep the minnows within a limited area.²⁶² Like the Oregon model, eDNA testing can be exploited to identify the fishing "hot spots," which would allow fishermen to easily target the Asian carp. The simultaneous use of electric barriers and rotenone would further corral the fish to create a "kill zone" in which the carp could be removed before they have a chance to migrate closer to the Great Lakes.²⁶³

The practice of harvesting Asian carp is currently being utilized, but only on a small scale.²⁶⁴ Thus far, only commercial anglers have played a role in the states' efforts to control Asian carp. However, expanding the scope of current population controls to leisure fishermen will increase reduction success. There are over five million licensed fishermen in the Chicagoland area alone, many of whom have caught Asian carp.²⁶⁵ Commercial anglers have shown that Asian carp are not as elusive as many believe. By extending removal efforts to leisure anglers, the knowledge and experience they have gained about fishing and the infested waterways can be harnessed for a nominal monetary reward.

Since the Asian carp migration gained national attention, businesses have begun profiting from the unwelcomed fish. In 2010, Illinois Governor Pat Quinn authorized a \$2 million upgrade to processing facilities that are used to export Asian carp back to China.²⁶⁶ Numerous companies have employed several dozen local anglers to catch Asian carp, which are processed for humanitarian efforts, fertilizer, and even cat food.²⁶⁷ One company,

comm. on Fisheries and Oceans of the H. Comm. on Res., 109th Cong. 585 (2005) (testimony of Richard Daley, Mayor, City of Chicago) (explaining that electrical barriers alone are not sufficient and additional measures must be implemented to prevent Asian carp from spreading).

261. See *supra* notes 243-252 and accompanying text.

262. See *id.*

263. See Sutley, *supra* note 203, at 63. Similar techniques are used to catch pike minnows. The sluice gates and fish chemicals are utilized to lure large quantities of pike minnows to certain areas.

264. *Illinois Asian Carp Control Efforts: Hrg. Before H. Comm. on Transp. & Infrastructure Subcomm. on Water Res. & Env't.*, 111th Cong. 87, 179-82 (2010) (testimony of Marc Miller, Dir. Ill. Dept of Nat. Res.) (hereinafter Miller). The IDNR contracts with commercial fishermen to reduce the Asian carp population.

265. *Fishing in Illinois*, DEPT. OF NAT. RES. (June 2014), <http://dnr.illinois.gov/fishing/Pages/default.aspx>.

266. Mark Guarino, *Carpe Diet? Chinese Firm's Plan to Export Asian Carp Could Help US Waterways* (June 5, 2011), perma.cc/J5DV-NBML.

267. Jim Suhr, *Illinois Company is Latest to Test Market for Carp* (Aug. 14, 2014), perma.cc/VVT2-5PR7.

American Heartland Fish Products, employs three-dozen local fishermen and pays them a dime per pound for Asian carp.²⁶⁸ With only a small amount of fishermen, the company processes more than thirty tons of Asian carp every day.²⁶⁹ Undoubtedly, it is naïve to assume fishermen can strip the CAWS clean of Asian carp, but the Oregon program illustrates the effectiveness at culling invasive species populations by removing large, adult fish.

VII. CONCLUSION

Hydrologic separation seems like the act-now cure all, but Congress' reluctance to authorize such action illustrates that transit between the Great Lakes and Mississippi River basins remains crucial. Simply put, the Great Lakes are an environmental treasure that would spoil if either separation is approved or no action is taken.²⁷⁰ Asian carp present a difficult scenario because the most advocated plan, hydrological separation, will aggravate the problem by causing further interference with the Great Lakes' region.²⁷¹ However, Asian carp represent a unique opportunity in comparison to past invasive species.²⁷² Invasive species rarely provide a warning before establishing themselves in a new environment.²⁷³ Here, we have known for years that alien carp are approaching the Great Lakes' front door. Adopting a bounty program would balance the need for environmental protection with maintaining commercial sustainability.²⁷⁴ Paying anglers for carp removal begins to address the migrating concern while providing more time to develop a long-term strategy in case Asian carp invade the Great Lakes.

268. *Id.*

269. *Id.*

270. For a summary of the adverse impacts on the Great Lakes region, see Henderson, *supra* note 57, at 192-96; *Michigan*, 667 F.3d at 781 ("And all sides agree that if invasive carp were to achieve a substantial population in the Great Lakes, the environmental and economic impact would qualify as an unreasonable interference with a public right.").

271. *Id.*

272. *Asian Carp and the Great Lakes: Hrg. on the Impact of Aquatic Invasive Species on the Great Lakes Before the H. Transp. & Infrastructure Subcomm. on Water Res. & Env't.*, 111th Cong. 87, 198-99 (2010) (testimony of Jennifer McKay, Policy Specialist, Tip of the Mit Watershed Council).

273. *Id.*

274. See Miller, *supra* note 264, at 81.