

AQUATIC SYSTEMS

Annotated Bibliography of K-12 Educational Resources

Wisconsin Center for Environmental Education

The following list consists of selected resources of the general topic of Aquatic Systems. All materials are available for loan at the WCEE Resources Library. Many more resources are available on this and other topics, and there are many resources for the studies in specific water systems (lakes, rivers, wetlands, etc.) and specific water issues (pollution, invasives, etc.). Please call or visit the WCEE for assistance and/or additional information.

Teaching Activity Guides

Great Lakes in My World Alliance for the Great Lakes, Chicago, IL. (2005).

A K-8 curriculum that includes wetland activities appropriate for various grade levels and classroom subjects. The 6 specific units are: Lakes, Sand Dunes, Wetlands, Human Communities, History, and Geology & Water Flow. Also see the Creature Cards (DEM WR 1) and the CD in the back of the book.

Grade levels: K-8 Length: 471 pages WCEE call number: AC WR 103

WET in the City by The Council for Environmental Education. Council for Environmental Education, Houston, TX. (2002).

An urban water education version of the Project WET listed above. Also very comprehensive and high-quality.

Grade levels: K-12 Length: 69 activities, 484 pages WCEE call number: AC WR 50 2

Wisconsin Supplement to National Project WET by Ilene Grossman. Project WET-Wisconsin, et. al. Project WET-Wisconsin Stevens Point, WI. (1997).

A Wisconsin-focused adaptation of many of the lessons in Project WET, created to help make WET more relevant to Wisconsin students. Includes lists for local resources.

Grade levels: K-12 Length: 222 pages WCEE call number: AC WR 57

WOW! The Wonders of Wetlands and **POW! The Planning of Wetlands** by Environmental Concern, The Watercourse, and Alan Kesselheim, et. al. Environmental Concern. St. Michaels, MD. (1995 and 2000).

Two very usable activity guides set up in formats similar to WET and other national curricula.

Chapters of activities include subjects such as Plants and Animals, Water, Soil, and Issues. POW! focuses specifically on the planning and creation of school site wetlands, including student activities related to such. Both include lists of additional resources.

Grade levels: K-12 Length: 330 and 346 pages WCEE call number: AC BC AQ 30 and 34

Project WET by The Watercourse and The Western Regional Environmental Education Council. The Watercourse, Bozeman, MT. (1995).

Like Project Wild and Learning Tree, one of the most used and usable, comprehensive EE activity guides. Also see the associated resources listed below.

Grade levels: K-12 Length: 92 activities, 517 pages WCEE call number: AC WR 56

Project Wild Aquatic by Project WILD. Project WILD, Gaithersburg, MD. (2000).

The aquatic supplement to one of the definitive activity/curricula guides in environmental education. Numerous subjects, learning styles, topics, etc. covered. Easy to use format.

Grade levels: K-12 Length: 48 activities, 260 pages WCEE call number: AC WR 2

Earth: The Water Planet by Jack Gartrell and The National Science Teachers Association, et. al. National Science Teachers Association, Washington, DC. (1992).

A well-organized activity guide that excels in the amount of background and supplemental information provided for each module and activity. The second half of the book, for instance, consists of 18 student "Readings" on a variety of water-related topics.

Grade levels: 5-12 Length: 29 activities, 191 pages WCEE call number: AC WR 4

Field Manual for Water Quality Monitoring by Mark Mitchell and William Stapp. Kendall/Hunt, Dubuque, IA. (2000).

A water quality lesson guide that is a favorite among teachers. Includes many science-based experiments and activities. Written with William Stapp, one of the leaders in the field of Environmental Education. See also the "low cost" version Field Manual for Global Low-Cost Water Quality Monitoring (AC WR 11).

Grade levels: 5-12 Length: 272 pages WCEE call number: AC WR 1 2000

Earth Trails: Mississippi River. GPN, Lincoln, NE. (2000).

An incredibly well-researched and well-produced CD-ROM dealing with numerous issues surrounding water resources. Very in-depth, therefore it may take dedication to incorporate into classroom curricula. Includes teacher and student guides. Also very relevant to technology classes or units.

Grade levels: 6-8 Length: CD-ROM WCEE call number: COM WR 3

Healthy Water Healthy People: Field Monitoring Guide by Project WET. Project WET International Foundation, Bozeman, MT. (2003).

A supplement to the HWHP activity guide, this field monitoring guide highlights eleven common water quality parameters, including their relevance to water quality, possible remedies, case studies, and activities to demonstrate the effect on water quality.

Grade levels: 9-12, adult Length: 84 pages WCEE call number: AC WR 100 suppl.

Rivers Curriculum Project: Earth Science, Chemistry, Geography, Mathematics, Language Arts and Biology by Robert Williams. Dale Seymour Publications, Palo Alto, CA. (1997-2001).

A series of school subject-based curriculum guides centered on water topics. Activities follow a very usable setup.

Grade levels: 9-12 Length: Varies WCEE call number: AC BC AQ 35 vol. 1-6 3

Streamkeeper's Field Guide by Tom Murdoch and The Adopt-A-Stream Foundation, et. al. Adopt-A-Stream Foundation, Everett, WA. (2001).

One local teacher calls this "one of the best 9-12, freshwater ecology books I have had the pleasure of reading." The bulk is background information; thorough and readable. Also includes field activities. See associated video, AV WR 26.

Grade levels: 9-12 Length: 252 WCEE call number: AC WR 79

Videos/DVDs

Go with the Flow: Water Cycle Children's Television Workshop, Lincoln, NE. (1991).

A 3-2-1 Contact special that deals with the water cycle. Slightly dated, but kid-hosted and informative. See also the 3-2-1 video Down the Drain (AV WR 1) for information concerning water use and pollution issues.

Grade levels: K-6 Length: 15 minutes WCEE call number: AV WR 19

Into the Outdoors (Series) Discover Mediaworks and WI DNR. (2006).

A great outdoor television series filmed in and around Wisconsin, and geared toward and presented by kids. Water-specific episodes are: Got Water?, Carvin' Nature's Niche, The Stream of Life, On the Water's Edge, and Have an Ice Day.

Grade levels: K-9 Length: 25 minutes each WCEE call number: AV DVD BC AQ 1-3, WR 1-2

Bill Nye the Science Guy (Series) Disney Educational Productions, Elk Grove Village, IL. (1994).

Water-themed specials from the popular and fast-paced children's show. Topics include "Lakes and Ponds," "Water Cycle," "Oceanography," "Wetlands," and "Rivers and Streams." Many experiments are demonstrated.

Grade levels: 4-9 Length: Approx. 45 minutes each WCEE call number: AV WR 32-34

Water: From the Earth for You GPN, Lincoln, NE. (1999).

A well-produced look at many water issues, including human uses, cycles, groundwater, conservation, etc. Includes experiments to help explain concepts.

Grade levels: 5-9 Length: 20 minutes WCEE call number: AV WR 13

Cadillac Desert (Series) KTEH-TV, San Jose, CA. (1997).

Lengthy but very complete. A four part PBS series exploring the (water) issues facing civilizations in the deserts of the Western US. Very well-produced and interesting.

Grade levels: 5-12 Length: 85 minutes (each) WCEE call number: AV WR 29 pts. 1-4

Water Above Water Below: The Connection Between Wisconsin's Waters by Clean Wisconsin. Sustain. (2004).

An introduction to the water cycle and the threats to water quality, set in a Wisconsin context.

Grade levels: 5-12, adult Length: 24 minutes WCEE call number: AV DVD WR 3

Journey to Planet Earth: Rivers of Destiny Screenscope. (1999).

A well-produced PBS documentary focusing on case studies of 4 major rivers: The Mississippi, Amazon, Jordan, and Mekong. Helps highlight the relationships between humans and water resources.

Grade levels: 7-12 Length: 57 minutes WCEE call number: AV WR 30

After the Storm: A Citizen's Video Guide to Understanding Storm water EPA, Washington, D.C. (2004).

This video provides 3 U.S. case studies of specific watersheds, water quality, water use, and environmental degradation. Clearly explains what a watershed is and what needs to be done to preserve them.

Grade levels: 9-12, adult Length: 22 minutes WCEE call number: AV WR 39

Books for Youth

In the Small, Small Pond by Denise Fleming. Henry Holt and Company, New York, NY. (1993). *This book introduces the diversity of pond life. It illustrates animals and their actions such as how tadpoles wriggle, heron plunge, minnow scatter, and swallows scoop. Also introduced are the concepts of food web and the seasons. Vivid illustrations tell the story and stimulate the senses as well as the words that accompany them.*

Grade levels: PK-4 Length: 29 pages WCEE call number: BY BC AQ 30

Water Dance by Thomas Locker. Harcourt Brace and Company, Orlando, FL. (1997). *An exploration of the many forms in which water occurs on Earth. Gorgeous illustrations. Also includes an appendix discussion of the water cycle.*

Grade levels: PK-4 Length: 32 pages WCEE call number: BY WR 26

Tessa and the Fishy Mystery by Carole Douglis. United Nations Environment Programme. (2004). *Tessa investigates why fish and other sea life are no longer frequenting the beach near her home. She then encourages her community to take better care of the environment so that the fish will return home. In the back of the book there are facts and figures about seas and oceans as well as a list of things young people can do.*

Grade level: K-6 Length: 30 pages WCEE call number: BY BC AQ 43

Frog in a Bog by John Himmelman. Charlesbridge, Watertown, MA. (2004).

This simple children's book shows the connections among numerous life forms inhabiting a bog, in short, easy to read lines with colorful illustrations.

Grade levels: K-6 Length: 28 pages WCEE call number: BY BC AQ 41

Follow the Water from Brook to Ocean by Arthur Dorros. HarperCollins, New York, NY. (1991).

A straight-forward and readable exploration of the water cycle and the forms that water takes in our world.

Grade levels: K-6 Length: 32 pages WCEE call number: BY WR 4

Drop Around the World, A by Barbara Shaw McKinney. Dawn Publications, Nevada City, CA (1998).

Take a journey from Maine to Mumbai with just one raindrop, as it touches plants, animals and human life all around the world. The everlasting, ever-changing drop inspires our respect for water and its unique note on Earth.

Grade levels: 2-6 Length: 26 pages WCEE call number: BY WR 24

Drop in My Drink: The Story of Water on Our Planet, The by Meredith Hooper and Chris Coady. Penguin Group, New York, NY. (1998).

This story helps learners understand where water comes from, how it behaves, why it matters. Each new drop in my drink is a different drop, but each drop can stand for any drop.

Grade levels: 2-6 Length: 28 pages WCEE call number: BY WR 25

Butternut Hollow Pond by Brian J. Heinz. The Millbrook Press, Brookfield, Connecticut. (2000). *Heinz describes the course of the day, from morning to night. Two concepts are demonstrated in this book: the hunter becomes the hunted, and all living things are players in a complex cycle of interdependence. This nature-filled drama pulls children in as no science textbook can. Beautiful water color pictures.*

Grade levels: 4-6 Length: 31 pages WCEE call number: BY BC AQ 32

Life in a Lake by Melissa Stewart. Lerner, Minneapolis, MN. (2003).

This non-fiction book describes how Lake Superior was formed and the interdependence of the plants and animals that live in and around it. Also discusses how the lake has been affected by humans throughout history, and what we can now do to preserve it.

Grade levels: 4-9 Length: 72 pages WCEE call number: BY BC AQ 39

Sea, the Storm, and the Mangrove Tangle, The by Lynne Cherry. Farrar Straus Giroux, New York, NY. (2004).

A great tale about the development of a mangrove island and how its inhabitants rely on it for food and shelter.

Grade levels: 4-9 Length: 32 pages WCEE call number: BY BC AQ 42

Wetland by April Sayre. Twenty-First Century Books, New York, NY. (1996).

One of the many, many non-fiction books students can use in research about a variety of water-related topics. This particular resource defines and gives examples of wetlands, and also explores human/wetland relationships. Includes resource list, glossary, and index.

Grade levels: 4-9 Length: 78 pages WCEE call number: BY BC AQ 20

Reference/Background Books

Great Lakes, The Great Lakes National Program Office, Chicago, IL. (1995).

An atlas and "resource book" covering the natural processes, people, and management of the Great Lakes. Very beneficial for adding local relevance to water units. Great maps, charts, and pictures.

Grade levels: 9-12, adult Length: 46 pages WCEE call number: BA WR 14

Groundwater: A Citizens Guide and **Safety On Tap** League of Women Voters Education Fund, Washington, DC. (1986 and 1987).

Two helpful primers on water issues. The first deals with the definitions, sources, and issues surrounding groundwater. The second deals with the process, sources, and issues surrounding drinking water. Both guides include glossaries, lists of additional resources, and guides to citizen action.

Grade levels: 9-12, adult Length: 44 and 52 pages WCEE call number: BA WR 7 and 4

Catching the Rain: A Great Lakes Resource Guide for Natural Storm Water Management by American Rivers. American Rivers, Washington D.C. (2004).

Guide for citizens, developers, and municipalities interested in natural storm water management. Explains the impacts of conventional storm water practices and the value of soft path approaches. Provides a thorough introduction to numerous techniques.

Grade levels: Adult Length: 65 pages WCEE call number: BA WR 44

Wetlands In Danger Oxford University Press, New York, NY. (1993).

A very visual look at wetlands worldwide. Provides useful information, but the best attribute is the stunning pictures.

Grade levels: Adult Length: 187 pages WCEE call number: BA WR 15

When the Rivers Run Dry: Water – The Defining Crisis of the Twenty-first Century by Fred Pearce. Beacon Press, Boston, MA. (2006).

Pearce shines a light on the under publicized global water crisis with horrific facts of poisoned wells and wasted water. He traveled all over the globe to document the tragedy and passionately advocates for greater awareness and better water ethnics.

Grade levels: Adult Length: 311 pages WCEE call number: BA WR 46

Worldwatch Paper 154 by Payal Sampat. Worldwatch Institute, Washington, DC. (2000).

Titled “Deep Trouble: The Hidden Threat of Groundwater Pollution,” this primer on groundwater issues is published by the well-respected Worldwatch Institute. Includes many tables and figures.

Grade levels: Adult Length: 55 pages WCEE call number: SER WW 154