

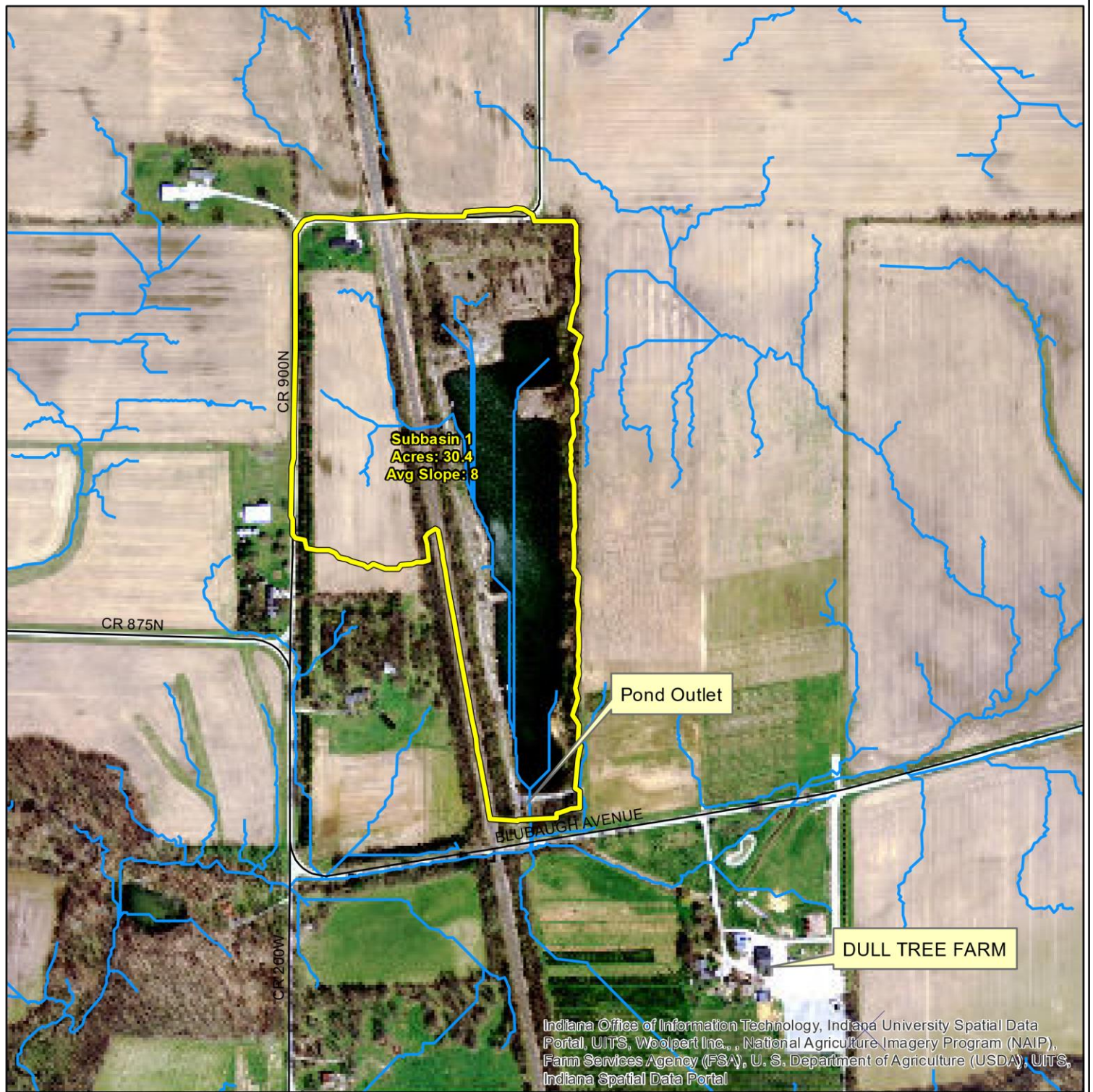


Environmental and Natural Resources

Water Analysis Scorecard-

1. How many Acres are in the watershed for the pond outlet point we are sampling today?
  - A. 8%
  - B. 304
  - C. 20
  - D. 30.4
  - E. 150
2. Of the options below which of these is NOT a potential point source pollutant in this watershed?
  - A. Septic system outflow
  - B. Lawn fertilizer run off
  - C. Dumping an oil change pan into the pond
  - D. Sub surface drainage tile outlet
  - E. Fertilizer tank spill
3. Of the options below which of these is NOT a potential Non-Point source pollutant in this watershed?
  - A. Animal Waste Pond Storage leak into creek
  - B. Fertilizer runoff from the row crops
  - C. Oil coming from the parking lot
  - D. Lawn fertilizer runoff
  - E. Herbicide runoff from row crop fields
4. Select a type of land use in this watershed that would contribute to lower water temperatures in the pond.
  - A. Row Crop Farming
  - B. Parking Lots
  - C. Forest/Timber production
  - D. Grazing
  - E. Roads
5. What land use in this watershed would NOT contribute to high E.coli counts in our water sample from the creek?
  - A. Non grazed forest land
  - B. Row crop fertilized with manure
  - C. Failing septic systems
  - D. Over grazed pasture with animals in the pond
  - E. Animal Waste Storage Pond

6. Of the water quality analysis test below which one cannot be taken on site?
  - A. Nitrites
  - B. Nitrates
  - C. E.Coli
  - D. pH
  - E. Temperature
7. In what cardinal direction is the outlet of the pond located?
  - A. North
  - B. East
  - C. West
  - D. South
  - E. Equinox
8. Of the water quality analysis test below which one can be taken on site?
  - A. E.Coli
  - B. Nitrate
  - C. Temperature change over time
  - D. Biochemical Oxygen Demand
  - E. Heavy Metals
9. If the Fish in the pond all die what would be the most likely factor that could cause that.
  - A. Food
  - B. Turbidity
  - C. Temperature
  - D. Low Dissolved Oxygen
  - E. Too many big fish
10. What would most likely be the number one contributing factor to poor water quality in the watershed?
  - A. Sediment from runoff
  - B. Oil from parking lots
  - C. Nutrients from animal waste
  - D. Nutrients from failing septic tanks
  - E. Fertilizer from Christmas tree farm
11. What is the temperature of the sample?
12. What is the pH of the sample?
13. What is the nitrate level of the sample?



1 inch = 454 feet



Pond Drainage Area= 30.4 Acres  
Watershed Slope= 8%

### Legend

- Pond Watershed
- Roads
- FFA2019\_Streams



United States  
Department of

## TREE FARM Pond Watershed

|                |       |
|----------------|-------|
|                | Date  |
| Designed _____ | _____ |
| Drawn _____    | _____ |
| Checked _____  | _____ |

of \_\_\_\_\_

## Appendix D - Chemistry Ranges, Averages and Q-Values

Chapter 4 listed values representing the likely ranges into which your chemical data results may fall. These ranges were taken from the 2012 Monitoring Water In Indiana: Choices for Nonpoint Source and Other Watershed Projects or also known as the Environmental Indicators Manual. This manual can be accessed at, <https://engineering.purdue.edu/watersheds/monitoring/MonitoringWaterinIndiana.2012.1.pdf>. Data from existing monitoring sites in Indiana have been compiled to provide a range. These ranges are provided to help you have a better idea of what is found in Indiana streams and lakes. This section relied on IDEM Fixed Station Data, compiled by IDEM staff or at Purdue University. In addition, the Indiana water quality standards for rivers are included for each applicable parameter.

Typical range for DO = Game fish  
1.2 to 22.3 mg/L require more  
than 5ppm  
Indiana Average = 9.6 mg/L

State Water Quality Standard:  
4.0 mg/L - 12.0 mg/L  
Min: 6.0 mg/L in coldwater fishery streams  
Min: 7.0 mg/L in spawning area of coldwater fishery streams

The maximum temperature rise at any time or place above natural temperatures shall not exceed State Water Quality Standard:

< 5° F (approximatively 2.8° C)  
< 2° F (approximatively 1.1° C) for trout streams

Typical range for E. coli =  
2 to 1,204 K colonies/100mL

Indiana Average = 210 colonies/100mL

State Water Quality Standard for total body contact recreation: <235 colonies/100 mL (single sample),  
AND  
< 125 colonies/100 mL (Geometric mean of 5 samples equally spaced over 30 days)

Typical range for NITRATE (NO<sub>3</sub>)  
= 0 to 36.08 mg/L

Indiana Average = 12.32 mg/L

EPA recommends 1.5 mg/L as the dividing line between mesoeutrophic and eutrophic streams.

Average = 2.9mg/L  
Above 1 indicates humane influence

Typical range for Turbidity:  
0 to 2150 NTU

Indiana Average = 15 NTU

U.S. EPA recommends 10.4 NTU

Good for Typical range for pH = 7.2 to 8.8  
IN ponds  
is 7.5-9.0

Indiana Average = 8.0

State Standard = between 6 - 9

Due to the state's limestone geology, Indiana surface waters will typically have a pH that is relatively basic (> 7).

Typical range for BOD<sub>5</sub> =  
**0.4 to 33 mg/L**

Indiana Average = 2 mg/L

There are no state water quality standards for Orthophosphate.

Total Phosphate typical range:  
(0 to 0.85 mg/L) and average (0.05 mg/L).

We generally expect orthophosphate to be less than total phosphate, since orthophosphate is but one component of total phosphate.