Grounding The Invasive Flying Carp; Development Of An Early Warning And Fish Detection System

C. Lee Austin[1,2] and Allen F. Mensinger[1,2]
[1]University of Minnesota Duluth, Duluth, MN; and [2]Marine Biological Laboratory, Woods Hole, MA.

Abstract

The silver carp, one of four invasive carp species in the United States is currently migrating north via the Mississippi river threatening native fish in Minnesota waters by outcompeting them for food supplies. Known for its jumping ability when startled, silver carp place recreational boaters in danger of being injured during collisions with airborne fish. However, early detection or accurate census of existing populations is difficult as the fish will avoid traps or nets and live in murky waters. By using sound and or vibration to induce jumping, an accurate assessment of the population may be possible. A small surface buoy has been developed that contains stimulus and video recording equipment. The CB-150 data buoy is equipped with an mp3 player, amplifier, hydrophone, underwater loudspeaker, vibration apparatus, and two surface video cameras. The instrumentation is operated remotely via a 433 MHz long-range UHF radio receiver that interfaces with the onboard controller. The system is operated remotely from a boat or shore and will intermittently induce jumping through sound and/or vibrational stimuli. We anticipate this buoy will provide early warning detection for silver carp as well as an accurate census of the population. In addition, we are using this technology to actively develop safety devices for boaters, to reduce collisions and increase boater safety in carp infested waters.