



# WOW: WETLANDS

BASELINE AUDIT, GRADES K-2



Contact a wetland outreach coordinator (city water department), college or university, or local wetland non-profit. Their involvement is a great way to connect to the community, inspire students, demonstrate career possibilities, and share resource expertise. This is also a fantastic opportunity to engage parents in their child's education.

If you cannot conduct a study at a nearby wetland please determine the best way to gather the data, i.e. a phone call, an email or ideally a SKYPE or Google Hangout with someone who works as a biologist, ecologist, volunteer, etc. at your nearest wetland. Contact the U.S. Fish and Wildlife Service's *National Wetlands Inventory* for contacts.

Before starting the wetland audit or going further, survey your students. On a scale from 1-10, 10 being the most important and 1 being the least important,

- How important is a health place to live for plants and animals? \_\_\_\_\_
- How important is it for plants and animals to have clean water? \_\_\_\_\_

**TABLE 1. GEOGRAPHIC INFORMATION**

<p>1. What type of wetland are you auditing?  <a href="https://www.fws.gov/wetlands/data/Mapper.html">https://www.fws.gov/wetlands/data/Mapper.html</a>            For example, freshwater pond, freshwater forested/shrub wetland or estuarine and marine wetland. There are many different types.</p>	<p><b>Check one</b></p> <p>_____ freshwater _____ saltwater _____ brackish (mixed)</p> <p><b>Check one</b></p> <p>_____ has a lot of plants, trees and/or shrubs</p> <p>_____ has some plants, trees and/or shrubs</p> <p>_____ has no plants, trees and/or shrubs</p>
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**TABLE 1. GEOGRAPHIC INFORMATION - CONTINUED**

<p>2. What are the GPS coordinates for your wetland study site? Use your smart phone's GPS or go to: <a href="http://www.whatsmygps.com">http://www.whatsmygps.com</a> to find your coordinates.</p>	<p>Latitude N _____</p> <p>Longitude W _____</p>
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**TABLE 2. WETLAND CHARACTERISTICS AND BENEFITS**

<p>1. What percentage of students can identify three characteristics that define a wetland?</p> <ul style="list-style-type: none"> <li>• The hydro period (how long a wetland stays wet)</li> <li>• Soil</li> <li>• Biodiversity of vegetation</li> </ul>	<p>A. _____ 0 characteristics</p> <p>B. _____ 1 characteristic</p> <p>C. _____ 2 characteristics</p> <p>D. _____ All 3 characteristics</p>
<p>2. A wetland is a system and is part of a larger watershed system. What percentage of students can identify one or more system benefits associated with a healthy wetland?</p> <ul style="list-style-type: none"> <li>• Wildlife habitat</li> <li>• Water filtration</li> <li>• Flood protection</li> </ul> <p>Note, there are several benefits under each main benefit.  <a href="https://www.epa.gov/wetlands/why-are-wetlands-important">https://www.epa.gov/wetlands/why-are-wetlands-important</a></p>	<p>_____ %</p>



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**TABLE 3. TEMPERATURE AND PRECIPITATION**

<p>1. For today’s date, collect the weather data listed to the right. Use your local weather website, application or use the following:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.weatherbase.com/weather/state.php3?c=US">http://www.weatherbase.com/weather/state.php3?c=US</a></li> <li>• <a href="http://www.weather.com">www.weather.com</a></li> </ul>	<p>_____ Temperature in degrees Fahrenheit</p> <p>_____ Precipitation in inches</p>
<p>2. Change Over Time and Patterns</p> <p>How does temperature and precipitation change over the course of the school year? Use your school’s weather station, local weather application or one of the sites listed in #1 to collect temperature and precipitation data, a minimum of once a month, throughout the schoolyear. The post audit will ask for your monthly averages and totals.</p> <p>We encourage your team to keep the data posted, so students are more easily able to look for patterns and see how weather changes throughout the school year. Use LEGOs or unifix cubes to create visual models that represent the data. Optional: Attach photos or student work to the audit as evidence.</p>	

**Think about the following questions as you summarize the data in Table 3.**

- Over the course of your study or schoolyear, be on the lookout for patterns and relationships between the following variables–
  - Temperature and precipitation
  - Precipitation and soil quality
  - Temperature and water quality
  - Precipitation and wildlife numbers
- How can weather impact wetland wildlife?
- What actions can the class/team take to help wildlife deal with weather impacts, such as extreme weather events such as floods and drought, new construction/building and pollution, such as litter?



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**TABLES 4, 5 and 6.** Consider contacting a local college or university, or wetland non-profit. Their involvement is a great way to connect to the community, inspire students, demonstrate career possibilities and share resource expertise. If you cannot conduct a study at a wetland, please determine the best way to gather the data, i.e. a phone call, an email or ideally a SKYPE, Zoom or Google Hangout with someone who works as a biologist, ecologist, volunteer, etc. at your nearest water quality or soil quality monitoring station. Wetlands are controlled by your state’s EPA. In addition, connect with the U.S. Fish and Wildlife Service’s *National Wetlands Inventory* for contacts.

Whether or not you are physically able to go to your nearest wetland area, students can still collect water and soil data from nearby study sites or from samples you bring to the classroom.

Invite parents and community members to participate in the auditing process. Students can take on the role of educator by working with volunteers on citizen science. This experience is a great way to build community.

## TABLE 4. SOIL QUALITY

<p>1. Soil Temperature</p> <p>Test 1 _____ °F _____ °C</p> <p>Test 2 _____ °F _____ °C</p> <p>Test 3 _____ °F _____ °C</p>	<p>2. Soil pH</p> <p>Test 1 _____ pH level</p> <p>Test 2 _____ pH level</p> <p>Test 3 _____ pH level</p> <p>( ) Acidic ( ) Neutral ( ) Basic</p>
<p>3. As a class/team, come up with 5-10 words to describe how the soil looks, feels and smells. DO NOT taste the soil.</p>	



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**TABLE 5. WATER QUALITY**

<p>1. Water Temperature</p> <p>Test 1 _____ °F _____ °C</p> <p>Test 2 _____ °F _____ °C</p> <p>Test 3 _____ °F _____ °C</p>	<p>2. Water pH</p> <p>Test 1 _____ pH level</p> <p>Test 2 _____ pH level</p> <p>Test 3 _____ pH level</p> <p>( ) Acidic ( ) Neutral ( ) Basic</p>	<p>3. Is it raining or has it rained in the last 24 hours? Stormwater runoff from surrounding areas can impact water quality and appearance, including temperature, pH and transparency.</p> <p>( ) Yes ( ) No</p>
<p>4. Transparency Tube</p> <p>Tube test 1 _____ cm or _____ greater than depth of transparency tube.</p> <p>Tube test 2 _____ cm or _____ greater than depth of transparency tube.</p> <p>Tube test 3 _____ cm or _____ greater than depth of transparency tube</p>		

**Think about the following questions as you summarize the data in Tables 4 and 5.**

1. Why is it important to observe and test soil and water throughout a wetland?
2. What actions can the class/team take to be better wetland stewards? Use this information to inform the Eco-Action plan.



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**TABLE 6. WILDLIFE**

<p>1. Collectively, how many <b>different plants and animals</b> are observed on this day?</p> <p>If students know the name of a specific animal and/or the species, it's good practice to make notes in the section below. Also encourage students to draw what they observe. <b>Never remove animals from a study site.</b></p>	<p>_____ animals on the ground</p> <p>_____ animals in the water</p> <p>_____ animals in the sky</p> <p>_____ plants on land</p> <p>_____ plants in the water</p>
<p>2. Wetlands provide habitat to animals. What percentage of students can provide the four benefits?</p> <ul style="list-style-type: none"> <li>• Shelter</li> <li>• Places to have and/or raise young</li> <li>• As a source of food</li> <li>• As a source of clean water</li> </ul>	<p>_____ %</p>

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**Think about the following questions as you summarize the data in Table 6.**

1. Do a lot of plants and animals in a wetland mean it is healthy? Do few plants and animals in a wetland mean it is unhealthy? Explain.
2. What are some of the actions that can be taken to improve or support current wetland programs/initiatives? Use these actions to support your Eco-Action Plan.
3. Optional: Attach photos of your wetland study site to use as a comparison against the post-action audit.

## **Review of All Data**

1. Be prepared in the post-audit to explain **patterns** students have identified through their investigations.