APHIS
Aquaculture Industry Report

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New and innovative research continues to benefit the aquaculture industry. Recent studies have shown that laser technology is much more effective than pyrotechnics in protecting catfish producers from cormorant damage. In fact, low-power laser devices have now been certified by the U.S. Food and Drug Administration for commercial sale and are being evaluated for cormorant roost disperal.

The aquaculture industry has benefitted not only from modern technology but also from innovative research involving animals and aquatic species. The efficacy of border collies in limiting bird damage at tropical fish farms is currently being studied. Black carp appear to reduce the snail population more efficiently than do chemical treatments; this is good news for those struggling with the appearance, for the first time, of the trematode *Bulbophorous confusus* in Arkansas and the Mississippi delta. The snail is the intermediate host for *B. confusus.*

While the new research is encouraging, the aquaculture industry continues to face some puzzling challenges. For instance, healthy-looking fish in the delta area are dying for no apparent reason. Intensive investigations have not yet disclosed the cause of this mortality.

More information about these topics, as well as many others, is included in this issue. Overall, the aquaculture industry is alive and well. Producers in the industry are making great contributions to the welfare of the American economy.

Sincerely,
Craig A. Reed, Administrator
Animal and Plant Health Inspection Service (APHIS)

Wildlife Services

Research

Scientists at Wildlife Service's (WS) National Wildlife Research Center's Starkville, MS, field station completed a study on the effectiveness of lasers in dispersing cormorant roosts. The study compared laser beams as a cormorant roost dispersal tool to the conventional method of using pyrotechnics for roost dispersal. Two types of nonlethal, low-power laser guns were tested for efficacy in relocating roosting cormorants in the catfish-production region on the Mississippi delta; cormorants there are responsible for about $14 million worth of catfish losses annually.

Both laser devices tested were effective in dispersing more than 90 percent of the birds from roosts in the study. The advantages of the lasers over pyrotechnics include greater range (birds can be dispersed from a distance of up to 800 yards), reduced manpower requirements, reduced noise disturbance to nontarget wildlife and people, directional and species-specific beams, and greater efficiency (20 minutes to move a roost compared to 1 to 2 hours with pyrotechnics).

The study included a series of tests to determine if the low-power laser beams cause any eye damage to cormorants. All tests were negative. Low-power laser devices have now been certified by the U.S. Food and Drug Administration for this purpose and are commercially available.

Protecting Tropical Fish

Traditionally, wading birds have been the major wildlife group to cause damage to tropical fish aquaculture facilities. In recent months, WS has seen a significant increase in the number of requests for assistance with river otter depredation to brood stock from tropical fish producers in Florida. River otters can seriously damage tropical fish brood stock in just a few nights when the larger brood fish are concentrated in confined ponds. WS is working with the Florida Game and Fresh Waster Fish Commission to streamline the State's trap permitting process to expedite getting permits to affected producers in time to reduce otter damage before brood stocks are decimated.

Program Development

The Tropical Aquaculture Laboratory in Ruskin, FL, and WS conducting a study to determine the efficacy of border collies in limiting bird damage at tropical fish farms. Using dogs instead of pond-protecting wire and nets would reduce the number of nontarget species killed when they become entangled in the wire grids and netting. The U.S. Department of Agriculture (USDA) has identified funding for the study, and the laboratory has requested funding from the State of Florida in order to begin the study by June 2000.

Veterinary Services

News From Mississippi and Arkansas

The Mississippi catfish industry is alive and well, despite some challenging and unusual problems. A long-time delta producer's fish began to spawn the last day in March 2000; he says this is the earliest date in his 40 years as a producer. Perhaps this is an indicator of a banner year for the Mississippi catfish industry. The industry is growing rapidly in the eastern prairie counties, providing more opportunities for aquaculture support groups. Producers are becoming more and more aware of the potential international market for fry and fingerlings and are increasingly inquiring about certifications needed for exports. At least one delta producer is investigating shipping sac fry to Bulgaria.

On the down side, though, fish that look perfectly healthy are dying for no apparent reason. Visceral toxicosis in catfish was first noticed in Mississippi and Arkansas during the early spring of 1998. Necropsies revealed extensive visceral lesions, the most notable being intussception and fat effusion. Intensive investigation by personnel at the Thad Cochran National Warmwater Aquaculture Center at Stoneville and Mississippi State University's College of Veterinary Medicine on the Starkville campus has not revealed the cause of this die-off. Unsuccessful viral and bacterial culture attempts, plus the inability to reproduce the disease by exposure, point to the possibility of a toxin being the cause of death. This condition reappeared during the winter of 1999 and is still being observed. It has not been observed in the eastern part of the State.

A less mysterious, but still puzzling, problem is the appearance, for the first time, of the aptly named trematode *Bulbophorous confusus* in Arkansas and the Mississippi delta. This fluke, which is primarily vectored by the white pelican, causes an encystic condition that seriously affects fingerlings and food fish. It has caused severe losses in southern Louisiana and is known to have infected fish on 50 or so farms in the delta area. Stoneville personnel and parasitologists at the Starkville campus are spearheading an effort to identify the life cycle of the trematode and to devise an effective control program. The most promising control may be biological. Black carp appear to reduce local populations of snails—the fluke's intermediate host—more efficiently than do chemical treatments. The Mississippi Game and Fish Department will allow the importation of certified hybrid black carp by permit.

News From Florida

The Florida Division of Animal Industry veterinary laboratories in Kissimmee and Live Oak, FL, have been approved for conducting diagnostic testing of aquatic animals.

News From Maine

The Maine Atlantic salmon aquaculture industry is still free of infectious salmon anemia virus (ISAv), based on data from yearly lot inspections and some voluntary industry-supported monitoring, which is done monthly in the Cobscook Bay area. The Maine industry elected not to vaccinate the Y2000 smolt class against ISAv except for one trial lot. These fish are currently being transferred to marine growout sites.

Aquaculture Briefs

APHIS' VS would like to extend our condolences to the family of Bill Klontz. Dr. Klontz, a D.V.M. and aquaculture specialist, passed away recently and will be greatly missed by the veterinary profession. He was well known in the aquaculture community as a teacher and for his efforts to promote fish health. Dr. Klontz' influence touched many parts of the aquaculture industry and APHIS.

Ed McLeary, a recognized pioneer in the salmonid hatchery industry, was appointed in May to the National Fish Culture Hall of Fame by the American Fisheries Society. His first hatchery in Washington, cofounded as Troutlodge, Inc., was one of the initial aquaculture industries to use APHIS' voluntary certification program. The APHIS-approved laboratory facility became a model for future APHIS voluntary certification programs. McLeary is an industry leader and has been active in the pursuit to recognize fish farming as agriculture, and APHIS congratulates him on his achievement.

VS Personnel Changes

Dr. Mark Dulin has taken over duties related to exports of aquatic species from Dr. Linda Kahn. His contact information is as follows:

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Ronald Osborne has replaced Deborah Brennan as the VS aquaculture coordinator for Mississippi. His contact information is as follows:

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