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DATE: June 6, 2008

TO: Matt Fisher, DNREC

FROM: Martha Corrozi, University of Delaware, Institute for Public Administration-Water Resources Agency

SUJECT: Fish Population Study on the Brandywine River

The University of Delaware's Water Resources Agency, a unit of the Institute for Public Administration, worked in partnership with DNREC and the Brandywine Conservancy to conduct a fish population study on the Brandywine River. Erika Farris, Maureen Seymour, and Mandy Tolino, graduate research assistants with the Water Resources Agency, and Martha Corrozi, Assistant Policy Scientist collected data from April 29, 2008 through May 30, 2008. DNREC's Matt Fisher set the exact dates and times for the data collection and provided a volunteer angler log for the interview tool. The Water Resources Agency will provide the data to DNREC and the Brandywine Conservancy and it is understood that this data will be used to assist the Brandywine Shad Partnership's efforts to restore shad migration to the Brandywine River.

The fish population surveys were conducted on three randomly selected weekdays (Monday through Friday) each week for the six-week period. Angler counts and interviews were also conducted twice on one of two weekend days for each week, which resulted in data collection on two Saturdays and three Sundays during the six-week period. The Water Resources Agency was responsible for collecting data on 22 days from April 29, 2008 through May 30, 2008. The Water Resources Agency was able to collect data for 21 of the assigned days. Due to a miscommunication, sampling on May 20, 2008 did not occur.

The data collected over the 21 days shows a total of 49 anglers fishing on the Brandywine River either above the West Street dam or between the West Street dam and the Route 13 Bridge. One-on-one interviews were conducted with 44 percent of these anglers, or 19 anglers. The reasons interviews were not conducted include:

- Location of the angler made it difficult or impossible to approach
- Angler was too far away to see or hear the interviewer
- Angler was not interested in being interviewed
- Angler had already been interviewed and was not interested in being interviewed again.

Overall, the anglers were extremely cooperative and very willing to share information about fishing and their experiences on the Brandywine River.

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DNREC set the exact times to collect the data and throughout the six-weeks there were six days when the data collection time coincided with a heavy rain storm. Site visits were conducted on these days and at the exact sampling time but no anglers were in the river at these times.

The majority of the anglers that were interviewed were from New Castle County, Delaware (90%) while one angler was from Cecil County, Maryland and one was from Sarasota, Florida. Of the 19 interviews conducted, 18 anglers provided information on how many years he or she has been fishing on the Brandywine River, the average number of years fished on the Brandywine River was 12.5 years. Responses ranged from zero, or just starting to fish, to 50 years. Anglers' reported that they fish for the following species:

- Everything and anything
- Bass (Smallmouth and Largemouth)
- Shad
- Rockfish

A total of 52 fish were reported caught and all of the fish that were reported caught were released, resulting in an average of 3 fish per angler. The Redbreast Sunfish was the most commonly caught fish, as reported by those interviewed, 21 of the 52, or 40% of the total fish. The second most commonly caught fish was the Smallmouth Bass. According to the anglers' reports, 8 of the 52 total fish caught were Smallmouth Bass. The anglers reported catching Hickory Shad, approximately 4 were caught, but did not report catching American Shad. Two anglers commented that they saw numerous shad in the river and one angler pointed out that earlier in the week he had seen "hundreds of American shad" in the river. Overall, the fish species that the anglers reported catching include:

- Bluegill
- Channel Catfish
- Crappie
- Hickory Shad
- Largemouth Bass
- Redbreast Sunfish
- Rock Bass
- Smallmouth Bass
- Striped Bass
- White Perch

The anglers were asked the average amount of money spent on this specific fishing trip, of the 19 interviewed, 18 responded and the average amount spent was $9.36. The average amount of time spent out on the river for this fishing trip was 0.92 hours or approximately 55 minutes. This estimate may be slightly lower than the true average time because five of the anglers who were interviewed had just arrived and a zero was recorded as the amount of time fished. Removing these anglers and recalculating the average time spent on the river increases the average to one hour and thirty-four minutes. The majority of the anglers interviewed were using

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spinning rods and all of the anglers were fishing from the shoreline or in the river rather than using a boat.

All of the information discussed in this memo is summarized in the attached charts and table and the data is also included in the interview sheets provided to DNREC. If there is a need for further data analysis please contact Martha Corrozi at *mcorrozi@udel.edu* or 302-831-4931.

CC: Robert Lonsdorf, Brandywine Conservancy
Gerald Kauffman, University of Delaware, Institute for Public Administration-Water Resources Agency