Dual-Frequency IdeNtification Sonar (DIDSON) For Fisheries Applications: Cool Tool Or Expensive Toy?

Susan L. Camp, USDI Bureau of Reclamation, Montana Area Office, P.O. Box 30137, Billings, MT 59107, scamp@gp.usbr.gov

Eric Best and Steve Hiebert, USDI Bureau of Reclamation, Technical Services Center, Fisheries and Wildlife Resources Group, P. O. Box 25007, Denver, CO 80225, ebest@do.usbr.gov

The Dual-Frequency Identification Sonar (DIDSON) camera was developed for inspec-tion and identification of objects underwater in highly turbid environments, using acoustic lenses and sonar technology to deliver near video-quality images. Although developed primarily for the Navy to image underwater structures, such as mines and ship hulls, the DIDSON is now available to the public and is being used for other applications. Reclamation has been exploring the technology to determine if it can provide a useful tool for fisheries management. The DIDSON camera operates using sound frequencies and allows observations of fish behav-ior in large, turbid rivers where video camera observations are impossible, and is also useful in identification of substrates and observation of other underwater structures. Reclamation has captured images of razorback sucker (*Xyrauchen texanus*) spawning behavior in the Colorado River and is currently using the technology on the Yellowstone and Missouri Rivers in hope of documenting behavior of the endangered pallid sturgeon (Scaphirynchus albus) and other native fish. Preliminary results are promising. We found that the best image quality is obtained by deploying the camera on a remote controlled underwater tripod. The most effective meth-ods are either using the camera in conjunction with radio telemetry to locate a known target or by setting the camera in favorable habitat and waiting for fish. Though there are some limita-tions, DIDSON technology may provide a useful tool for fisheries applications.