



February 15, 2010

GLMRIS Scoping
111 N. Canal, Suite 600
Chicago, IL 60606

GLMRIS Scoping Officials:

We are writing to provide input regarding the Great Lakes and Mississippi River Interbasin Study (GLMRIS) through the *National Environmental Policy Act* (NEPA), 42 U.S.C. 4321 *et seq.*, scoping period ending March 31, 2011.

We understand as part of this scoping process that the U.S. Army, Corps of Engineers (USACE) and other stakeholders will be, among other things, “exploring options and technologies, collectively known as aquatic nuisance species (ANS) controls, that could be applied to prevent ANS transfer between the Great Lakes and Mississippi River Basins through aquatic pathways”.

Sierra Innotek, in cooperation with the Natural Resources Management Associates (NRMA) have been exploring a range of technologies related to the control of ANS fish such as the Asian carp. Further we have developed and applied for patents on technologies which we believe would be beneficial to the USACE in preventing the passage of Asian carp or other fishes during routine vessel lockages.

The technology employs a sequenced array of electrical fields which would be deployed to drive any fish in the lock chamber from the lock into the open river before a vessel would be allowed to enter for lockage. The technology could be deployed for use in either upstream or downstream directions. It would have application not only in the Chicago canals but anywhere that fish movement is undesirable.

This past fall we worked with interested officials at the Illinois Natural History Survey (INHS) at Havana developing a proposal for laboratory and field testing of the technology. We believe the technology holds promise and is only lacking sponsorship for testing and field deployment, which we would plan to coordinate with the INHS.

We have attached a brief summary of the technology for your review and comment. Sierra Innotek has experience with federal government contracts, including with the Department of Defense. We would be pleased to travel to Chicago to further discuss this technology and potential funding of its further testing and development with you.

Thank you for the opportunity to provide this input to your important scoping effort.

Sincerely,

Jerry Rasmussen, NRMA

Steve Palmer, Sierra Innotek, Inc.

Enclosure: Virtual Moving Barrier Executive Summary

Virtual Moving Barrier for Asian Carp Control and Harvest

Executive Summary

The spread of Asian carp in the upper Midwest threatens many habitats, including the Great Lakes. Controlling and managing this invasion calls for the development of new and innovative technologies. Sierra Innotek's new Virtual Moving Barrier technology may provide one solution to the problem. It is designed to drive or concentrate fish populations through the use of a *sequenced array* of elements utilizing either electric fields and/or under-water sonic disturbances, referred to as a "driving signal." These elements are activated in a manner to drive fish from one location to another. Element sequence activation can be controlled either automatically or manually, resulting in controlled fish movement through multiple zones. Typically, the elements will be controlled in a manner that will result in the fish being driven from one location to another or to a holding or kill zone, where they may be examined, tagged, or harvested. The technology may thus be ideally suited to drive fish from a navigation lock into the open river preventing their passage through the lock. Or, the technology could be used to drive carp into harvest/kill areas such as river tributaries or within canals such as the Chicago Sanitary and Ship Canal (CSSC).

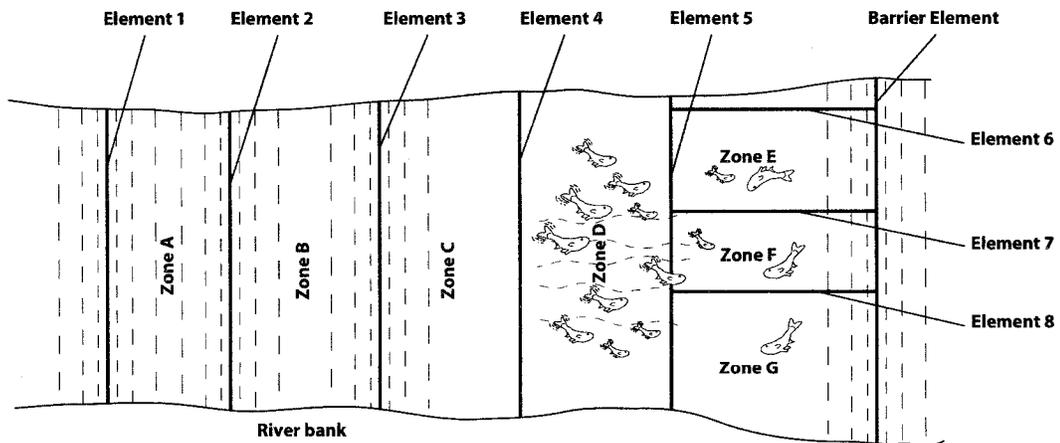
Figure 1 illustrates one possible application of the technology in a river or stream. In this example, the Barrier Element and Element number 1 are activated first. This creates a containment area. Fish on the "inside" of the containment area near Element 1 are driven from Zone A into Zone B. Once the fish are inside Zone B, Element 2 is activated, causing the fish to move into Zone C. This process is repeated until the fish have been driven past Element 5 and are now confined between Element 5 and the Barrier Element. At this time, Elements 6, 7 and 8 are sequentially activated, causing the fish to be driven to and concentrated in Zone G for tagging, examination or harvest.

The driving signal waveforms, duration and intensities are selected to optimize fish movement from one zone to the next. For example, an electrical signal of gradually increasing intensity can be used to drive fish over greater distances without harming those close to the element or causing electrotaxis.

Properly developed and deployed, this technology may provide a fail-safe solution for preventing a Great Lakes Asian carp invasion via the CSSC by periodically driving any invading carp from navigation locks or from below the existing electric barrier to the lower end of the Lockport Pool or to an area of the canal where harvest or kill could be accomplished with any combination of netting, mechanical harvesting, electrotaxis or toxic chemicals. In the latter case, after the fish have been concentrated, contained and processed/killed, the driving signals can be removed to allow new fish to populate the zones and the process may be repeated as necessary. The technology could thus be deployed routinely with each navigation lockage or as frequently as desired in the CSSC and could greatly reduce the use of toxic chemicals by concentrating the fish in a confined kill zone if that were the desired mechanism of kill and removal of any invading carp.

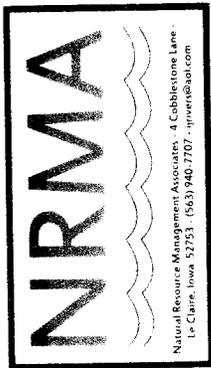
Virtual Moving Barrier

FIG. 1



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Virtual Moving Barrier

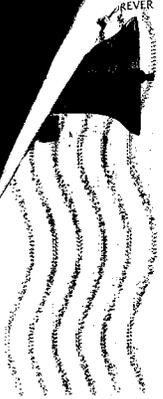


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Dear Mr.

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