



NEW YORK STATE Conservationist

WINTER 2009

for
Kids!

Exploring
**New
York's
Rivers**

Where's
Your
Watershed

The Hudson River's
REAL LIVE
Prehistoric Fish

Welcome
to

NEW YORK STATE

Conservationist

for
Kids!

Learn about
nature and the
environment
in New York
State and
what kids just
like you can
do to help the
environment. !

In this issue: Did you know that New York has more than 50,000 miles of rivers and streams and more than 7,850 lakes? And all of that water is on the move. But where is it going? Explore some of New York's rivers in this issue of *Conservationist for Kids* and "go with the flow."

Pssst...

**Do you
recognize
me?**

Be a page-number kid and share a photo of yourself and your friends enjoying the outdoors. Send us an e-mail or letter. We'll send you the details about what's required for us to print your photo or post it on our website.

Contact us at
Conservationist for Kids
625 Broadway, 2nd Floor
Albany, NY 12233-4500

or e-mail us at
cforkids@gw.dec.state.ny.us

Want to receive *Conservationist for Kids* at home? Subscribe to *Conservationist* magazine!

You'll get six issues of the award-winning *Conservationist* magazine each year, plus *Conservationist for Kids* in the October, February and April issues. Call 1-800-678-6399 for information about how to subscribe.



Visit

www.dec.ny.gov for
information for kids interested
in the environment. Search for
Conservationist for Kids to find
activity sheets and cool
internet links.

Cover photo by Chris Bowser

Hudson River: Hands-on lessons on the Sloop Clearwater

EARTH'S Water Cycle



Sun
Energy from the sun drives the water cycle

When water falls to the earth's surface (precipitation)

it moves quickly along (surface runoff) and forms streams and rivers. It then flows into lakes and oceans.

Check this out!!

Nature never can't be made. What we have is all we got. Earth's water cycle is through many uses and through different forms. It may be liquid water, solid ice or water vapor in the air. It is reused over and over again. The water you drink today is the same water dinosaurs drank millions of years ago!

Precipitation
(rain, snow, etc.)

Respiration
(from animals)

Precipitation
(rain, snow, etc.)

Transpiration
(from plants)

Evaporation

Surface Runoff
(Moves Quickly)

Some water seeps into the ground and

fills the spaces between soil particles and in porous rocks.

Water at the surface

is warmed by the sun's heat energy and evaporates into the air.

Water vapor is also added from

the breath of animals, including people (respiration).

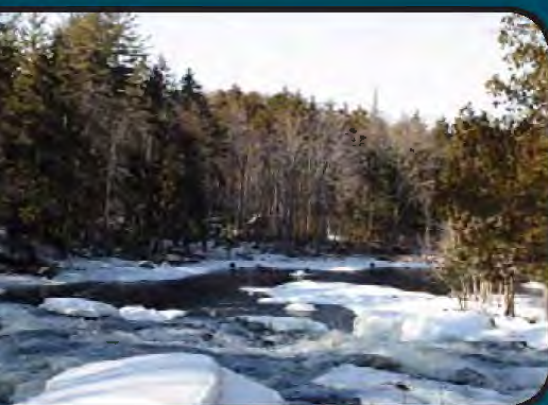
(When you see your breath on a cold day, you're seeing the water vapor.)

Plants give off water vapor, too (transpiration). The water vapor in the air condenses and

forms clouds. The cycle continues as water from the clouds once again falls to the earth's surface.

Groundwater Flow (Moves Slowly)

Water in the ground (groundwater) flows slowly through the tiny spaces. After a long time, sometimes years, it reaches the surface in low-lying areas and joins streams and lakes.



Watershed Wisdom

The land area whose waters drain into a stream, lake or other body of water is called a watershed. The water is "shed" from the land after rain falls and snow melts.

A stream whose waters run into another body of water is called a tributary. Each of our major rivers and water bodies has many smaller tributaries.





Introducing....

New York's Major Rivers



1 Niagara River

The waterfalls on this river are world famous (Niagara Falls); hydroelectric generating stations harness the power of the water on both sides of the American/Canadian border.

2 Allegheny River

Drains into the Gulf of Mexico via the Ohio and Mississippi Rivers; North America's largest aquatic salamander (eastern hellbender) lives in this river and its tributaries.

3 Genesee River

Genesee River Gorge, in Letchworth State Park, is sometimes called the "Grand Canyon of the East."

4 Oswego River

Watershed contains seven of New York's Finger Lakes, plus **Seneca** and **Oneida Rivers**.

5 Chemung River

A major tributary of the Susquehanna River.

6 St. Lawrence River

Drains waters from the Great Lakes into the Atlantic; one of the most significant waterways in North America.

7 Black River

Watershed drains about 2,500 square miles of north-central New York State into Lake Ontario.

8 Susquehanna River

North America's largest watershed draining to the Atlantic; drains to Chesapeake Bay.

9 Delaware River

Begins in the Catskill Mountains; then empties into the Atlantic through Delaware Bay; three New York City Water Supply System reservoirs are within the watershed.

10 Mohawk River

The largest tributary to the Hudson River; eastern portion of the Erie Canal follows much of the river.

11 Hudson River

Two watersheds: upper portion begins in the Adirondacks at Lake Tear of the Clouds at the base of Mt. Marcy; lower portion extends from the Federal Dam in Troy to the Battery in New York City.

Each one of us lives in a watershed. Visit "Surf Your Watershed" at <http://cfpub.epa.gov/surf/locate/index.cfm> to find out which watershed you live in. When you enter your zip code it shows which watershed you live in. Once you know your watershed, go to www.dec.ny.gov/lands/47997.html to read more about it on DEC's website.

For more information:

Paddle to the Sea by Holling C. Holling (Sandpiper Books, 1980) (also available as a video)
The Magic School Bus Wet All Over: a book about the water cycle by Pat Reif (Scholastic Inc., N.Y., 1996)
Spring Waters, Gathering Places by Sandra Chisholm DeVongé (The Watercourse, Bozeman, Montana, 2000)
Big Rivers with illustrations by Peter Grosshauser (The Watercourse, Bozeman, Montana)
Watershed Protection with illustrations by Peter Grosshauser (The Project WET International Foundation, Bozeman, Montana, 2003)
www.dec.ny.gov/lands/26561.html DEC's Watersheds, Lakes and Rivers website
www.dec.ny.gov/lands/25564.html DEC's Hudson River webpage
www.epa.gov/owow/kids.html EPA's "Wetlands, Oceans and Watersheds" website for kids
www.epa.gov/safewater/kids/flash/flash_watercycle.html EPA's water cycle for kids





THE HUDSON

In 2009 New York State is celebrating the **400th anniversary** of **Henry Hudson's** voyage of exploration and discovery of the river that bears his name.

Check this out!

The Hudson River has been named a National Heritage River.

The Hudson is unique among New York's rivers.

It stretches from the High Peaks of the Adirondacks all the way to New York Harbor. It is so varied, it is actually two watersheds: the Upper Hudson and the Lower Hudson, with the dividing point between the two sections at Troy.



Did you know?

The Lower Hudson is not just a **RIVER**...

It's also an

ESTUARY!

AN ESTUARY is an area where fresh water from a river joins salt water from an ocean. The area of mixing in the Hudson River Estuary sometimes reaches as far inland as Poughkeepsie. The inland edge of the mixing is called the "salt line." Estuaries have very diverse habitats, so they support a huge range of wildlife.



Did you know?

The Hudson's water levels rise and fall with the tides all the way to Troy



The Hudson River Estuary is an important spawning ground for fish, like the Atlantic sturgeon.

The Atlantic sturgeon is the symbol of the Hudson River Estuary Program.

Flashlight on the Hudson River



WATERWAY



WOOD DUCK

- Size:** 19-21 inches; wingspan 28 inches
- Found state-wide, in forested wetlands and along rivers, ponds and lakes
 - One of only a few species of North American ducks that nest in trees

WOW
YOUNG DUCKS
JUMP FROM
THE TREE NEST
TO THE WATER,
SOMETIMES
FROM GREAT
HEIGHTS



Dave Spier

BEAVER

- Size:** 36 - 42 inches
- Live in and along New York waterways, state-wide, except for Long Island
 - Were once hunted almost to extinction for their pelts, but are now thriving

DRAGONFLY

- Size:** adults 1-3.5 inches
- Live along New York's waterways, state-wide
 - Juvenile or "nymph" phase is aquatic
 - Adults and nymphs eat insects, helping to keep mosquitoes under control



STURGEON

- Size:** 6-8 feet in length, occasionally 200 pounds
- Lake sturgeon (photo) are in the St. Lawrence and Niagara Rivers, Lake Ontario and its tributaries; Atlantic and short-nosed sturgeon are in the Hudson River

LOOK AT THIS!

YOU CAN
TRACE THEIR
ANCESTRY BACK
TO THE DAYS OF
THE DINOSAURS,
65 MILLION
YEARS AGO

BELTED KINGFISHER

- Size:** 11-14 inches
- Found state-wide along waterways
 - Often seen hovering over the water before plunging headfirst to catch a fish



CHECK THIS OUT!

THIS CRITTER
HAS ITS
SKELETON ON
THE OUTSIDE!

WILDLIFE

BALD EAGLE

Size: 28-38 inches; wingspan to 80 inches

- Found across the state along the shorelines of ocean, lakes, reservoirs and rivers
- Swoop down to scoop fish, their primary food, from near the water's surface
- Listed as "threatened" on the endangered species list; through conservation efforts, have made a dramatic recovery

RIVER OTTER

Size: 36-48 inches; weighs 10-30 pounds

- Found mostly in the eastern half of the state
- Like crayfish and fish for food

FUN TO WATCH!

PLAYFUL, AGILE, SWIFT, SWIMMERS

WALLEYE

Size: Often longer than 20 inches; up to 10 pounds

- Found in deeper areas of lakes, rivers and streams throughout New York, except Long Island
- Have large, light-sensitive eyes for feeding in poor light

Dick Thomas

GUARD YOUR SUNFISH!

VERY HUNGRY PREDATOR!

GRAYFISH

Size: 2-5 inches

- Grows by molting, shedding its exoskeleton many times over its lifespan
- Eaten by larger animals, including fish, raccoons, and otter

HOODED MERGANSER

Size: 16-19 inches; wingspan 26 inches

- Excellent underwater vision; find prey underwater by sight
- Live along inland waterways across New York State



Ideas for Exploring Your Environment!

What's Your **WATERSHED** Address?

What if your address was described by the water you live near, instead of the street you live on? Look at a map of your area (a topographic map is best) to find the water closest to your home: a stream, river or lake where runoff from your roof would travel to. Where does it go from there? Follow the water until you reach a lake or the ocean. Write down the name of each water body your water travels through, from smallest to largest. This is your watershed address.

Here are two examples:

WATERHOUSE CREEK
Oswego River
Lake Ontario

MALTANNE CREEK
West Canada Creek
Mohawk River
Hudson River
New York Harbor

What is your home address?

What is your watershed address?

Water Words

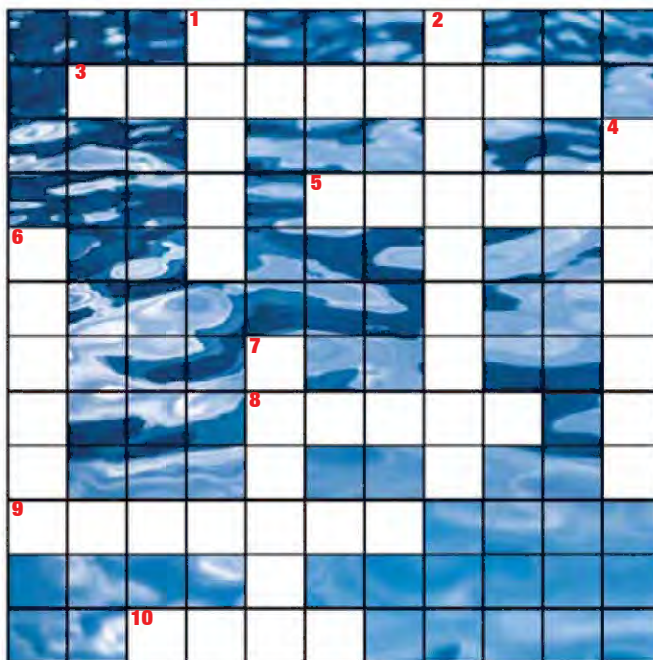
NOTE: The words are in this issue of *Conservationist for Kids*

Across:

3. A stream whose waters flow into another stream or body of water.
5. The salt water that covers about 71% of the earth's surface.
8. This playful mammal is found along rivers across the state.
9. This river is famous around the world for its waterfalls.
10. A large body of fresh water surrounded by land.

Down:

1. A large natural stream of fresh water.
2. The land area from which water drains into a stream, lake, or other body of water.
4. An area where salty ocean water mixes with fresh water from the land.
6. The 400th anniversary of the European exploration of this river is being celebrated in 2009.
7. This river flows across the state, from the west to the east, and drains into the Hudson River.



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

New York State **CONSERVATIONIST FOR KIDS** Volume 2, Number 2, Winter 2009

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Conservationist for Kids

Supplement for Classroom Teachers – Winter 2009
“Exploring New York’s Rivers”

Leave No Child Inside

One of the New York State Department of Environmental Conservation (DEC) priorities is to connect New Yorkers to nature. *Conservationist for Kids* has been created as one aspect of DEC’s *Leave No Child Inside* program. Our goal is to encourage children to go outdoors and explore natural areas and to develop an interest in environmental stewardship.

Using *Conservationist for Kids* in the Classroom

Conservationist for Kids, and an accompanying teacher supplement, is distributed to public school fourth-grade classes three times each school year (fall, winter, spring). These materials are also available at www.dec.ny.gov in both HTML and PDF formats. Teachers and students may e-mail questions and suggestions to us at eforkids@www.dec.state.ny.us.

Information and activities in *Conservationist for Kids* encourage readers to explore outdoors. Read the magazine as a class exercise, or have your students read independently. The activities in the magazine may be completed by your students at school or at home. If you receive more copies of *Conservationist for Kids* than you require for your students, please share the extras with your school library, curriculum specialists and other teachers.

MST Curriculum Connections

The activities in this issue of *Conservationist for Kids* correlate to the New York State Learning Standards for Math, Science and Technology for fourth grade, as shown below. Connections to other learning standards are also valid.

What’s Your Watershed Address:

MST2. *Information Systems 1-3*

MST4. *Science: The Physical Setting 2*

MST4. *Science: The Living Environment 6*

MST6. *Interconnectedness 1, 2*

Water Words:

MST4. *Science: The Physical Setting 2*

MST4. *Science: The Living Environment 6*

More Great Stuff

Printable activity sheets and links to other resources can be found on our website. Go to www.dec.ny.gov and look for *Conservationist for Kids* under the Education heading. You will also find back issues of *Conservationist for Kids* and the activity sheets and teacher supplements associated with them. The answer key to the “Water Words” crossword from the Winter 2009 issue is here as well.

Supplemental Activities for the Classroom

Celebrate the “Quad”

In 2009, New Yorkers are celebrating the 400th anniversary of Henry Hudson’s voyage up the Hudson River and Samuel de Champlain’s journey on Lake Champlain: “The Quadricentennial.” The celebrations also commemorate the 200th anniversary of Robert Fulton’s landmark steamboat trip on the Hudson River. Information and resources for teachers are available at www.exploreny400.com and at www.emsc.nysed.gov/ciai/chf/chf.html

Paddle to the Sea

Read *Paddle to the Sea* by Holling C. Holling and follow Paddle’s journey along a map. Ask your students to consider where Paddle would travel if he were placed in a stream near their home or school. In 1966, *Paddle to the Sea* was released as a 28-minute film from the National Film Board of Canada (available today on VHS and DVD at many local libraries). For curriculum activities based on *Paddle to the Sea*, developed by the Ohio Sea Grant, visit the National Sea Grant Libraries at <http://nsgd.gso.uri.edu/ohsu/ohsue91001.pdf>

Teacher Workshops

For teachers who have participated in a Project Learning Tree or Project WET workshop, the activities listed below complement the Winter 2009 issue of *Conservationist for Kids*. For information about workshops and about how to obtain these curriculum and activity guides, visit www.dec.ny.gov/education/1913.html

Project Learning Tree Activities

Every Drop Counts
Field, Forest and Stream

Project WET Activities

The Incredible Journey
Rainy Day Hike
Branching Out

Web-based Resources

General information about water, watersheds and the life they support:

www.epa.gov/owow/kids.html EPA “Wetlands, Oceans and Watersheds” webpage for kids
www.epa.gov/safewater/kids/flash/flash_watercycle.html EPA’s interactive water cycle for kids
<http://cfpub.epa.gov/surf/locate/index.cfm> EPA “Surf Your Watershed”
www.dec.ny.gov/lands/26561.html DEC Watersheds, Lakes and Rivers page
www.dec.ny.gov/lands/25604.html DEC Watershed Stewardship page
www.dec.ny.gov/23.html DEC information and fact sheets about animals, plants and aquatic life

Water-related curricula:

www.eeweek.org National Environmental Education Week

- see lesson plans about water under “Curricula Library”

www.wef.org/AboutWater/ForEducators/CurriculumMaterials/ Water Environment Federation
www.riverofwords.org River of Words art and poetry program

Hudson River information and curricula:

www.dec.ny.gov/lands/25564.html DEC Hudson River page
www.dec.ny.gov/lands/4920.html DEC Hudson River Estuary Program

- see “Education” under “Resources for the Public” for Hudson River lesson plans

www.clearwater.org/index.html Hudson River Sloop Clearwater
www.teachingthehudsonvalley.org Teaching the Hudson Valley