

Proposal for an Ecological Assessment of Big Walnut Creek and its Tributaries in the City of
Gahanna, Ohio

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By
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Few amenities within a community bring as much enjoyment to the residence of that community as a clear flowing stream. Aquatic habitats add much to the quality of human life. Gahanna is fortunate to have Big Walnut Creek, Rocky Fork and other tributaries running through the city. These streams have helped to distinguish Gahanna from other suburbs of Columbus and have played important roles in the history and development of the city.

Aquatic habitats are not static. Anyone who has lived near a stream for any length of time knows that the stream channel changes year to year. These changes provide the energy for growth within the stream system. It is evident throughout Ohio that species once eliminated from streams have returned as the water quality or habitat quality has improved. Still in other areas of the state, where water quality and habitat quality have remained fairly high, the streams integrity (as measured by chemical, physical and biological parameters) has remained.

The current proposal is designed to address two issues relative to Big Walnut Creek and its tributaries in Gahanna; 1) to perform an ecological assessment of these streams, and 2) to make recommendations to the city of Gahanna in regard to water quality (chemistry measurements), habitat quality (physical measurements), and species diversity (biological measurements) within these streams.

Summary of Proposed Activities:

- A. This study will be a continuation of fish work performed by an Otterbein student during the spring and summer of 2000.
- B. Aquatic surveys of the chemical, physical, and biological components of Big Walnut Creek and its tributaries in the city of Gahanna will include the following techniques:
 1. Standard water quality analysis of all areas sampled using HACH Spectrophotometry, Digital Titration, and appropriate meters.
 2. Ohio EPA QHEI (Quantitative Habitat Evaluation Index) methods will be followed to determine habitat quality of all stream reaches sampled.
 3. Macroinvertebrates will be assessed by using ODNR-DNAP SQM (Stream Quality Monitoring) methods and Ohio EPA ICI (Invertebrate Community Index) methods. Macroinvertebrates will be sampled using standard methods as well as hand collected (mussels).

EXHIBIT A

4. Fish will be assessed by using Ohio EPA IBI (Index of Biotic Integrity) methods. Fish will be sampled with seines and electroshocking apparatus.
- C. A final report which describes the quality of the water, the quality of the habitats and the diversity of species within the streams will be provided to the city no later than 29 December 2000.

Methods

This project will be undertaken by an ecology class from Otterbein College. Aquatic surveys will be performed using standard methods developed by ODNR-DNAP and OEPA (SQM, QHEI, IBI, ICI). Wetland determinations (if needed) will be done following the 1987 Corps of Engineers Technical Manual for Wetland Delineation. Water analysis will be performed by using appropriate water chemistry methods and meters. Where existing data are available in the form of databases from the state of Ohio, these data will be included in our evaluation. Appropriate mapping, available through the state and federal government, and the soil survey for Franklin County also will be used.

Product

A technical report will be the major product of this study. This report will include the study results of the fish study performed by the Otterbein student during the spring and summer of 2000, and the study results of the ecology class in the fall of 2000. One copy each will be provided to each student in the class, two copies will be given to the Department of Life and Earth Sciences, Otterbein College, and three copies will be provided to the city of Gahanna. Included in this report will be an executive summary, introduction, technical findings, discussion, and recommendations sections.

Budget

Personnel	
No costs for personnel will be applied	\$0.00
Transportation	
Van use: 8 weeks at \$35.00/van/week	\$280.00
Mileage: 60 miles/week for 8 weeks @ \$0.30/mile	\$144.00
Equipment and Supplies	
Most equipment will be supplied by Otterbein College	\$0.00
HACH Water Chemistry Meter	\$400.00
Water Chemistry Analysis Supplies (HACH)	\$50.00
Document Preparation	
Copies of final document (15 copies @ \$20.00 each)	\$300.00
Photography	\$100.00
Miscellaneous	\$50.00
Total	\$1,324.00

If the city agrees to fund this study, an invoice for half of the proposed budget will be forwarded to the city on 1 September 2000 with a net 30 day clause. The remaining amount will be billed along with the final report.