

Thank you for your comment, George Jackson.

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Attachment: ANS Control Paper.docx

Comment Submitted:

Response - Inventory of Available Controls for Aquatic Nuisance Species of Concern

Chicago Area Waterway System

Following are my thoughts regarding the “Inventory of Available Controls for Aquatic Nuisance Species of Concern – Chicago Area Waterway System.”

Let me start by saying the Army Corps and the team supporting the Great Lakes and Mississippi River Interbasin Study that did the research and put together the report did an impressive job in developing a methodology to identify invasive species of concern and potential control measures.

My interest in this issue comes solely from being a Great Lakes boater and fisherman. I have navigated Lake Huron and Georgian Bay, Lake Superior, and Lake Michigan as well as the Mississippi and Illinois Rivers, Chicago’s Waterways, and the Gulf of Mexico.

I think it is important to note that, as you pointed out in the ANS Control Paper, aquatic invasive species can indeed migrate by terrestrial and airborne means supported by natural forces of nature or human assistance. That fact should lead us to the reality that any control strategy will not be 100% effective in stopping invasive species migration through Chicago’s Waterways.

For instance we have seen Zebra Mussels migrate over the continental divide, Asian Carp are already found in hydrologically isolated lakes throughout the Midwest and evidence of Asian Carp has been found above the Coon Rapids Dam on the Upper Mississippi River, and invasive Northern Pike have been showing up in isolated lakes in Alaska for several years. The truth is that, while vast oceans are effective in isolating ecological systems, once a species reaches a continent it will eventually migrate to areas with an ecology that supports its survival.

I believe that we can rely on physical or passive barriers to slow invasive species migration but, those strategies will have to be supplemented by other control measures when invasive species eventually migrate past those barriers. Therefore it is important that we allocate our financial and intellectual resources wisely, realizing that no single solution will be a “magic bullet” for stopping all invasive species. Multiple strategies will have to be developed that will not only provide ecological barriers but also control invasive species in the event they pass those barriers. Different categories of invasive species may also require different controls that act in a way that is appropriate for a specific location.

The most important consideration is that the magnitude and cost of any control strategy must be consistent with its relative effectiveness and the scope of the environmental threat.

Preferred Controls on the Chicago Area Waterways (CAWS):

I believe passive barriers should continue to be investigated, developed, and improved for use on the CAWS.

I define passive barriers as barriers that will stop invasive species migration without physically blocking a waterway.

The passive electric barrier currently in place should be the primary strategy of stopping invasive fish on the CAWS.

Given the size of invasive fish in the Mississippi River and Great Lakes Basins, tests conducted by the Army Corps have indicated that the electric barriers will stop swimming invasive fish as effectively as physical barriers with the advantage of keeping the waterways open for commercial and recreational marine traffic and flood control. That may be of critical economic importance for the Great Lakes states after the Panama Canal is improved to handle large container vessels in 2014. When the expansion of the Panama Canal is complete, Chicago’s waterways may well be vital corridors for efficiently moving goods by barge between all the Great Lakes states and Gulf ports handling container ships serving Asian markets.

The electric barriers are bought and paid for and their cost is insignificant compared to the economic and infrastructure costs that would be required to implement physical barriers – that money can be better spent on other invasive species control measures.

Furthermore, electric and other passive barrier (acoustic bubble, etc.) technology developed for the CAWS will find other applications for controlling invasive fish migration throughout the Mississippi River and Great Lakes Basins.

I recently read that a study is being conducted to investigate using wind and solar power to supplement the operation of the electric barriers on the CAWS. That is a great idea and hopefully it will yield positive results.

Alteration of Water Quality would have high potential on the CAWS for stopping a broad range of invasive species other than fish as well as acting as a second barrier against swimming fish. This strategy should be further investigated for application on the CAWS.

I was particularly interested to see **Carbon Dioxide** as a tool for altering water quality. While there are global warming concerns about injecting Carbon Dioxide into the atmosphere, one can't help but notice that there is a coal fired power plant on the CAWS near the electric barriers which could provide an endless source of carbon dioxide. If some of that plant's "free" carbon dioxide could somehow be charged into the CAWS we could have a cost effective carbon dioxide barrier with no net increase in carbon dioxide emissions. **I would like to see that idea addressed as well.**

For invasive plants I would focus on evaluating harvesting and herbicide strategies as needed on the CAWS.

Other Strategies:

Beyond barriers, long term solutions should also be investigated for **biologically controlling** invasive species on Chicago's waterways and other aquatic systems. These controls can be useful in controlling invasive species populations that have eluded either physical or passive barrier systems due to terrestrial, airborne, or human assistance paths or invasive species that have been introduced directly into open bodies of water such as the Great Lakes or smaller lakes. Due to the time factors and expense in developing such technologies, we must be careful in selecting species for this strategy that pose a high risk to specific aquatic system's ecology.

Targeted diseases and Daughterless Gene strategies sound like they merit further investigation.

**George Jackson
January 5, 2012**