



March 15, 2022

The Honorable Kathy Hochul  
Governor of New York State  
NYS State Capitol Building  
Albany, NY 12224

Dear Governor Hochul,

On behalf of Riverkeeper, Inc., I write to request your support for actions to block aquatic invasive species from migrating through the Erie and Champlain canals. Riverkeeper is a 55-year-old member-supported organization with the mission to protect and restore the Hudson River from source to sea and safeguard drinking water supplies, through advocacy rooted in community partnerships, science and law.

As we discussed with your staff February 16, effectively preventing invasive species from crossing from the Great Lakes via the Erie Canal is one of the most important actions that can be taken to protect the ecology of the Hudson River Estuary and its watershed. Some of the Hudson River's most esteemed scientists have been calling for this action for years. Similarly, a Champlain Canal barrier would prevent species like the round goby – which traversed the Erie Canal and reached the Hudson in 2021 – from threatening the Lake Champlain ecosystem.

Significantly, we are confident that solutions that block invasions can be designed to maintain boating and commercial vessel traffic – as has been recommended for each canal by experts who have studied the issue. Familiar technology and practices used widely at marinas, such as boat lifts, bottom washes and winterization, can be applied at one lock in each canal to effectively prevent organisms in various life stages from passing through.

We urge your decisive action to create effective engineered solutions in the Erie and Champlain Canals to hydrologically separate the Hudson, Great Lakes and Champlain watersheds to protect native ecology while maintaining boating and commerce. If I can provide any other information about this letter, please contact me at [dshapley@riverkeeper.org](mailto:dshapley@riverkeeper.org) or 845-797-2158.

Sincerely,

Dan Shapley  
Science & Patrol Program, co-director



## **Background on the need to block invasive species in our canals**

The Mohawk River, which for much of its length is used as the Erie Canal, is the Hudson River's largest tributary. The Champlain canal connects the Hudson to Lake Champlain. Created about 100 years ago, both of these canals provide unnatural connections that erased natural high-points between watersheds that had for thousands of years allowed distinct ecosystems to develop in each watershed, and prevented aquatic invasive species from leaving one waterway and entering another. Since their creation, however, the canals have allowed aquatic species to travel to and from the Mississippi River, Great Lakes, Mohawk River, Hudson River and Lake Champlain.

Taking action to block future invasions would be a profound act of resilience in the face of climate change and its twin crisis, ecological collapse. The global crisis of species decline and loss affects freshwater ecosystems more than any other.<sup>1</sup> Our waters and the web of life within them will face ever-increasing stresses, including profound impacts from climate change. Their resilience is built in great part on the dynamic abundance of native species, which we must protect from disruption due to invasion by non-native species. In the case of the Hudson, our native fishes like striped bass, the endangered Atlantic sturgeon and American shad, are critical not only to the river ecosystem but to that of the western Atlantic Ocean. After decades of damage from overfishing, habitat destruction, pollution and previous invasive species, many of our native fish are already at critically low numbers, and in decline or at best showing only the first halting signs of recovery. The resilience of the system is already significantly challenged, and future shocks to the system should be avoided.

Scientists have called for the creation of an aquatic invasive species barrier in the Erie Canal since 2013, when two of the Hudson River's most esteemed scientists, David Strayer and John Waldman, of Cary Institute and Queens College, respectively, published an op-ed in the *New York Times* titled "Beware the Marauding Carp."<sup>2</sup> Strayer recently renewed the call in the *Albany*

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<sup>1</sup> IUCN, Freshwater Biodiversity, <https://www.iucn.org/theme/species/our-work/freshwater-biodiversity>

<sup>2</sup> Strayer and Waldman, "Beware the Marauding Carp," *New York Times*, November 2013, <https://www.nytimes.com/2013/11/20/opinion/beware-marauding-carp.html>

*Times Union*.<sup>3</sup> John Garver, a Union College scientist who is an authority on the Mohawk River, has championed this cause,<sup>4,5</sup> with op-eds in the *Schenectady Gazette*<sup>6</sup> and the *Buffalo News*.<sup>7</sup>

In short, the scientific community is ringing a bell calling for action on a significant threat. For years, Riverkeeper has championed this cause as members of the steering committee of the Department of Environmental Conservation's Mohawk Basin Program, as members of the Hudson River Estuary Management Advisory Committee, in comments related to the Reimagine the Canal initiative, and in other venues. Both the state's Reimagine the Canals Task Force Report<sup>8</sup> and the Mohawk River Basin Action Agenda<sup>9</sup> identify the need for action.

Unfortunately, we are living with the consequences of failing to have taken action sooner. In July 2021, the round goby, a voracious egg-eating fish native to the Black and Caspian sea regions, reached the Hudson River. In a single season, it spread from the confluence of the Mohawk River as far south as Poughkeepsie, approximately 75 miles. After being inadvertently introduced to the Great Lakes via ship ballast water in 1990, the round goby colonized all Great Lakes within five years, and from there entered the Erie Canal by 2014.<sup>10</sup> Its migration through the Erie Canal was monitored by scientists as it made steady progress over seven years from west to east, but it was not halted by any government intervention. We missed our chance. The goby will disrupt any ecosystem it enters. Round gobies are voracious feeders, and outcompete native species for food and spawning habitat. Among other things, they eat the eggs of native species and popular sportfish like smallmouth bass and walleye, as well as the eggs of forage fish that many sportfish rely on, like river herring. It also carries and spreads Viral Hemorrhagic Septicemia (VHS),<sup>11</sup> which has already led to large fish kills in New York State waters.

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<sup>3</sup> Strayer, "It's time to reimagine the spread of harmful invaders," Albany Times Union, August 25, 2021, <https://www.timesunion.com/opinion/article/It-s-time-to-reimagine-spread-of-harmful-16409898.php>

<sup>4</sup> Garver, "Keeping Asian Carp from the Erie Canal," Notes from a Watershed, December 8, 2020, [https://mohawk.substack.com/p/keeping-asian-carp-from-the-erie?utm\\_source=url](https://mohawk.substack.com/p/keeping-asian-carp-from-the-erie?utm_source=url)

<sup>5</sup> Garver, "Stop the Invasion: barriers needed between Mohawk and Great Lakes," Notes from a Watershed, August 23, 2021, [https://mohawk.substack.com/p/stop-the-invasion-barriers-needed?utm\\_source=url](https://mohawk.substack.com/p/stop-the-invasion-barriers-needed?utm_source=url)

<sup>6</sup> Garver, "Address Erie Invasive Species Now," Schenectady Gazette, August 19, 2021, <https://dailygazette.com/2021/08/19/guest-column-address-erie-canal-invasive-species-now/>

<sup>7</sup> Garver, "Containing invasive species is critical to Erie Canal," Buffalo News, August 5, 2021, [https://buffalonews.com/opinion/another-voice-containing-invasive-species-is-critical-to-erie-canal/article\\_d3ba2cb0-f61a-11eb-a447-172d6bcf6bda.html](https://buffalonews.com/opinion/another-voice-containing-invasive-species-is-critical-to-erie-canal/article_d3ba2cb0-f61a-11eb-a447-172d6bcf6bda.html)

<sup>8</sup> Reimagine the Canals Task Force Report, 2020, available at <https://www.canals.ny.gov/reimagine/TaskForceReport.pdf>

<sup>9</sup> NYS DEC, "Mohawk River Basin Action Agenda," March 2022, available at [https://www.dec.ny.gov/docs/water\\_pdf/mohawkrbaa2021.pdf](https://www.dec.ny.gov/docs/water_pdf/mohawkrbaa2021.pdf)

<sup>10</sup> USGS, "Monitoring the Status and Expansion of the Round Goby in the Mohawk River/Barge Canal System," 2017, <https://www.usgs.gov/centers/new-york-water-science-center/science/monitoring-status-and-expansion-round-goby>

<sup>11</sup> Viral Hemorrhagic Septicemia, New York Invasive Species Information, [http://nyis.info/invasive\\_species/viral-hemorrhagic-septicemia/](http://nyis.info/invasive_species/viral-hemorrhagic-septicemia/)

The discovery of round gobies in the Hudson “should remind us of our failures in invasive species management and spur us to do better,” wrote David Strayer, freshwater ecologist and longtime researcher at the Cary Institute. “We do not know how gobies will affect the Hudson ecosystem, but large, harmful effects are possible. The Hudson’s imperiled sturgeons, the fishes of rocky shores, and fish-eating waterbirds are especially at risk.”

Already half the fish found in the Mohawk River are non-native, and the Hudson River ecosystem has been profoundly altered by multiple invasions, including water chestnut and zebra mussels. The impacts from these invasions are arguably greater than any other pollution source, and longer lasting. Once a species invades, at best it can be managed and contained, but in most cases its effects are permanent. In the case of the Hudson, oxygen-rich shallows where fish spawned and sheltered for thousands of years have been permanently starved of oxygen by water chestnut since its introduction in the 1930s; since 1991 zebra mussels have consumed the food that young-of-year shad and other river herring had relied on, leaving them weaker and less resilient to other stresses, like habitat loss, overfishing and warming waters. The shad population crashed, and with it one of the Hudson’s last commercial fisheries, in 2010. A decade later, American shad have still not recovered, and future invasions via the Erie and Champlain Canals are specifically identified as a risk to their recovery.<sup>12</sup> Other fish populations will collapse, and fishing communities will suffer, if we don’t act.

The next likely invaders that we can predict will follow the goby are Asian carp like black, silver and bighead carp. As voracious eaters of plankton, each alone could have profoundly negative impacts on many species that rely on the same food source. In the Illinois River, for instance, Asian carp have come to dominate the ecosystem, with two-thirds or more of all fish biomass accounted for by invasive bighead and silver carp, resulting in significant negative effects on native fish communities.<sup>13,14,15</sup> Silver carp can also pose a hazard to boaters, due to their propensity to launch themselves out of the water up to 10 feet in the air.<sup>16</sup> There is evidence that Asian carp may already have reached the Great Lakes, despite electric fish barriers

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<sup>12</sup> NYS DEC, “Recovery Plan for Hudson River American Shad,” draft, 2022, available at [https://www.dec.ny.gov/docs/fish\\_marine\\_pdf/hudsonshadplan.pdf](https://www.dec.ny.gov/docs/fish_marine_pdf/hudsonshadplan.pdf)

<sup>13</sup> Irons et al., *Journal of Fish Biology*, “Reduced condition factor of two native fish species coincident with invasion of non-native Asian carps in the Illinois River, USA—is this evidence for competition and reduced fitness?” 2007, available at <https://doi.org/10.1111/j.1095-8649.2007.01670>.

<sup>14</sup> Pendleton et al, *Environmental Fish Biology*, “Competition among river planktivores: are native planktivores still fewer and skinnier in response to the Silver Carp invasion?” 2017, available at <https://doi.org/10.1007/s10641-017-0637-7>

<sup>15</sup> Phelps et al, *PLoS ONE*, “Incorporating basic and applied approaches to evaluate the effects of invasive Asian Carp on native fishes: a necessary first step for integrated pest management,” 2017, available at <https://doi.org/10.1371/journal.pone.0184081>

<sup>16</sup> U.S. Geological Survey, “Are Asian Carp Dangerous?” available at <https://www.usgs.gov/faqs/are-asian-carp-dangerous>

maintained by the U.S. Army Corps of Engineers<sup>17</sup> in the canal connecting the Chicago River to Lake Michigan.<sup>18</sup>

The most effective barrier to the migration of species would involve closing and dewatering a small section of each canal, and utilizing a boat lift to move boats from one section of the canal to the next. While out of the water, the exterior and interior plumbing of the boat (intakes for engine and generator cooling, HVAC, baitwell pumps, etc.) can be cleaned to ensure that no eggs, larvae or other life stages pass with the boat. It is this type of “hydrologic separation” that engineers have recommended to New York Power Authority for implementation near Rome as “the best means to stop the movement of [Aquatic Invasive Species] through the Erie Canal among key waterbodies.”<sup>19</sup> A similar analysis of alternatives came to the same conclusion for the Champlain Canal.<sup>20</sup> The report to New York Power Authority recommends four barriers to invasive species passage via the Erie Canal, including hydrologic separation at Rome as described above, as well as at Rochester; a boat/lift operation at Oswego and a bio-acoustic fish fence at Lockport/Pendleton. As Rierkeeper’s mission is to protect the Hudson River and its watershed, our focus is on the need for hydrologic separation near Rome. The other barriers would be needed to thoroughly protect the Finger Lakes, Oneida Lake and other inland waters.

Rarely do we have an opportunity to prevent invasive species problems so effectively as we can by re-establishing a barrier that watershed boundaries provided prior to the excavation of our canals. Preventing invasions often involves complex regulations of industries that might knowingly or unwittingly transport new species via national or international commerce. It involves policing the individual actions of countless boaters, anglers and other outdoors lovers. Once introduced, managing invasive species becomes a game of whack-a-mole, often with each whack involving unpleasant trade-offs. These canal barriers, by contrast, offer the rare opportunity to solve an invasive species problem surgically, definitively and proactively.

The failure to take such an action will have significant consequences; among them: decline in recreational fishing. Notably, recreational striped bass fishing on the Hudson River, which is both a strong cultural force and a major economic contributor to the region, is already at risk. With populations of striped bass declining primarily from stress from recreational fishing alone, state and interstate fisheries managers already have difficult choices to make that are likely to

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<sup>17</sup> U.S. Army Corps of Engineers, “Electric Barriers,” available at <https://www.lrc.usace.army.mil/Missions/Civil-Works-Projects/ANS-Portal/Barrier/>

<sup>18</sup> The Guardian, “Invasive Asian carp found near Great Lakes beyond electrified barrier” June 2017, available at <https://www.theguardian.com/world/2017/jun/24/asian-carp-great-lakes-michigan-illinois>

<sup>19</sup> R2 Resource Consultants, “Erie Canal Aquatic Invasive Deterrent Study,” October 2019, available at [https://www.canals.ny.gov/reimagine/Technical\\_Reports/Aquatic\\_Invasives\\_Study.pdf](https://www.canals.ny.gov/reimagine/Technical_Reports/Aquatic_Invasives_Study.pdf)

<sup>20</sup> Lake Champlain SeaGrant, “Feasibility of Champlain Canal Aquatic Nuisance Species Barrier Options,” 2005, available at <https://www.uvm.edu/seagrant/sites/default/files/uploads/publication/ansbarrierrprt06.pdf>

reduce the season for New York’s anglers.<sup>21</sup> Round goby are expected to consume the eggs of river herring, and American, hickory and gizzard shad – all of which are important forage fish for striped bass. If Asian carp invade, they will likely grow to dominate the ecosystem, and out-compete these same fish for the plankton they need to survive. Failure to head off threats from stressors like Asian carp will put enormous stress on our already stressed ecosystem. It could lead to further collapse of river herring, and more restrictions for striped bass anglers.

Despite the risk to this large contingent of New York’s boating community, there have been overly alarming concerns raised about the impacts to boaters of establishing effective invasive species barriers in our canals. The systems and procedures necessary for pleasure boaters to traverse the barriers proposed would be comparable to familiar technology and practices in use by marinas for lifting, washing and winterizing vessels. Particularly in a canal system, where boaters are acclimated – and even enthused – about transiting slow-moving lock systems, an invasive species barrier can be implemented in a way that maintains the experiences that “loopers” and other boaters seek out. Creative implementation can even *enhance* boating experiences, through creation of related educational experiences, and by forging connections to tourist destinations and existing or new boating services in the area. One of Riverkeeper’s trademarks is our iconic wooden patrol boat, the *R. Ian Fletcher*, which makes us a unique stakeholder, with an understanding of both environmental and boating viewpoints. Like countless other boaters, we have transited the Erie Canal, and understand the value and challenges of the transportation route. Captain John Lipscomb, who had extensive experience running a boat yard prior to his work with Riverkeeper, is available to consult on alternatives.

There have also been calls to maintain the canals as commercial thoroughfares. We believe that the commercial traffic on each canal, while very limited and in many years non-existent, can be preserved through careful planning and consultation with affected industries.

We must learn from our failure to protect the Hudson from the round goby. We must take decisive action to heed the call of science, follow the lead of engineering experts, and implement a uniquely proactive and effective solution to one of our most pressing environmental issues: Stop the spread of invasive species through canals and into our beloved but fragile waterways, the Hudson River and Lake Champlain.

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<sup>21</sup> Atlantic States Marine Fisheries Commission, “Draft Amendment 7 to the Interstate Fishery Management Plan for Atlantic Striped Bass,” 2022, available at <http://www.asafc.org/species/atlantic-stripped-bass>