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Dragonfly Gazette

GEORGIA PROJECT WET Environmental Protection Division

May 2013

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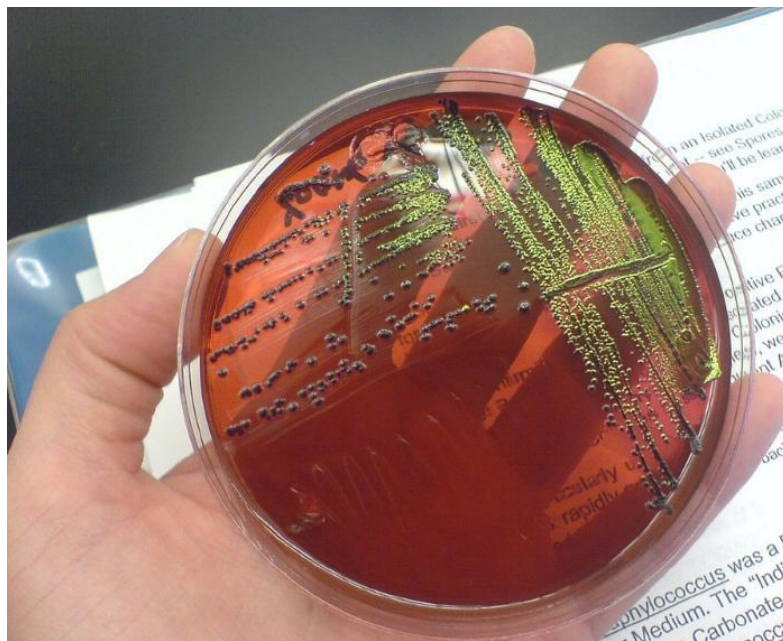
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When **Water** is a Health Hazard



Water-borne bacterial growth (EPA)

As we all know, water is essential for life on Earth. Although it seems that the water planet has plenty of the stuff, the amount of *clean, usable* fresh water is **very limited**. It has become a tough job to make sure that our drinking water supply, food production and recreational water is of the highest quality because our water is constantly threatened by the presence of infectious agents, toxic chemicals, and radiological hazards.

Water-borne Diseases

According to the WHO (World Health Organization), 80% of all

diseases are water-**related**. Most cause intestinal track infections and the usual cause of death is from dehydration due to diarrhea and vomiting. There are a few other water-borne diseases that can cause malnutrition, skin infections, pneumonia, and organ damage. Most cases occur in developing countries where there is unsafe water, poor sanitation, and insufficient hygiene.

What are they?

1. **DISEASES** caused by microorganisms and chemicals in drinking water;
2. **DISEASES** caused by parasites which have part of their lifecycle in water;
3. **DISEASES** like malaria with water-related vectors (such as mosquitoes);
4. and **DISEASES** such as legionellosis transmitted by sprays or air blasts containing certain microorganisms.

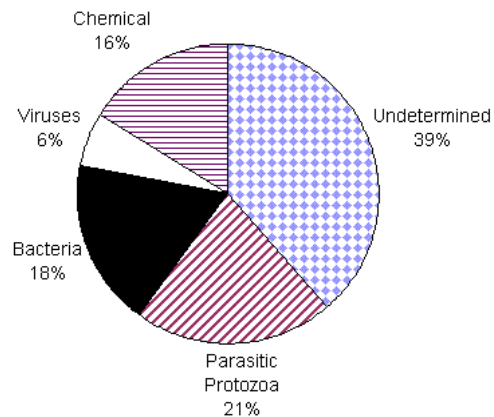
There are four major agents:

Agent	Sources	General Symptoms
PROTOZOA	Untreated water containing manure, sewage; or contamination by flies	Intestinal and digestive track disturbances
PARASITES	Water contaminated with eggs or larvae of parasite	Varies from blood in urine, or intestinal problems, to blood infestations, or hyperactivity or insomnia
BACTERIA	Mostly in water contaminated by animal or human feces or urine	Varies, but mostly causes intestinal problems, some very severe
VIRUSES	Water contaminated with animal or human feces	A serious collection of diseases including SARS, Polio, Hepatitis A, and Polyomavirus disease

See our [website](#) for a list of water-borne diseases with links to more information and great photos!

How common are they here?

Water-borne diseases in USA, 1991-2000



From the 3rd World Water Forum: The causes of almost 40% of waterborne disease outbreaks are undetermined. Among water-borne pathogens, parasitic protozoa are reported to cause the greatest percentage of disease outbreaks, followed by bacteria and viruses.

The three most common water-borne diseases in the US -- Legionnaires' disease, cryptosporidiosis and giardiasis -- are caused by three very different microbes according to the International Conference on Emerging Infectious Diseases.

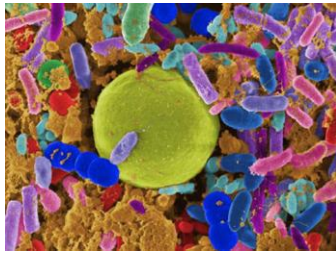


Legionnaires' disease is caused by Legionella bacteria, named for a 1976 outbreak at an American Legion convention in Philadelphia. It causes pneumonia and kills between 5-30% of patients, sending between 8,000 and 18,000 people to the hospital each

year. It can be treated with antibiotics.

Giardiasis is caused by the parasite Giardia intestinalis, found on surfaces or in soil, food, or water that has been contaminated with the feces from infected humans or animals. It causes diarrhea and there are several drugs to treat it.





Cryptosporidiosis also causes diarrhea linked to fecal contamination of water and is caused by *Cryptosporidium* parasites. There is currently no drug that can cure cryptosporidiosis although most healthy people recover within two weeks.

Contamination in **drinking water** is not common in the U.S. The current protocols in municipal water treatment are very effective at eliminating pathogens from water. It only occurs because of a local, temporary problem with water treatment.

Then it can lead to serious or sometimes fatal situations, particularly for susceptible groups. From 1971 to 2002, there were 575,457 cases of illness and 79 deaths from contaminated drinking water. ([Read the NIH article](#))

The Good News: Implementing healthy practice

- 4% of global disease can be prevented by improving sanitation, water supply, and hygiene
- There is growing knowledge on how to improve water quality to maximize health benefits
- There are better tools and procedures used to improve and protect drinking-water quality at the community and urban level
- There are new, simple and inexpensive ways to treat and safely store water at the household-level
- **EDUCATION!** Knowledge is power



How about offering your students a UNIT on water-related health threats incorporating Project WET 2.0 Activities and [Adopt-A-Stream](#) testing procedures?

Add information, research and creative problem-solving elements or invention to assure critical thinking is involved.

Start with these Project WET activities:

***Super Sleuths** (page 113) – Students learn about the diversity of waterborne diseases and role of epidemiology in disease control. Try having the students role-play the doctor, patient, and interns for a dynamic variation.

***A Drop in the Bucket** (page 257) – By estimating and calculating the % of available fresh water on Earth, students understand that this resource must be used and managed carefully.

***Poison Pump** (page 107) – Through a series of clues, students solve a historic mystery to discover that water can also produce negative effects for people.

***Reaching your Limits** (page 371) – By playing a game of limbo, students gain a better understanding of the effort involved in meeting drinking-water quality standards, especially when water quality declines.

***Urban Waters** (page 413) - Students learn about different water resource occupations and place them in a sequence, from source water to delivery into homes, businesses and schools.

***Germ Busters** (page 57) - Young students learn a song to correctly practice hand washing and others ways to stay healthy. Ironically, clean water is used to wash off the effects of dirty water in many cases!

[\(Georgia education standards for all activities can be found here.\)](#)

Go further with this topic

1. [See the news at CDC Waterborne Disease Prevention Branch](http://www.cdc.gov/ncezid/dfwed/waterborne/)
<http://www.cdc.gov/ncezid/dfwed/waterborne/>
2. [Read about drinking water contamination](http://www.ncbi.nlm.nih.gov/pubmed/18020305)
<http://www.ncbi.nlm.nih.gov/pubmed/18020305>
3. [Go to Disease Information Links and Photos](http://gaprojectwet.org/gawet_gazette.asp)
http://gaprojectwet.org/gawet_gazette.asp

[To find more Project WET workshops visit EEinGeorgia.org](#)

[TOP](#)

4. Make a global map that shows concentrations of a particular water-borne disease. Discover the cause and ways to control it.
5. Research or create new inventions and innovations that prevent water-borne disease or the spread of diseases.
6. Discover healthy practices that keep you safe.
7. Visit [DiscoverWater.org](#) to create clean water campaign posters so students can get into ACTION EDUCATION!



Happy News! Georgia students won big at the State and National level in River of Words this year. We had **2 National Grand Prize Winners** in Art and **11 National Finalists!** Then we had our State Contest and selected 38 Georgia art and poetry

winners. Over 175 students, teachers, and family members showed up at our awards ceremony in Decatur. See the winning entries with the link below.

Note: the address for ROW entries has changed! Send your entries to **PO Box 5060, Moraga, CA 94575**

Get your students involved next year! Entries are currently being accepted and the deadline is Dec. 1.

[GAProjectWET.org/River of Words](http://GAProjectWET.org/River_of_Words)

Soaking Wet

recognizing Georgia Project WET Facilitators, Educators, and Schools

With great pride we announce our:

1. Project WET Organization of the Year--

- **LLALC (Lake Lanier Aquatic Learning Center), a floating water education classroom**

a collaboration between the Chattahoochee River Keeper and the Elachee Nature Science Center in Gainesville.

2. Project WET Educator of the Year--

- **Sheila Humphrey for her life-long water education work. Sheila is currently at Smithgall Woods Conservation Center in Helen**

3. Project WET Facilitator of the Year--

- **Donna Barrett of Metro RESA in Smyrna, a champion of water education and teacher training**

These folks were honored at the EEA Conference in March.

Nominate someone you believe in:

[!\[\]\(c444627dab9fee9a1550c053ffaaaae2_img.jpg\) Nomination \(pdf form\)](#)



1) Teacher Conservation Educator Workshop (WET, WILD, and PLT!)

Don't miss your chance to be a part of a great week-long training this summer! Join us for the Teacher Conservation Workshop: 'Exploring Forestry and Wildlife in Georgia', to be held June 17-21, 2013.

Open to Georgia educators of grades 3-12. Registration is limited to 30 participants. Register by May 17 [here](#)

2) Triple (WET, WILD, and PLT!) Educator Workshop

November 11-12, 2013; 8-6:00 Fortson 4-H Center, Hampton
[Contact Allen Nasworthy](#) for details and registration; 770-946-3278.

Find more workshops on [EE in Georgia!](#)



Have you seen our new searchable database for

Standards? With it, all of the correlations are easy to access for WET 2.0 activities covering CCGPS, GPS, and National subject area standards. [Try it out!](#)



17th Annual Outdoor Learning Symposium

October 4, 2013 • Oatland Island Wildlife Center, Savannah

GROW OUTDOORS: Outdoor Learning PreK-12

Join educators from across Georgia for a day of hands-on sessions that focus on engaging students in outdoor settings. Learn how to enhance your outdoor classroom or make use of any outdoor space that you have. Outdoor learning for all ages is what we are all about!

They are currently looking for presenters! Please [visit their webpage](#) for more information.

30th Cullowhee Native Plant Conference

July 17-20, 2013 • Western Carolina University

We are accepting scholarship applications until April 19! Applications and more information about the conference can be found at

<http://nativeplantconference.wcu.edu>.

Monarchs Across Georgia Events

Master Gardener Volunteers of Cobb County Plant Sale

May 11 • 10:00 a.m. - 4:00 p.m.

Cobb County Water System, 662 South Cobb Dr, Marietta, Ga 30060

Monarchs Across Georgia will be selling milkweeds and pollinator

plants at the MGVCC Plant Sale. Many of these plants are not

available at garden centers. Learn more at www.eealliance.org/mag-events.

ATEEG Scholarships

Advanced Training in Environmental Education in Georgia.

The application to receive one of the scholarships is simply the online registration form for the courses. All of the grant funds must be expended in the calendar year 2013. If you register and pay for all three courses in 2013, you will receive the full \$140 scholarship provided funds are still available.

Course fees include all materials, supplies and meals.

ATEEG scholarships for formal and non-formal educators from south

Georgia are available through the Murray H. Gaskins, Sr. Fund. These

scholarships include both lodging and the course registration

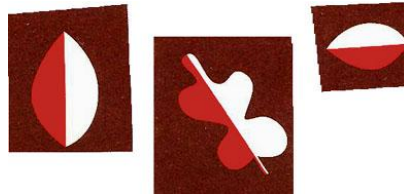
fee. Please contact ateeg@eealliance.org for more details.

For more information about ATEEG courses and schedule, please [visit](#)

[their webpage.](#)

2014 EEA Annual Conference - Save the Date!

March 28-29, 2014 • Rock Eagle 4-H Center, Eatonton



From Project WET USA:

Project WET Program 2.0 is now an Online Refresher Course! If you have been trained as a Project WET Educator in the last 5 years and do not have the new guide, you may be interested in taking this course online. The price is \$75 and includes the new guide.

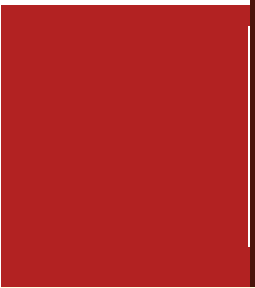
<http://store.projectwet.org/index.php/online-refresher-training-course.html>



[Project WET Program 2.0 Online Refresher Course](http://store.projectwet.org/index.php/online-refresher-training-course.html)

Corrections have been made to the following student copy pages on the [Portal](#):

- Adventures in Density: 11
- Is there Water on Zork: 31-32
- Ocean Habitats: 80, 81, 83, 85, 87-94
- On Track with Hydration: 106
- Super Sleuths: 121
- High Water History: 326
- A Snapshot in Time: 385-386

- 
- My Water Footprint: 446
 - Water Quality? Ask the Bugs: 430
 - Discover the Waters of the National Parks: 506

Educator or facilitator for GA Project WET

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