Testimony of Andy Buchsbaum

Director, Great Lakes Regional Center, National Wildlife Federation
Co-Chair, Healing Our Waters® – Great Lakes Coalition

Improving the Asian Carp Control Strategy Framework

Before the

Subcommittee on Water and Power

Senate Natural Resources Committee

February 25, 2010

Madame Chairwoman, members of the Committee, good morning. My name is Andy Buchsbaum. I'm here today wearing two hats: one as the director of the National Wildlife Federation's Great Lakes Regional Center, and the other as the co-chair of the Healing Our Waters® – Great Lakes Coalition. The National Wildlife Federation is America's conservation organization, inspiring Americans to protect wildlife and the habitat they depend on, like the Great Lakes, for our children's future. The HOW Coalition is a partnership of 114 national, regional, state and local organizations dedicated to protecting and restoring the Great Lakes.

Thank you for the opportunity to testify before you today about the worst crisis to face the Great Lakes since the colonization of the lakes by zebra and quagga mussels. Of course, I am talking about the potential invasion of two species of Asian carp, the bighead and silver carp. Your hearing today is most welcome because we have very little time to stop these species before immense and irrevocable damage is done to the Great Lakes. Madame Chairwoman, I was present when you spoke at the Asian carp public meeting in Ypsilanti, Michigan, last week, and your words perfectly describe the challenges we all face. The task of preventing Asian carp from invading the Great Lakes is a hard one: between the technical challenges, the difficulties of finding effective deterrents, and the desire to reduce the impacts of control measures on jobs and the economy, there are some very tough choices to be made. But the task of protecting the Great Lakes once Asian carp establish breeding populations is far harder – in fact, it is impossible. Once the invasive carp colonize the lakes, there is no turning back; the damage will be done. So as tough as our job is to prevent the invasion of these carp, the alternative is far worse. We have no choice; we have to do whatever is necessary to stop the Great Lakes' colonization by Asian carp. And we have to take action quickly, while there is still time to save the lakes.

As you know, over the past three months, federal and state agencies have been working in crisis mode to stop the Asian carp. Many dedicated people in those agencies have worked night and day, through weekends and holidays, to combat the carp. And I believe they have made progress. But because of institutional and political barriers, that progress has been uneven, often incomplete, and too slow. That description unfortunately also describes the agencies' most recent effort, the Draft Asian Carp Control Strategy Framework (Environmental Protection Agency, 2010; hereinafter, "Framework"). Unless that Framework is significantly upgraded, the Great Lakes remain highly vulnerable to invasion by Asian carp. With today's testimony, I would like to share with you our analysis of the Framework – its strengths and weaknesses – and our recommendations for improvements and action.

Asian Carp and the Great Lakes

The Great Lakes are a phenomenal natural resource, a network of five inland seas that span 94,000-square miles of surface area, contain 20 percent of all surface freshwater on the

planet and comprise the world's largest freshwater ecosystem. The five lakes — Superior, Michigan, Huron, Erie and Ontario —provide drinking water for 25 million people, support a $7 billion fishery, a $16 billion tourism industry (Great Lakes Commission, 2007), and are an integral part of North America's cultural and economic heritage.

But the lakes are under siege from more than 180 invasive species — nonnative fish, mussels and other creatures that entered via manmade canals and ocean freighters (Framework, p. 4). Asian carp is the latest threat and it could be the worst invader of all time if it establishes breeding populations in the lakes (Framework, p. 5).

Asian carp were imported to Arkansas in the 1970s to control algae in commercial catfish farms. The fish escaped into the Mississippi River during a 1993 flood and spread to the Illinois River and the Chicago Waterway System, a series of manmade canals that carries Chicago's sewage to the Mississippi River. Those canals link the Great Lakes and Mississippi River watersheds, creating an artificial superhighway for Asian carp to reach Lake Michigan.

The Asian carp have taken over the waterways they invade. They are large fish, up to 5 feet long and 100 pounds. They are voracious filter feeders, eating up to 20% of their body weight in algae and zooplankton every day (Framework p. 4). And they reproduce rapidly. Where they have invaded in the Mississippi River basin, they have become established in great numbers and outcompeted native fish (Chapman 2003). One species, the silver carp, panics when it hears a boat engine and flings itself out of the water, sometimes causing injuries to boaters, anglers, and water-skiers. Their presence has depressed fishing and recreation in the Mississippi River (Framework, p. 5).

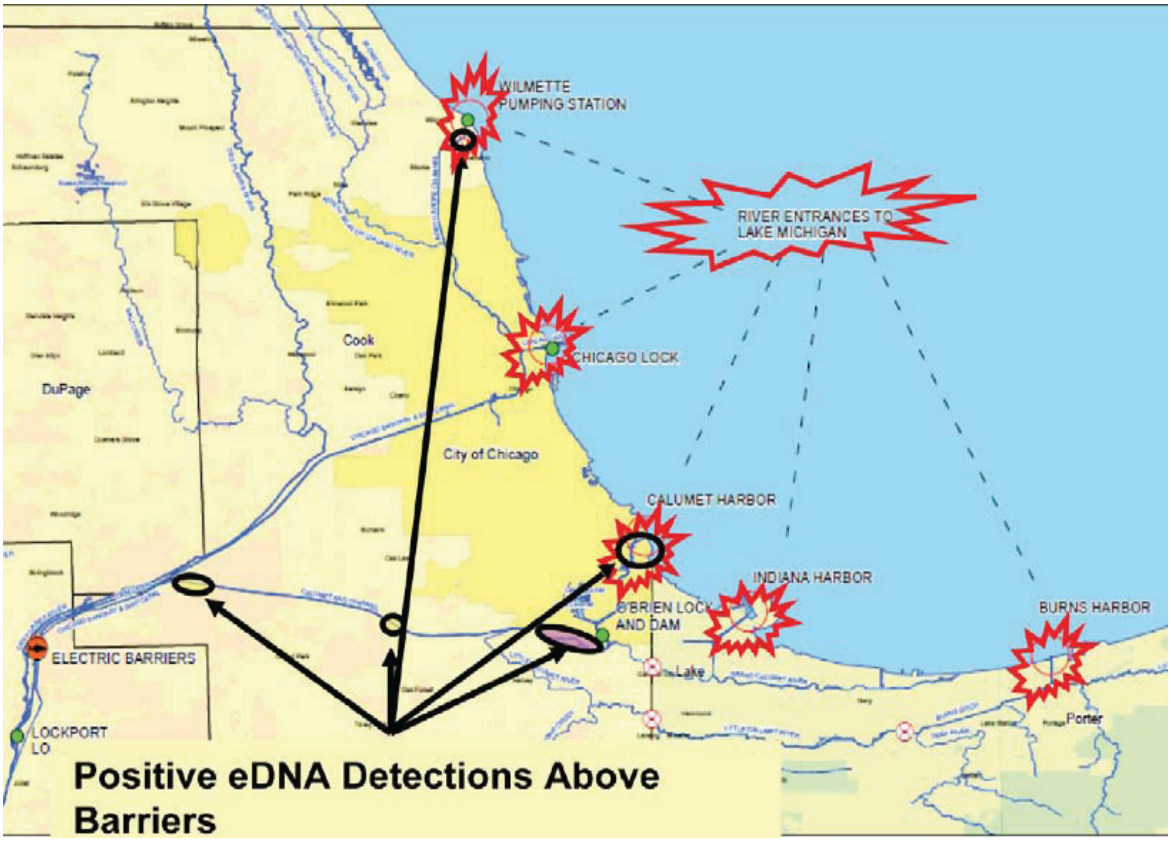
If Asian carp colonize the Great Lakes, their impact is likely to be immense. Scientists from the U.S. (Kolar et al 2005) and Canada (Mandrak and Cudmore 2004) have conducted risk assessments indicating that the Great Lakes have multiple carp-friendly habitats, including Green Bay, west Michigan, Saginaw Bay, Lake St. Clair, and western Lake Erie. The Great Lakes Restoration Initiative Action Plan published this week identifies precisely those nearshore areas as needing special protection (White House Council on Environmental Quality, et al., pages 26-27). Not only are these some of the most popular boating and fishing spots in the region; they also are the most biologically productive and sensitive areas in the Great Lakes system. These areas are most important for the overall health of the Great Lakes. According to an assessment by the region's top scientists, the Great Lakes' self-regulating mechanisms – their ability to recover from insults and damage from a variety of sources – is based in the near-shore communities and major tributaries of the lakes (Bails, et al., 2005). Those are exactly the areas most likely to be damaged by the establishment of Asian carp in the lakes.

Scientists, resource managers, Congress and the public have known about the threat of Asian carp to the lakes for almost a decade. Concern about an Asian carp invasion prompted

Congress in 2007 to fund the Army Corps of Engineers construction of a new electric fence in the Chicago Sanitary Ship Canal, about 20 miles from Lake Michigan, to stop the carp's passage through the canals. But due to construction delays and operational disagreements among federal agencies, the new barrier did not become fully operational until 2009.

The hope that the electric fence would stop the Asian carp from reaching Lake Michigan was shattered late last year. In November, the Corps released the results of a new type of eDNA testing conducted by a team of scientists led by Dr. David Lodge at the University of Notre Dame. These tests sample the waters where fish swim for minute traces of Asian carp DNA. Some of the eDNA samples tested positive for Asian Carp in areas past the electric fence – that is, beyond the last barrier protecting Lake Michigan. Most recently, the positive eDNA tests indicate Asian carp DNA at multiple points beyond the electric fence: in the Calumet Sag Channel; near the O'Brien Lock; near the Wilmette Pumping Station; and in Calumet Harbor, which is in Lake Michigan itself. See Figure 1 (Framework p. ES 1). At the Asian Carp public meetings this month in Chicago and Ypsilanti, Dr. Lodge and his colleague, Dr. Lindsay Chatterton, noted that these eDNA tests do not necessarily mean that live Asian carp are present, but that the likelihood of live fish being in these locations is very high based on the frequency and pattern of the positive DNA samples.

Figure 1



Despite that bad news, there is reason for hope if we act quickly. No one has seen live or dead Asian carp beyond the electric fence. The Illinois DNR has conducted extensive electrofishing and netting beyond the fence in the past three months and caught hundreds of common carp, but no bighead or silver carp. Fisheries managers and scientists believe the lack of live or dead fish means that the positive eDNA tests are due to isolated Asian carp in the areas beyond the electric fence. That is good news because it means that the Asian carp probably have not yet established breeding populations in the Great Lakes. Quoting Dr. David Lodge, the "establishment of a self-sustaining population of either silver carp or bighead carp in Lake Michigan – what biologists would refer to as an invasion – is not a foregone conclusion." Framework p. ES 2.

No one can say what would constitute a self-sustaining population of Asian carp in Lake Michigan – whether it would be two fish or two hundred fish. But there is universal agreement that lower the number, the better. That mandates a dual approach: stop any more Asian carp from reaching Lake Michigan, and kill any Asian carp that are already present in or might soon reach the lake.

The Framework

This month, the federal and Illinois agencies released their strategy to combat Asian carp, the Draft Asian Carp Control Strategy Framework. (Environmental Protection Agency, 2010). Although it has many useful and potentially effective elements, it is not nearly enough to protect the Great Lakes. Most fundamentally, it does not shut the door on additional Asian carp reaching Lake Michigan.

As Senator Stabenow noted, the challenge the Framework attempts to meet is not easy. Over the past 100 years, the Chicago canal system has grown and created interconnections with five different outlets to Lake Michigan (Figure 1 above describes the five outlets). Three of those outlets have control structures – locks – before they empty into the lake; two do not. Water flows from the lake through the outlets into canals and then to the Chicago Sanitary Ship Canal, southwest through the electric fence and the Lockport Lock into the Illinois River. But this system of waterways does not always remain intact. The DesPlaines River runs next to the Chicago Sanitary Ship Canal for several miles northeast of (beyond) the electric fence. During large storms, the DesPlaines River sometimes floods into the canals – carrying live organisms into the canal system well beyond the where the electric fence is designed to stop the movement of Asian carp. Because eDNA samples from the DesPlaines River also have tested positive for Asian carp, flooding of the DesPlaines could send additional invaders into the canal system without the protection of the electric fence.

The Framework appropriately attempts to plug these invasion vectors through several dozen short- and long-term actions. Some are likely to be effective and represent real progress, including:

- The Framework addresses the critical problem of flooding from the DesPlaines River, committing to the construction of barriers and fences by October, 2010 to contain flooding from the DesPlaines and to keep Asian carp from being carried from the DesPlaines to the canal system. This is essential in the short-term. Framework 2.1.5, p. 17.
- For the first time, the agencies commit to using all possible measures for short-term Asian carp control: chemical treatment (poison), electrofishing, netting, and temporary lock closures. Although it is still unclear how such measures would work together, this is the first time that modified operations of the O'Brien, Chicago River, and Wilmette locks have been included as action measures in a plan. Framework 2.1.4, pp. 15-16.
- The Framework includes enhanced and accelerated actions at Asian carp hotspots -- particularly increased testing and targeted removals using chemical and physical measures. Framework 2.1.1 and 2.1.2, pages 13-14. These measures are important to reduce and eliminate Asian carp that have gone beyond the electric fence and to minimize the chance they can move into Lake Michigan.
- The Framework also expands the scope and scale of eDNA sampling and accelerates the capacity to analyze those eDNA samples so they can be used for rapid response.
- The Framework includes important research to find biological means of killing and controlling Asian carp. That research, if successful, may be helpful for long-term solutions but is not likely to be completed soon enough to incorporate into short-term plans.

Despite these positive features, the Framework has some major flaws that make it ineffective in protecting the Great Lakes from Asian carp:

- In the short term, there is not enough detail on how or when the various measure will be used together to impede the movement of Asian carp. Those measures have to be used in sequence at specific locations over specific time frames to be effective. The Framework now is like a list of ingredients without a recipe. Unless you combine the ingredients in the right proportions and sequence, you will have a disastrous meal. We cannot afford that for the Great Lakes. What we need is a true contingency plan of triggers and timelines, with channel-by-channel and lock-by-lock actions sequenced for maximum protection of the Great Lakes.
- The short-term actions do not lead to a long term solution. The Framework's long-term strategy is a series of studies, none of them committed to a course of action. The most important study for the long-term – the Corps' Inter-Basin Feasibility Study on ecological separation – only considers ecological separation; it does not commit to it. As discussed

below, that is a fatal flaw. The only way to protect the Great Lakes from Asian carp is to stop the movement of live organisms between the Mississippi River system and the Lake Michigan basin – to separate the two ecologically. Unless that is the goal of the Framework, it is doomed to failure.

- The agencies are taking too long to develop an effective plan. They have had three months to develop contingency plans with triggers and timetables and a path toward a long-term solution. After all that time, they have produced an incomplete and flawed Framework, promising more details later. Every day we wait, the chances increase that Asian carp will establish a breeding population in Lake Michigan. The agencies need to act faster.

Conclusions and Recommendations

I attended both of the Asian carp Framework public meetings this month in Chicago and Ypsilanti and was impressed by the passion exhibited at each. There was a surprising consensus around the need to protect the Great Lakes from Asian carp, shared even by those most concerned that their jobs and livelihoods could be jeopardized by some of the remedial measures. Where the greatest polarization occurred was over one measure: closure of the O'Brien and Chicago Locks. That polarization is also reflected by the positions that different states have taken in the litigation before the U.S. Supreme Court.

The focus on lock closures can obscure the larger issues that we might get agreement on if we could get everyone to focus on them. We need a larger plan for short-term measures and how lock closure or modification might fit into that strategy. What gets lost is the concept that no single measure is effective by itself. The electric fence is certainly not 100 percent effective. Nor is poisoning, or electrofishing, or commercial fishing, or lock closure. The real issue is how to put all those measures together to stop movement of Asian carp into Lake Michigan.

The emphasis on lock closure also leads to confusion about the long-term goal of ecological separation – that is, stopping the movement of live organisms between the Mississippi River system and Lake Michigan. Ecological separation is essential for the Great Lakes. It is the only way of safeguarding the lakes from Asian carp. Anything short of complete separation will fail sooner or later, and if experience over the past few months is any guide, that failure is likely to be sooner. Unfortunately, many equate such separation with closure of the Chicago and O'Brien locks when in fact there are many other options. The system can be separated at other points in the canals that would leave the locks open (and could actually enhance passenger boat traffic and tourism). Those options are what we hope the Army Corps of Engineers is exploring in their Interbasin Feasibility Study. My colleague Joel Brammeier from the Alliance for the Great Lakes has done a study of several of those options (Brammeier, et al., 2008), and additional possibilities may also be feasible.

The other conclusion I drew from the Framework meetings is that the federal agencies, and particularly the Army Corps of Engineers, need additional direction from Congress. The Corps is the key decisionmaker here, and it is unclear as to whether the Corps is equipped to make good decisions. All the other agencies have roles in the Asian carp task force, but when it comes to long-term separation, canal modification, and lock modification and/or closure, the Corps decides. In Ypsilanti, the Corp's chief, Assistant Secretary to the Army Jo Ellen Darcy, repeatedly said the Corps would "balance all interests" in making its decision. "Balancing" is not a good standard for an agency whose historic mission is navigation and whose record overwhelmingly favors commerce over ecological protection. The Corps needs a new mission: in order to protect the Great Lakes from Asian carp, stop the movement of live organisms between Mississippi River system and Lake Michigan. That should be their priority.

These conclusions lead to the following recommendations:

- We recommend that Congress give the Corps a new mission to stop the movement of live organisms between the Mississippi River system and the Great Lakes. As part of that mission, Congress should direct the Corps to conduct its Inter-Basin Feasibility Study to determine *how* to best separate the Mississippi River system and the Great Lakes – not *whether* to separate them, as the Corps seems to be interpreting its mission now. Congress should also direct the Corps to complete the study in one year – by mid-2011 -- and then to implement the conclusions.
- We also recommend that Congress declare Asian carp to be an imminent and substantial threat to the Great Lakes and that stopping their movement into the Great Lakes be given the highest priority and urgency by the Corps and the other federal agencies as they design and implement short-term and long-term measures to combat the carp. Such a declaration will set the right parameters and timeframe for how the agencies balance different interests as they refine and implement the Framework.
- We support the agencies' plans to implement many of the short-term measures in the Framework: the flooding protections, optimizing the operation of the Barrier IIA (the electric fence), bringing Barrier IIB (the second electric fence) on line, expanding and enhancing eDNA and other monitoring, targeting hotspots for Asian carp eradication, and installing temporary barriers on the two channels into Lake Michigan that have no locks. We also support the search for methods to interfere with Asian carp spawning and to suppress existing populations.
- We recommend that Congress demand from the agencies a true contingency plan, with triggers and timelines and a channel-by-channel, lock-by-lock strategy for stopping the movement of Asian carp into Lake Michigan. While it is encouraging that the Framework contemplates partial lock closures as part of its "modified lock operations" plan, it needs to incorporate much more aggressive closures much more quickly and integrate them with other activities, such as chemical treatment and other removal measures.

- The implementation of these measures will require funding. We are fortunate that the Great Lakes Restoration Initiative funds are available for short-term and emergency measures. For longer term measures that will be more costly, additional funding will be required. It would be unwise to drain the GLRI funds to combat a single threat, no matter how urgent that threat might be.

Despite the weekly and sometimes daily drumbeat of alarming news about Asian carp, I am still optimistic that we can stop these invaders before they colonize Lake Michigan. I believe our biggest challenge is not technical, but political. Our region's leadership and people are in conflict over how to respond to this menace, and it is slowing and stalling the search for solutions. Our region has shown that we can do amazing things if we work together. Just in the past 18 months, Congress has enacted and the White House has signed two historic, unprecedented major initiatives for the Great Lakes, the Great Lakes-St. Lawrence Water Resources Compact and the Great Lake Restoration Initiative. These measures were possible because Congressional members, governors, municipal leaders, tribes, businesses, and the public in our region were united in favor of them. We need that same unity if we hope to do the hard work needed to protect the Great Lakes from Asian carp.

References

Bailes, J.; Beeton, A; Bulkley, J.; DePhilip, M.; Gannon, J.; Murray, M.; Regier, H.; Scavia, D. 2005. Prescription for Great Lakes Protection and Restoration: Avoiding the Tipping Point of Irreversible Change. Online at http://online.nwf.org/site/DocServer/prescriptionforgreatlakes_1_.pdf?docID=2621

Brammeier, J.B., Scudder Mackey and Irwin Polls. 2008. Preliminary feasibility of ecological separation of the Mississippi River and the Great Lakes to prevent the transfer of aquatic invasive species. Online at http://www.greatlakes.org/Document.Doc?id=473.

Chapman, D. 2003. Bighead and silver carp in the Mississippi and Missouri Rivers. Online at infolink.cr.usgs.gov/Science/Documents/invasive_carp.pf.

Environmental Protection Agency, Illinois Department of Natural Resources, U.S. Fish and Wildlife Service, U.S. Coast Guard, 2010. Draft Asian Carp Control Strategy Framework ("Framework"). Online at http://www.asiancarp.org/RegionalCoordination/documents/AsianCarpControlStrategyFramework.pdf

Great Lakes Commission. 2007. Great Lakes recreational boating's economic punch. Online at http://glc.org/recboat/pdf/rec-boating-final-small.pdf.

Kolar, C. S., et al. 2005. Asian carps of the genus Hypophthalmichthys (pisces, cyprinidae)--A biological synopsis and environmental risk assessment. Online at www.fws.gov/contaminants/OtherDocuments/ACBSRAFinalReport2005.pdf.

Lodge, David. 2009. Declaration of David M. Lodge in Appendix to memorandum for the United States in Opposition, Supreme Court Nos. 1, 2 and 3, Original. Online at http://www.supremecourtus.gov/SpecMastRpt/ApptoMemfortheUSinOpposition.pdf

Mandrak, N. E., and B. Cudmore. 2004. Risk assessment for Asian carps in Canada. Online at www.dfo-mpo.gc.ca/csas/Csas/DocREC/2004/RES2004_103_E.pdf

White House Council on Environmental Quality, et al. 2010. Great Lakes Restoration Initiative Action Plan. Online at http://greatlakesrestoration.us/action/wp-content/uploads/glri_actionplan.pdf