

# WATER EDUCATION AND INCENTIVES FOR MURRAY 4-H'ERS

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**Abstract.** To better educate the youth of Murray County on the effects of stormwater runoff pollution, the Murray County ANR and 4-H Extension Agents collaborate in a variety of hands-on activities and field trips to educate youth on environmental awareness and water quality issues. The Agents also collaborate with the Georgia Adopt-a-Stream, Army Corp of Engineers, and the University of Georgia Warnell School of Forestry Cohutta Fisheries Center, to conduct an annual 4-H2O summer camp. This camp provides educational tours and experiential learning that focuses on water conservation, aquatic ecology and sustainable aquaculture.

## BACKGROUND

The Conasauga River watershed lies within the Coosa watershed and is one of the more biologically diverse rivers in North America; it is also home to ten fish and mussel species that are federally listed as endangered or threatened and twenty other aquatic species that are either listed by the states or at-risk of federal listing (USDA NRCS). As the border between Whitfield and Murray Counties, it also provides an excellent outdoor classroom due to the wide variety of aquatic life. Murray and Whitfield County Extension consistently work to raise awareness and support to improve the environment through learning opportunities for 4-H'ers.

## PROGRAM COMPONENTS

4-H2O summer camp consists of a four- to five-day non-residential day camp where youth learn about the importance of reducing stormwater runoff, how to monitor water quality, water conservation and environmental awareness. Each day consists of a different activity and the order differs from year to year.

### Georgia Adopt-a-Stream

One component of the camp entails the Georgia Adopt-a-Stream biochemical water monitoring class and the Georgia Adopt-a-Stream written exam plus the hands-on chemical training. Adopt-a-Stream is a volunteer training program to increase public awareness, collect baseline water quality data, observe the area to be tested, create partnerships between communities and local and state governments, and provide tools to accomplish these goals.

Specific water quality testing skills taught are pH, dissolved oxygen, temperature, and conductivity. The volunteer training program is specifically designed for

adults, but we are able to clarify certain material to make it easier for youth ages 9-18 to understand.

Following the classroom training is a written exam and a hands-on water quality test done at either a creek or lake. Our 4-H'ers are not required to pass the written exam, however they are encouraged to at least attempt it. Those youth that do pass the written exam and the hands-on chemical testing are then given the opportunity to adopt one of ten pre-selected sites within the county for one year.

If the 4-H'ers perform monthly tests and turn their results in to the Extension Office, at the end of the year they are offered a scholarship to either a 4-H summer camp or a weekend conference. Ten to eleven creek tests will earn them a full scholarship to camp; 8-9 tests will earn 4-H'ers 50% off the cost of camp; 6-7 tests will earn them a scholarship to a weekend 4-H educational conference.

### Water Wizards Day

Water Wizards gives Whitfield and Murray County 4-H'ers an opportunity for experiential learning to enhance science-based education they received in their respective classrooms. Hands-on activities from water education resources such as ProjectWET (DeYonge), The Urban Watershed Guide (Adang) and the Guide to Elementary Basic Observation Buoy (Bliss) are used for the event.

Some of the more popular lessons with our youth are Poison Pump, Blue Planet, It's All Downstream from Here, Water Pollution on Trial, Neutral Nancy, Build-a-Buoy, and The Incredible Journey. This summer camp additionally provides an opportunity for 4-H'ers to expand their network of friends and work cooperatively in an environment conducive to learning with adult leaders and their peers. The second part of the day is a required canoe safety and recovery lesson for those youth who participate in our planned service project for the week.

### Service Project

Participation in 4-H2O camp requires some sort of water related service project, weather permitting, and usually involves picking up trash. We will pick one or more creeks to walk along and remove as much trash as we can carry. Canoeing a section of the Conasauga River is also an option, where 4-H'ers and adult leaders will collect as much trash as will fit in the boats. Items have been found that are larger than our canoes can carry so those have been shared with other volunteers who can go

in with a larger boat. Another option is to canoe along the dam at Carter's Lake collecting trash and any fishing related debris from the rocks along the water.

### Other Options

The final day of 4-H2O camp is usually both educational and fun and activities tend to rotate. We have toured the Tennessee River on Blue Moon Eco-cruise (now closed), learning about the efforts made to recover the ecosystem around Chattanooga after the steel mill days. We have also toured the Chattanooga aquarium, learning about both the freshwater rivers of the US and major river systems of other countries as well as the coastal waters.

One of the favorites with the 4-H'ers is a visit to the University of Georgia Warnell School of Forestry Cohutta Fish Hatchery where they learn about lake sturgeon production and are then given an opportunity to fish one of the catfish ponds. The other favorite is a visit to the snorkel hole managed by the US Forest Service. This is a guided site where wetsuits, masks and snorkels are provided for a fee. Both guides and lifeguards work with individuals who have never snorkeled before, until they become comfortable. It is not unusual to see fifteen or more different species of fish (most often bass, bream, darters, and shiners) as well as turtles, crayfish, salamanders and tadpoles. Participants are given waterproof identification cards that they can take into the river with them to aid in identifying what they find.

### SURVEY HIGHLIGHTS

All 4-H'ers who attended the Water Wizards day camp were given both a pre and post-test for knowledge gained/retained. The test was comprised of twelve multiple choice pre and post statements and one true or false statement covering nonpoint source pollution, the different types of pollution and ways to reduce it, the environment, the pathways water follows, and the laws and water quality standards protecting our water quality.

Overall test results indicated fifty-eight percent of the participating 4-H'ers gained knowledge or improved their test score, while twenty-seven percent reported their knowledge remained the same. Four of the twenty-six 4-H'ers, or fifteen percent, actually decreased their number of correct answers by one. Two of those missed a question on the post-test that they had previously answered correctly on the pre-test. The other two 4-H'ers marked various statements incorrectly on the pre and post-test in a seemingly random fashion that resulted in one less correct answer on their post-tests.

### SUMMARY

There are many different age groups that need water related education. Providing that needed education requires different hands-on tools and we at Murray County Extension use many of them to help better educate the students and citizens on the importance of protecting our local water resources.

### REFERENCES

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