

CATHRYN BERGER KAYE | PHILIPPE COUSTEAU

Make a Splash!

A KID'S GUIDE
TO PROTECTING
OUR OCEANS, LAKES,
RIVERS, & WETLANDS

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Make a Splash!

by Cathryn Berger Kaye, M.A.,
with Philippe Cousteau
and EarthEcho International

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Library of Congress Cataloging-in-Publication Data

Kaye, Cathryn Berger.

Make a splash! : a kid's guide to protecting our oceans, lakes, rivers & wetlands / by Cathryn Berger Kaye ; with Philippe Cousteau and EarthEcho International. p. cm.

Includes index.

ISBN 978-1-57542-417-0 — ISBN 1-57542-417-7 1. Marine ecology—Juvenile literature. 2. Marine pollution—Prevention—Juvenile literature.

3. Environmentalism—Juvenile literature. I. Title.

QH541.5.S3K42 2012

577.7—dc23

2012032120

eBook ISBN: 978-1-57542-651-8

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Reading Level Grade 3; Interest Level Ages 8–12; Fountas & Pinnell Guided Reading Level P

Edited by Meg Bratsch and Alison Behnke; Cover design by Tasha Kenyon; Interior design by Michelle Lee Lagerroos; Illustrations by Jackie Stafford

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10 9 8 7 6 5 4 3 2

Printed in the United States of America

B10950613

Free Spirit Publishing Inc.

Minneapolis, MN

(612) 338-2068

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www.freespirit.com

Free Spirit offers competitive pricing.

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Dedication

From Cathryn: To my daughters Ariel and Devora, who keep me inspired to work toward caring for our planet for future generations.

From Philippe: To my niece Clementine, who inspires me every day and reminds me of the power of hope and optimism and our responsibility to pass on a better world to the next generation.

Acknowledgments

Our appreciation goes to all who gave their time, stories, and words to fill these pages. With special gratitude to:

◆ EarthEcho International—Mia DeMezza, Kyra Kristof, Ricky Hutchinson, and their Board of Directors—for their collaboration and joy brought to this endeavor.

◆ Free Spirit Publishing, especially Judy Galbraith for being such an environmental enthusiast and Meg Bratsch for her excellent editing.

◆ Paula Keener at NOAA's Office of Ocean Exploration for her thorough scientific review.

◆ Karla Blecke, Kaori and Doug Brown, Nate Ivy, Michelle Kamenov, Jill Peterson, and Megan Sparks.

◆ Alison Barrett at the Monterey Bay Aquarium, who introduced us to Makana.

◆ Marieta Francis, executive director at Algalita Marine Research Foundation, for the information on plastics and the five gyres.

◆ Zahra Dowlatabadi and Jim Biehold for their valuable assistance in creating the *Make a Splash!* book video.

◆ From Cathryn: Always my deepest appreciation is to my husband Barry, who gives me continual encouragement and love.



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Introduction

Philippe's Story

Philippe Cousteau is the grandson of famous ocean explorer Captain Jacques-Yves Cousteau. Philippe has loved the ocean ever since he was a kid. Here he tells his story as someone who speaks up for water:

Young Philippe with his grandfather Jacques



As a young boy, I always looked forward to going to the beach. I especially remember one family trip to Hawaii. My sister Alexandra and I loved the tidal pools—the pools of water left behind after the ocean's tide washed up over the rocks. We'd run down to the beach every day to explore them. Together we leaned over the edge of the rocks and stayed as quiet and still as we could. What we saw was a whole community, a tiny world full of life. We watched many different creatures—pinching crabs, colorful sea stars, darting fish, and countless more.

A few years later, when I was 11 years old, I got to go on my first scuba dive in the ocean. The day was beautiful . . . and also sad. We were with a diver who had been exploring the area for many years. He described how the coral reefs used to be healthy and colorful. Now the coral was dying. Fish were disappearing. While we swam alongside him through the underwater world, we could see what he meant.

As I grew up, I kept exploring the ocean. I learned how important water is for all forms of life. I learned this, in part, from my grandfather, Jacques-Yves Cousteau.

I got to go on my first scuba dive in the ocean. The day was beautiful . . . and also sad.

He was a world famous underwater explorer and filmmaker. The best word to describe him was *curious*. He was curious about the world. He especially loved investigating and exploring the Mediterranean Sea from his home country of France.

My grandfather wanted to spend all the time he could underwater. To do this, he partnered with an engineer named Emile Gagnan. Together they invented an air tank people could wear when they dove into the ocean. The tank allowed divers to breathe underwater for periods of time longer than ever before. We call this **scuba** gear. My grandfather also helped invent special underwater cameras and many other helpful tools.

Through my grandfather's TV programs and films, many people saw the world inside the ocean for the first time. They learned to care more about the environment. I learned this, too. My grandfather and my father, Philippe Cousteau Sr., taught me by example that we must always care for our planet—especially its water.

Now I share that message. These days I meet kids all around the world who care about Earth and its waters. They care about the oceans, seas, streams, rivers, lakes, ponds, and swamps that are in their own backyards. They also care about waters that are far away. They want to protect animals that live in

Define It

Scuba stands for self-contained underwater breathing apparatus. Scuba gear allows people to breathe underwater and go on long dives.

the water. They want people to have clean, safe drinking water. They want to do something big to help. They *can*—and so can you.

Make a Splash! will help you get started. You will learn amazing facts. You'll gather important tools and tips. You'll read stories about kids just like you who are taking steps to save and protect waters everywhere.

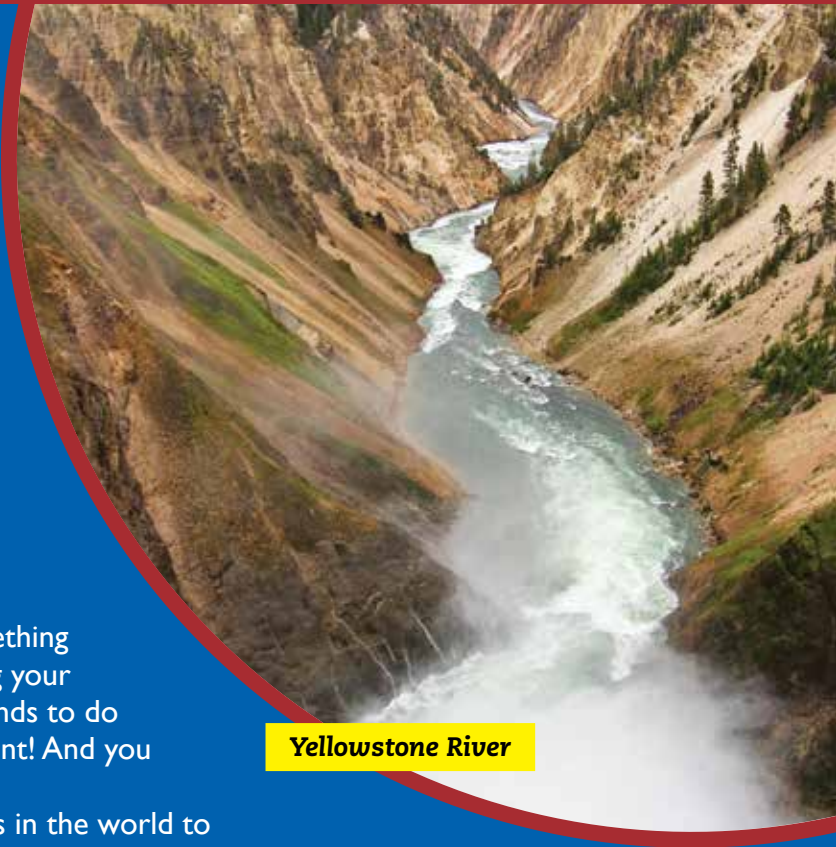
You can inspire and lead other kids and adults, too. Have you ever bugged your mom or dad for something you wanted? Well, you can also bug your family, neighbors, teachers, and friends to do something good for the environment! And you can show them the way.

Today, one of my favorite places in the world to spend time is by the Yellowstone River in the western United States. This river is full of trout and other fish. Bears and caribou drink at the water's edge. When we work together, we can save special places like this one.

I hope you find *your* special water place, too. It may be a river, stream, pond, marsh, beach, tidal pool, or coral reef. I hope you do your best to protect this place forever. So start reading, and get ready to make a splash!



Philippe Cousteau

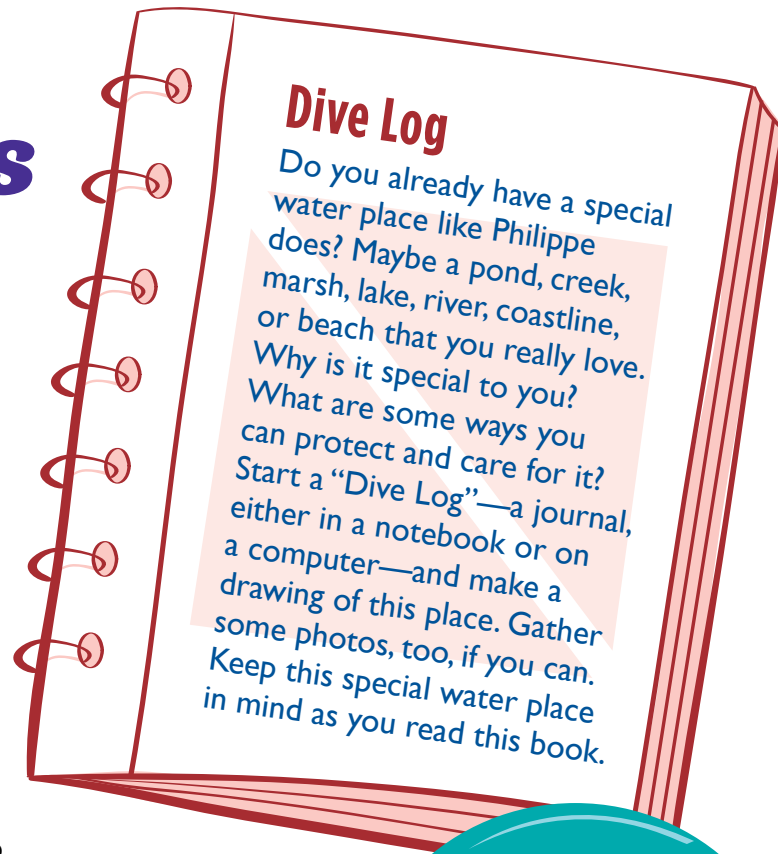


Yellowstone River

How to Use This Book

How you use this book is up to you. Maybe you'll dive in and read it from start to finish. Or maybe you'd rather jump into the book at different spots. You might find a certain subject that interests you, or see a picture or drawing that catches your eye. That's fine, too.

However you decide to read this book, here's a handy guide to use along the way. Keep your eyes open for these bits and pieces:



Dive Log

Do you already have a special water place like Philippe does? Maybe a pond, creek, marsh, lake, river, coastline, or beach that you really love. Why is it special to you? What are some ways you can protect and care for it? Start a "Dive Log"—a journal, either in a notebook or on a computer—and make a drawing of this place. Gather some photos, too, if you can. Keep this special water place in mind as you read this book.

Define It

If you see a word in **bold**, look for a Define It box close by. These boxes explain words that might be new to you.

WATER WISE

What do you already know about water? What will you find out? Spark your interest with these Water Wise questions at the start of chapters 1-3. There's so much to explore! As you read, you'll find answers to the questions. (The answers are also at the bottom of each page of questions.)



Fluid Fact

Love facts and figures? These are just for you! Fluid Fact boxes are filled with splashy statistics and drippy details about water.

EarthEcho Tip

EarthEcho International is an environmental education organization founded by Philippe Cousteau and his sister, Alexandra. These tips will give you some of their ideas for caring for Earth's water.



KIDS IN ACTION

Ready for inspiring stories about kids around the globe taking action to protect water? Look for Kids in Action sprinkled throughout the book. You'll find practical ideas and helpful suggestions to use in your home, school, or community.

Every Drop Counts

The ideas in **Every Drop Counts** boxes came from second graders at Round Rock Elementary School in Texas. Water supplies were low in their town, and students investigated how people can save water. They learned that we have a limited amount of water on Earth, so **every drop counts**. The students made Water Conservation Kits to hand out to people. Each kit included a list of ways we can all save water.

Soak It Up

At the end of each chapter, look for the Soak It Up section. This brief chapter review helps you think about what you have learned so far and gets you ready for what's coming next.

At the very end of the book, you'll find a handy glossary of terms and a list of books, websites, and other resources. They'll help you continue making a splash to help water.

What does it mean to make a splash? The saying, "She made a splash!" means that the person did something that got a lot of attention. When you take the steps and suggestions in this book, you'll "make a splash" of your own to help save and protect our planet's water.

What Is Service Learning?

In *Make a Splash!* you will learn a lot about water—from where it is to why it needs our help. You'll also learn about *service learning*. What is it? Here's a simple way to remember: **service + learning = service learning.**

Service means doing something to help other people, animals, or the earth.

Learning means finding out more about a subject, or developing a skill by practicing.

A boy explores animal life along an ocean coast



When you put these two things together, you get **service learning**. During service learning, you learn about a topic that interests you, and then you do something related to that topic to help others. Around the world, kids are doing service learning for water. They are learning about real water needs and concerns. They are coming up with helpful ideas, and they are putting those ideas into action.

Service learning is made up of five parts. The chapters in this book are divided into those five parts:

1. **Find Out** (also called *Investigate*)
2. **Dive In** (also called *Prepare*)
3. **Get Going!** (also called *Act*)
4. **Think Back . . .**
(also called *Reflect*)
5. **Show It!**
(also called *Demonstrate*)

You can think of each of these as part of a big adventure—an underwater dive!

Students inspect a shoreline in Hawaii



Getting Ready for Your Dive

Every diver needs supplies. These supplies will help you through the five parts of service learning. Here is what you will take with you on your dive:

Mask to Find Out: Masks help you keep your eyes open wide as you **investigate** water and why it matters. With your mask on, look at the water around you. Where is water? How is water part of your everyday life? How is it part of your community? Who and what needs water to survive? Where is water in trouble? Ask others what they know about water.

Find out about water needs and how you can help.



Snorkel to Dive In: A snorkel helps you breathe underwater so you can put your head under the surface and see what's beneath. With your snorkel on, you can look closer at the source of all water: the oceans. What are the biggest problems for our oceans? What is causing these

problems? How are all the waters around you (like lakes, rivers, and swamps) affected by the oceans? Use what you learn to **prepare** to help water. You might talk to experts about a problem you've spotted. Research water stories online, in newspapers, or in books. Discover what other kids are doing for water. Being prepared with knowledge helps you get to the next stage: Action.



Flippers to Get Going: When divers slip on a pair of flippers, they *really* start moving. With your good ideas and expert knowledge, you can **act** on your plan to save our waters. Involve friends and your class, family, and neighbors. They can help with planning and spreading the word about your action. How can you make

real change? What can you do to inspire others to join? How can you make sure your actions succeed? This is an exciting part of your dive—it's time to kick forward and make a splash!



Dive Log to Think Back: Divers keep track of each dive in a dive log. This helps them think back and **reflect** on their adventure. Your own Dive Log is a place to write, draw, add photos, and collect news articles. It's where you will record your ideas, thoughts, and feelings about your adventure. In fact, you've already used it on page 4 to write about your special water place. You might keep your

Dive Log in a notebook of recycled paper. You could make your own notebook out of scrap paper. Or maybe you'd rather use a computer or other device. Whatever your log looks like, it's time to get it out when you see this symbol.



Underwater Camera to Show It: Finally, many divers take a camera with them on their dives so they can snap pictures. With your underwater camera, you will capture all that you see and do on your service learning adventure. You might use a real camera to take pictures,

or you might take imaginary pictures in your mind. Then you'll use your pictures to **demonstrate** or show others what you did to help our waters. Where did you begin? What happened along the way?



What surprised you the most? Share what you know, speak up for water! Some kids make posters, put on plays, or create blogs. There are so many different ways to show what you did and inspire others to do something, too.

Grab your dive kit and let's go!

To help you understand the five parts of your dive, each part will begin with **The Story of Ogallala.** "The story of Oga-what?" Read on to find out.



Chapter 1:
FIND OUT
Why Water Matters

The Story of Ogallala: Part 1

Friona, Texas, United States

In the town of Friona, Texas, you won't find a big lake, river, or ocean. What you *will* find are playa [PLY-ah] lakes. Playa lakes only form when it rains, and rain doesn't happen in Friona very often. Playa lakes can look like small ponds or large puddles. The rainwater in them slowly trickles down into the underground water supply.

Friona's playa lakes trickle into the Ogallala (oh-ga-LA-la) Aquifer. This **aquifer** is one of the largest in the world. It is so large it stretches under eight states! Most of the water in it is pumped out to water crops that grow food for people and animals. Under the town of Friona, however, there is less water in the Ogallala than in any other place in the aquifer.

Playa lakes

Define It

An **aquifer** (AH-kwi-fer) is an underground layer of rock or soil that contains water.

How Did They Find Out?

Fifth-grade students set out to investigate why there is less water under Friona. They asked questions about Texas's playa lakes and about the Ogallala Aquifer. They asked: "What would happen if our water was gone from the playa lakes and the aquifer? How would our food grow?"

To find out, the students read local newspapers and websites. They learned that a **drought** in Texas was making big problems for the entire state. Then they interviewed farmers and water specialists to learn more about the problem and the need to save water. Next, they did a survey—they asked their parents and neighbors questions about how the changes had affected the area. They asked people what they knew about the playa lakes and the aquifer.

Finally, the students decided to observe the problem for themselves. They visited the playa lakes and looked at the plants and animals that live around them. They saw how little water there was in the lakes and how dry the surrounding area had become.

All of this investigation helped the students realize something. Most Friona residents did not know what a playa lake was. They also didn't understand the importance of the Ogallala Aquifer . . .

(This story continues on page 51.)

Define It

A **drought** is severe lack of rain in an area for a long time. A drought can result in low water supplies. It also makes it very difficult to grow crops for food.

Where Is Water?

Sure, you see water every day, wherever you live. Do you ever stop to *really* look at it and think about it? It's time to start seeing water clearly. So put on your mask to find out more.

In one form or another, water is all around you. That's true even if you live far away from an ocean, river, or lake. Clouds in the sky are made of tiny drops of water. And just like in Friona, water is also in the ground under your feet. Groundwater is a huge source of Earth's water. In fact, there is about 100 times as much water in the ground as there is in *all* the lakes and rivers in the world!

WATER WISE

1. Where is there more water: in all the world's lakes and rivers combined or underground?
2. Do wetlands—also called bogs and marshes—make our water dirtier or cleaner?
3. What uses the most water inside our homes?
4. What business uses the most water around the world?
5. What are two reasons why plants drink water?

Answers: 1. Underground. 2. Cleaner. 3. Toilets. 4. Agriculture. 5. Nutrients and cooling.

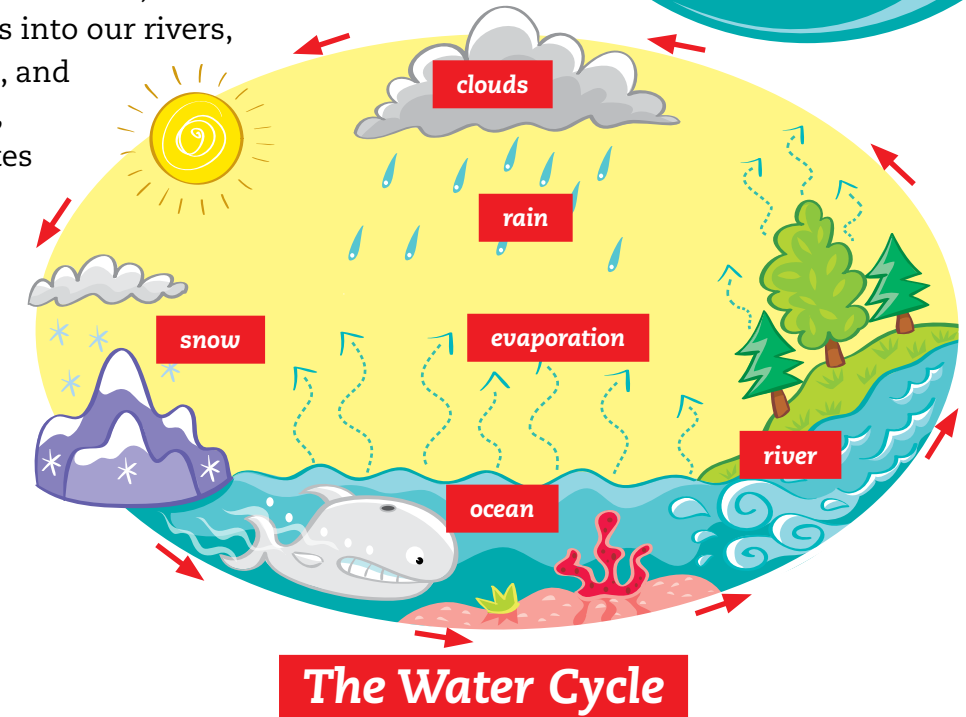
So a lot of water is in the ground. However, most of the planet's water is in the ocean. Take a look at this photo of Earth. It shows our planet from outer space. What color do you see the most?

Blue. All of that blue is water. Maybe this isn't Planet Earth after all. Maybe we really live on Planet Water! Earth's oceans are really one big ocean divided into five basins: the Atlantic, Pacific, Indian, Southern, and Arctic ocean basins. An ocean basin is like a giant bowl of water.



These five ocean basins are connected, just like all water on Earth is connected. How is it connected? Through a complex puzzle of lakes, rivers, streams, and swamps. And also through something called the *water cycle*. Here's how it works: First, water **evaporates** from the ground and from bodies of water. Some of this water becomes clouds in the sky. Some of the water stays in the air. Does the air outside ever feel wet to you, or humid? That means a lot of water is in it.

Next, water falls back to Earth as rain, snow, sleet, or hail. Then, water soaks in the ground or flows into our rivers, lakes, marshes, and oceans. Finally, water evaporates again into the air and the clouds. The cycle continues, on and on and on and on . . .



The Water Cycle

Define It
When water **evaporates** it turns from a liquid into an invisible gas. The water seems to simply disappear, because we can't see gases floating through the air. But it's still there!

Same Water, Different Time

This might be news to you: Earth's water supply has never changed. Ever. We've had the same water all through time. The water on our planet today is the same water that dinosaurs drank over 200 million years ago. It just keeps going around and around through the water cycle.

The Water in Your Backyard

So water is in the air above you and in the ground below you. Where can you see the water around you? Can you spot it rippling in a creek or sparkling in a pond? Maybe after a rainstorm you see water running down the gutters in your street.

Or maybe you don't see much water where you live. It might be hidden. Still, water is there somewhere. Water even exists in the desert! This water may be far below the surface. Or it may come in a very rare rainfall, as it does in Friona. Either way, it's there. Without water, cactuses, lizards, and other desert dwellers couldn't survive.

Water is always on the move, all around you.



Watersheds are what connect this moving water. Our whole planet is one big watershed that eventually drains into the ocean. Within this giant watershed, thousands of smaller watersheds connect together.

Watersheds are busy places. They are homes to plants, trees, large animals, and tiny insects. They come in many sizes and shapes, and they often stretch across cities, counties, states, provinces, and countries.

Let's look at the main parts of the watershed puzzle: lakes, rivers, wetlands, estuaries, and ocean coasts. We'll see how they fit together and why each is important.

Define It

A **watershed** is an area of land where all the water that is in or under it flows into the same place.

Dive Log

Go on a water treasure hunt in your neighborhood! Hop on your bike, take a walk with a friend, or ask an adult to come along as you explore. Find a creek. Spot a swamp. Or follow a trickle of water in your street. Does the water you've found meet up with other water? Where? In your Dive Log, record the results of your water treasure hunt. Draw a map, paint a picture, or write a story about the way water fits together where you live.

Lakes

A lake is a body of water surrounded by land. Most lakes hold fresh (not salty) water. At some times of the year, a lake can be a dry basin waiting for water from rivers and rain to fill it. Lakes can form from landslides and glaciers (huge slow-moving chunks of ice). River bends and volcanic craters that fill with rain can become lakes, too. People can also make lakes by building dams in rivers.

Lakes are home to a variety of plants and animals—including many kinds of freshwater fish, turtles, and frogs that only live in lakes. Lakes also provide drinking water to many people around the world. And if you live near lakes, you know they're *sensational* for swimming!