U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Bureau of Sport Fisheries and Wildlife
Atlanta, Georgia

Inspection of Fish Kills

at

Lake Apopka, Florida

Mr. Thomas L. Wellborn, Jr., Hatchery Biologist, visited Lake Apopka during the period June 21-24, 1963, for the purpose of determining if the fish kill occurring there was due to disease.

The lake was inspected on the afternoon of June 21 in the company of Mr. C. W. Sheffield, Orange County Board of Health, Mr. Harold Moody, Biologist, Florida Game and Fresh Water Fish Commission and Mr. Eddie Cromwell, Fishery Aid, Florida Game and Fresh Water Fish Commission. At this time no moribund fish were observed however, a number of dead fish were seen.

The lake was again inspected for moribund fish on the mornings of June 22, 23, and 24. Mr. Cromwell accompanied Mr. Wellborn on those days. Moribund gizzard shad, threadfin shad, and speckled bullheads were seen on all three days. These fish were laying at the surface either on their back or side with the head up and the tail down. When disturbed, they would swim downward, spiraling on a longitudinal axis, but would surface again in just a few seconds.

Externally, the shad and catfish exhibited no overt symptoms of disease. However, about 50 percent of the speckled bullheads appeared to be emaciated. A microscopic examination of the fins, body surface, and gills failed to reveal the presence of any pathogenic organism in epizootic numbers. A few parasitic protozoans (Trichodina spp. and Scyphidia spp.) were found on the gills and fins. Also, some monogenetic trematodes were found on the gills and a parasitic copepod (Argulus) was noted on one specimen of gizzard shad and one specimen of speckled bullhead.

No bacteria were seen in stained slides of kidney material and TSA media inoculated with kidney material showed no bacterial growth after 48 hours. A gram negative bacterium was isolated from the kidney of one speckled bullhead. However, this specimen had numerous small cuts on the posterior third of the body that were apparently made by a predaceous fish. It is probable that the bacterial infection was due to this mechanical injury which allowed the bacteria to invade the fish.

With the exception of the one specimen of speckled bullhead, no evidence was found that would indicate that disease was the cause of the fish kills.

Preserved specimens of moribund fish have been forwarded to the Eastern Fish Disease Laboratory for histological examination for a possible viral infection.

The moribund fish were found only along the north shore of the lake. The lake is bordered on the north and northeast by 18,000 acres of muck farms. At the time the lake was being inspected the crops along the north and northeast shore were being sprayed with insecticides by airplanes. The planes were generally flying a north-south pattern and at the end of the south pattern, they were making their turns over the lake at a distance of 300 to

1,000 yards from shore. The spray rigs were not being completely shut off as the planes made their turn over the lake. The pilots apparently paid no attention to the fact that our boat was several hundred yards off-shore, since all three mornings they flew over our boat at a very low altitude with the insecticide still being released from their spray rigs. Photographs of the planes were made and the identification number of one of the planes was noted.

According to a report from the Crop Reporting Service of the Department of Agriculture, nine of the approximately twenty-seven farms that border Lake Apopka expend $389,400 annually for spray materials.

It was suggested to Mr. C. W. Sheffield that samples of moribund fish, aquatic vegetation, and bottom mud be sent to Dr. Oliver Cope, Fish Pesticide Research Laboratory, Denver, Colorado for analysis.