

OFFICE OF FISH AND WILDLIFE HEALTH AND FORENSICS
MONTHLY REPORT
January 2022

Jan Lovy, Ph.D., Research Scientist II
Nicole Lewis, M.S., D.V.M, Research Scientist II
Nilanjana Das, B.S., Animal Health Technician (900h seasonal)
Sarah Friend, M.S., Environmental Specialist

FISH AND WILDLIFE HEALTH PROJECT (FW-69-R20)

Diagnosis of Diseases in Freshwater Fish (Job F-1)

Gas bubble disease in farmed trout submitted from a private club (20-Dec-2022):

On December 20th, four fish were submitted to the Pequest Aquatic Animal Health lab. These were trout cultured privately in New Jersey. Necropsy revealed that the fish had gas bubble disease, caused by waters supersaturated with total dissolved gases. Gas bubbles were noted in the eye and the fins of fish. Necropsy did not reveal any signs suggestive of infectious disease and bacteriologic cultures (cultured on TSA and incubated for up to 72h at 15°C) were negative for bacterial growth. Possible reasons for supersaturation may include gas introduction into the system with a malfunctioning pump, improper degassing of ground water, or abrupt warming of water temperature. A brief report was provided to the submitter on the findings.

Diagnosis and research of Diseases in Marine Fish (Job F-2)

Atlantic Menhaden mortality in Port Republic (22-Dec-2022):

Chronic mortality was reported in Atlantic Menhaden from Mill Pond off the Mullica River in Port Republic, Atlantic County. On December 22nd it was reported that ongoing mortality was occurring for two weeks. Two fish were collected by CPO Capri on the 22nd. Follow-up was conducted on Dec 28th by our office (N. Das) to collect additional moribund fish. Water quality parameters at 10:00 am were as follows: water temperature 6.5°C, pH of 7.01, and a dissolved oxygen of 9.83 mg/L (80.25%). Three additional moribund fish were collected at this time. At the time of investigation, approximately 150 dead fish were observed. Total length of the 5 collected fish ranged from 25.5 cm to 30.5 cm, weight of 160.3g to 243.5g. Necropsy showed light eye hemorrhage in one fish and brain congestion/hemorrhage.

Bacteriological analysis from brain and kidney from each fish included plating tissue homogenates on TSA agar with 2% NaCl to determine presence and estimate the load of bacteria in each organ. Bacteriology revealed high loads of the bacterium *Vibrio anguillarum* in the brain of all five fish. The bacterial loads ranged from 1.4×10^5 to 5.6×10^7 CFU/gram of tissue. Kidney tissue had much lighter bacterial loads in four fish, with 2 having no bacterial growth and 2 with very light loads (200 and 300 CFU/gram of tissue). One fish had high loads of bacteria in the kidney (5×10^6 CFU/gram of tissue). Histology samples were collected from three fish and results are pending.

The findings indicate that the mortality was related to brain infections with the bacterium *Vibrio anguillarum*, which is consistent with previous findings of menhaden mortalities from previous years in the spring and fall. This is a common marine bacterium that is known to be pathogenic in fish. The trend of these being primarily brain infections with *V. anguillarum* continued in this mortality event. These bacterial brain infections are the suspected reason for the neurologic signs observed during the mortality.

Atlantic Menhaden project: data analysis and report writing:

Data analysis and histopathologic evaluation has continued on Atlantic Menhaden samples that were collected from the menhaden mortalities from coastal NJ in 2020 and 2021. All the Atlantic menhaden mortalities were associated with the bacterium *Vibrio anguillarum*. Data analysis is ongoing, and work is continuing on a manuscript draft to summarize the findings from our work.

Wildlife Disease Surveillance and Investigations (Job W-1) and Wildlife Toxicology (Job W-2)

New Cases:

Cotton tail rabbit, Greenwich NJ:

A resident found multiple cotton tail rabbits dead on their property over a short period of time in November 2021 and was able to collect one specimen. On necropsy there was a significant amount of internal hemorrhage as well as hemorrhage exuding from the nose. Two ticks were found on the back leg, and one was saved for additional diagnostics. The animal was negative for rabbit hemorrhagic disease and toxicology tests were also negative. Ongoing testing is pending.

White-tailed deer, Denville, NJ:

An animal control officer reached out as an adult doe was seen neurologic and the local PD had recently dispatched it. CPO DellaVella transported the deer to the Clinton Pathology Lab for evaluation. On necropsy there were no obvious findings. The doe had two very early term fawns. Samples were collected for additional diagnostics, results are pending.

CWD Surveillance 2021:

CWD sampling has been completed with a total of 744 deer sampled throughout the state. Samples will be submitted to the Wisconsin Veterinary Diagnostic Lab for testing.

COVID-19 in WTD:

As part of an ongoing collaboration with USDA WS, over 200 deer were sampled for SARS-COV-2 and two were found positive for the delta variant. Messaging has been sent out to hunters and residents for awareness.

Meetings:

- Dr. Lewis attended a virtual call with regards to the finding of HPAI in Newfoundland and then subsequently in a wild bird (American wigeon) in South Carolina.
- Dr. Lewis attended a virtual webinar on Chronic Wasting Disease

NON-PROJECT ACTIVITIES:

- Dr. Lewis performed a forensic necropsy on a vulture suspected of illegal shooting.
- Dr. Lovy conducted reviews for two scientific manuscripts submitted to Journal of Aquatic Animal Health and Journal of Fish Diseases.