

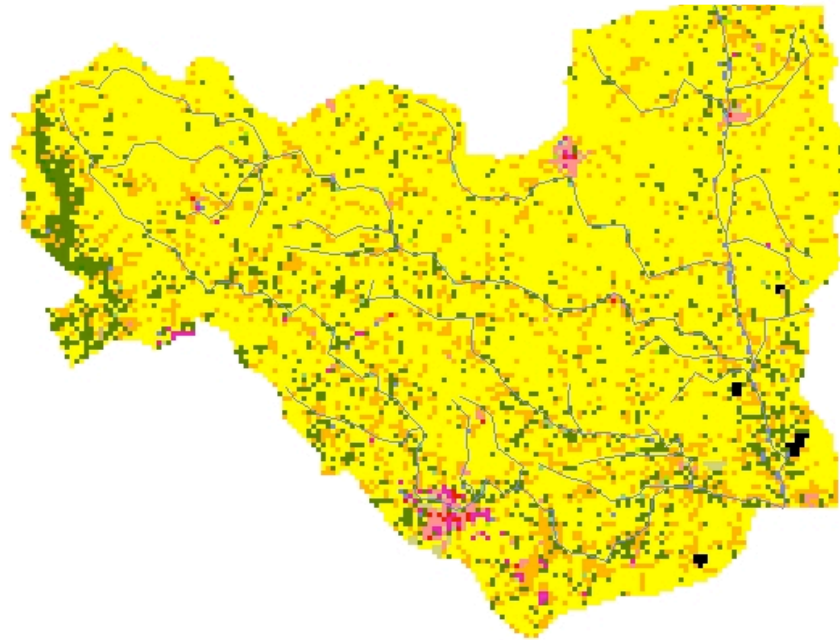
Scioto Bokes Creek

By Ellora, Eliza, and Melissa



Background Information

- ❖ Drains into the Ohio River watershed via Scioto River
- ❖ Union County
- ❖ North of Columbus
- ❖ A rural area made of mostly row crops 🌽



Land Use

- Commercial/Industrial/Transportation
- Deciduous Forest
- Emergent Herbaceous Wetlands
- Evergreen Forest
- High Intensity Residential
- Low Intensity Residential
- Mixed Forest
- Open Water
- Pasture/Hay
- Quarries/Strip Mines/Gravel Pits
- Row Crops
- Transitional
- Urban/Recreational Grasses
- Woody Wetlands
- stream

Impairments

❖ Habitat Alteration



❖ Nutrient Enrichment (from agricultural runoff)



❖ Eutrophication



❖ Low Dissolved Oxygen



Hypothesis: As agricultural land use increases near the stream, IBI decreases.

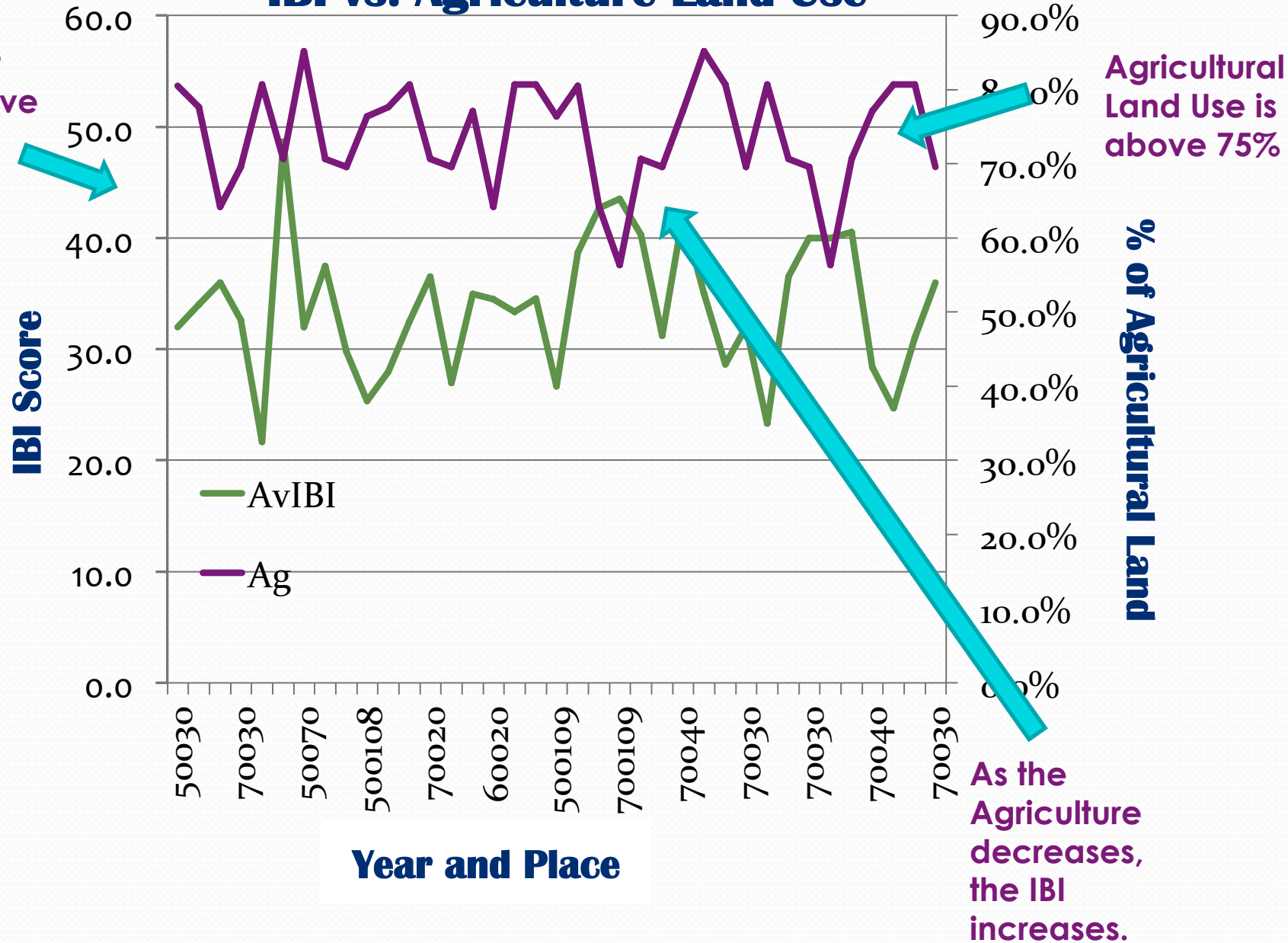
❖ IBI (fish diversity) is a good indicator of the health of the stream

❖ Runoff from agriculture can add harmful pollutants such as nitrates in nearby streams

❖ As of 2005, in our watershed, 70% of the land was used for agriculture



IBI vs. Agriculture Land Use



Will Decreasing Nitrates Increase IBI Scores?

- ❖ Nitrates are pollutants that can cause many problems in the stream.
- ❖ Nitrates are found in fertilizers and septic tanks, they are good for plants but are harmful to all animals, especially in the stream. It poisons the fish and macro-invertebrates.



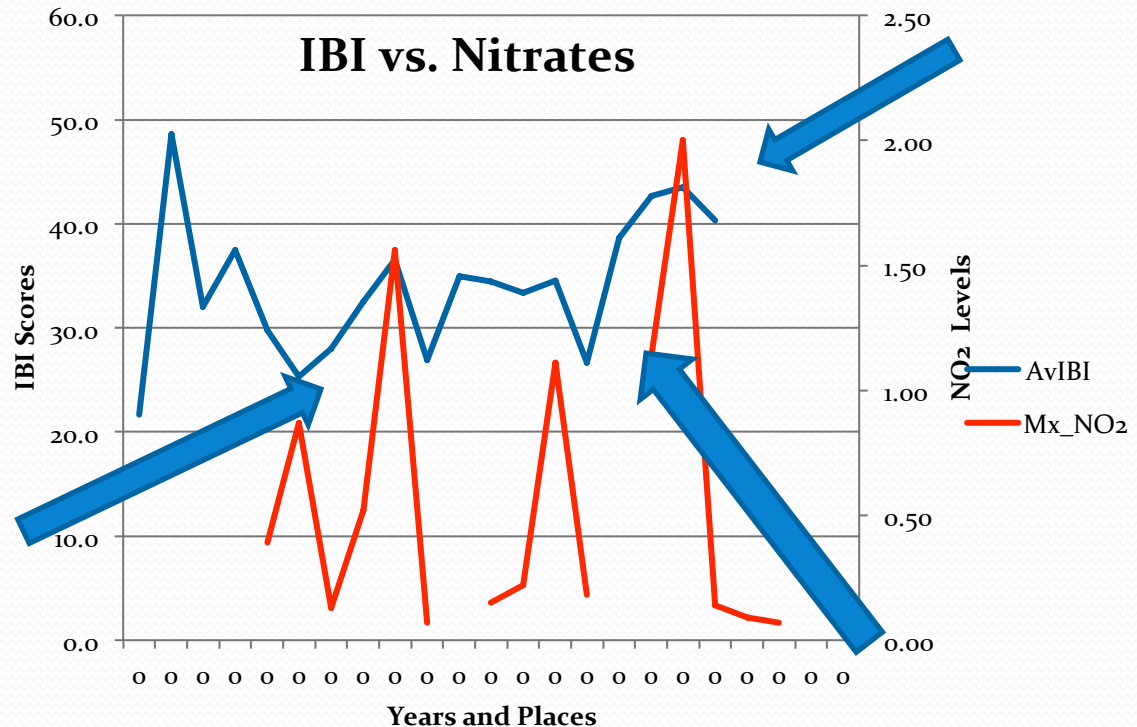
❖ The desired level of nitrates should be below is . 4 ppm , notice that we reached 2.0

❖ IBI is the diversity of fish in the stream.

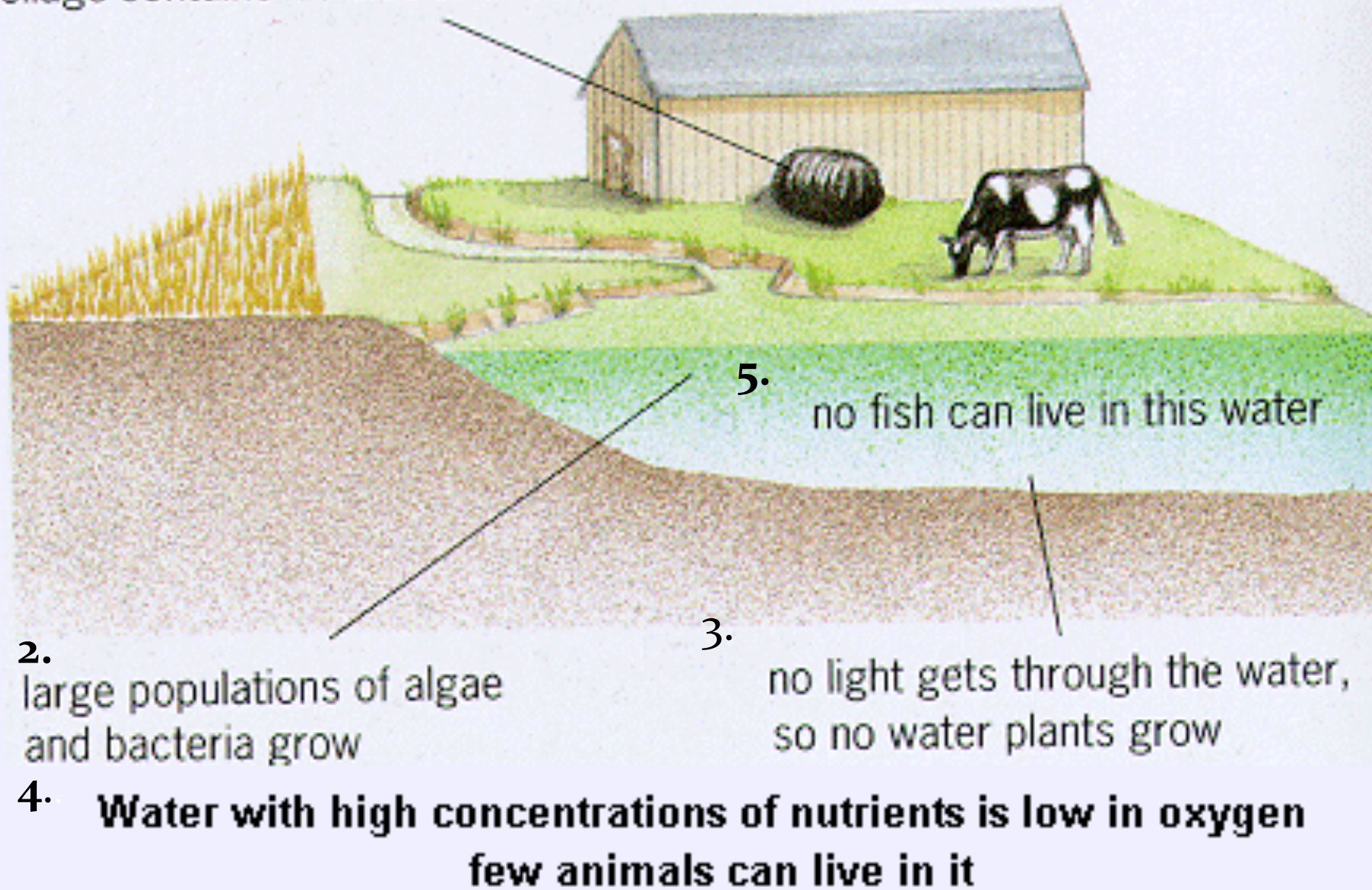
❖ Diversity in a stream represents a healthy stream, and our drinking water comes from the stream. So it's important to keep these waters clean and healthy.



❖ The arrows show you where the Nitrate level went up and how the IBI score went down when that happened.



1. run-off from fertilisers, animal waste and silage contains nitrates and other nutrients



5. no fish can live in this water

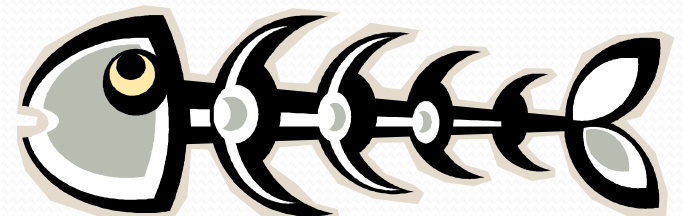
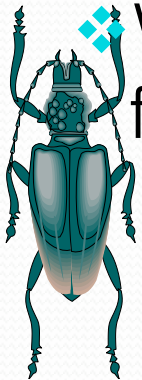
2. large populations of algae and bacteria grow

3. no light gets through the water, so no water plants grow

4. **Water with high concentrations of nutrients is low in oxygen
few animals can live in it**

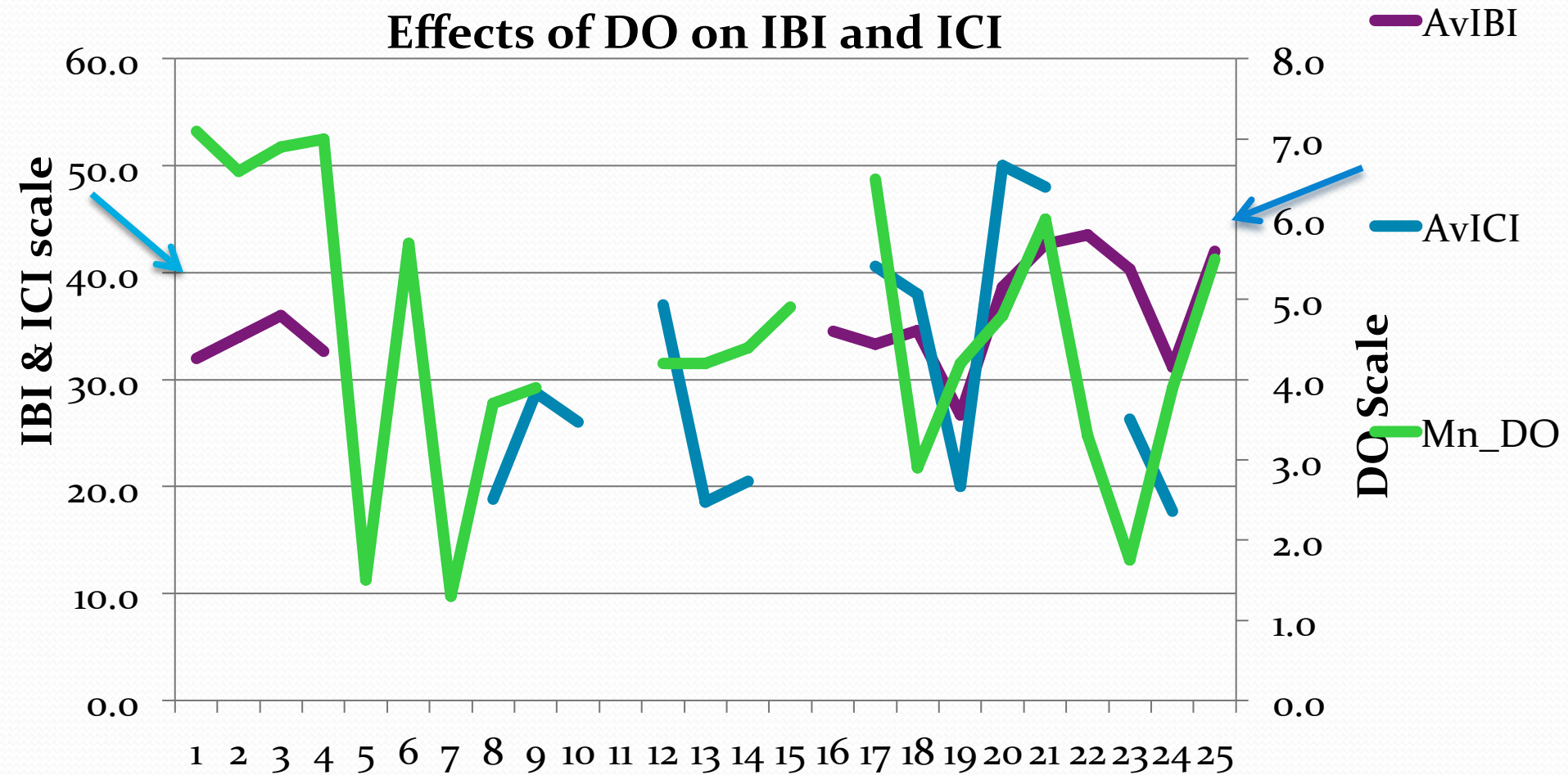
As DO increases, ICI and IBI will increase as well.

- ❖ DO stands for dissolved oxygen
- ❖ ICI means the diversity of macroinvertebrates
- ❖ Diversity of macroinvertebrates and fish are impacted by the levels of DO
- ❖ When the oxygen levels are raised more macroinvertebrates will come to the stream
- ❖ When there are more macroinvertebrates, more fish will come to the stream to eat them





Effects of DO on IBI and ICI



Did You Know?

- ❖ Approximately 53% of Ohio is made up of farmland
- ❖ Agriculture is Ohio's #1 industry
- ❖ Even though fertilizers and pesticides from farmland can flow straight into the stream if there is no proper buffer zone, through conservation, we can reduce the pollutants entering our stream
- ❖ An example of conservation would be to plant a buffer zone near the stream
- ❖ Currently, there is a Water Quality Enhancement Project going on at Bokes Creek
- ❖ Hopefully, over time, these efforts will improve the water quality at Bokes Creek





Thank you
teachers, staff
and sponsors!

