# HIT IN THE HEAD BY A HIGH-FLYING FAT FISH

*Q. Dear Twig: Are there really flying carp?*

A. What would happen if a fish as big as a golden retriever jumped out of the water and hit you in the head?

You wouldn't like it, that's what.

Your head would hurt. Your sunglasses might break. There'd be a lot of slime to wash off. It wouldn't be a pretty picture. But it's a scene that's been happening on the OHIO, MISSOURI and MISSISSIPPI RIVERS.

For that we can thank ASIAN CARP.

Asian carp are invading North America. They weigh up to 100 pounds. Eat nearly half

their weight every day. And, when you startle them, jump from the water like trained killer whales. Sometimes they do this in front of a boat. Or a boater.

Whacko.

In fact, Asian carp sometimes jump so high —10 feet or more, high enough to dunk a basketball *("Wham,* with the right fin!") — that some people, especially those who've been hit by one, call them "flying carp."

These big fat fish are a big fat concern but not because of their jumping.

No, the reason is that they're spreading. Asian carp are getting closer to getting into the Great Lakes. If they get in and spread, they could mess up the **ECOSYSTEM** ("EE-koh-sis-tem"; the environment and all the living things in a place and how they work together) and wipe out native fish.

And that would clobber us all.

Duck!

**TWIG NOTES**

*Asian carp are actually four species: the bighead, the silver, the black, the grass. Of most concern are the bighead and the silver. Sources: U.S. Fish and Wildlife Service, Great Lakes Fishery Commission.*

# ODE TO THE OTOLITH

*Q. Dear Twig: My sister and my friend and I found "lucky stones" on a beach at Lake Erie. My aunt said they came from the ears of a fish. True?*

A. Yep, true. Props to your aunt!

To be exact, the "lucky stones" that you found on the beach likely came from a fish called the **FRESHWATER DRUM**, a big-eyed, sad-faced, round-tailed fish that people call croaker, sheepshead and silver bass, too.

The drum has an **EAR** on each side of its head. And each of these ears has a part way inside it that scientists call the **OTOLITH** ("OH-toe-lith").

Otoliths help with balance and hearing. Most fish have them. But the drum's are bigger

than most. They look like big, fat, white, shiny buttons, the size of a penny or a nickel or bigger, with the shape of an "L" on one side.

Made out of CALCIUM CARBONATE, the same stuff present in seashells and eggshells, otoliths last for years and years. They last a lot longer than the fish itself. They last long enough for somebody to find them!

## TWIG NOTES

*Otoliths get bigger every year. They tell scientists many things: how fast a fish grew, where it lived, etc. "To the fisheries biologist, the otolith is one of the most important tools for understanding the life of fish and fish populations. Growth rings not unlike those of a tree record the age and growth of a fish from the date of hatch to the time of death. ... Virtually the entire lifetime of the fish is recorded in the otolith." So writes Steven E. Campara, Otolith Research Laboratory, Bedford Institute of Oceanography, Nova Scotia, Canada, at http://www.marinebiodiversity.ca/otolith/english/home.htm. Additional sources: Ohio Division of Wildlife, http://www.dnr.state.oh.us/wildlife/Fishing/aquanotes-fishid/fwdrum.htm; Ohio History Central, http://www.ohiohistorycentral.org/entry.php?rec=1087.*

# GULF OF MEXICO DEAD ZONE: WHAT IT IS, WHAT'S THE CAUSE

*Q. Dear Twig: I heard about a "dead zone" in the Gulf of Mexico. What is it?*

A. No fish. No shrimp. No oxygen. That's what you'll find in the dead zone at the bottom of the northern Gulf of Mexico.

The Gulf of Mexico dead zone is a giant, growing patch of water — now even bigger than the state of New Jersey — that has little or no **DISSOLVED OXYGEN** in it. It starts near New Orleans and stretches west along the continental shelf. It's "dead" because most marine creatures

can't live in it. They need dissolved oxygen to breathe and survive.

Scientists first noted the dead zone in the 1970s. Since then it's grown, reaching, in the past few years, more than 8,000 square miles. It's seasonal — usually present from spring through fall — and is triggered when nutrient-rich water from the **MISSISSIPPI RIVER** basin empties into the Gulf in spring. The Mississippi basin is a huge watershed that drains 40 percent of the lower 48 states, including much of Ohio. What makes it nutrient-rich, especially in nitrogen, is **FERTILIZER RUNOFF** from farms in the basin.

What's especially important to know is this: that folks who live far from the Gulf — like, say, in Ohio, my home state — are part of the cause and also the solution.

Next: Hypoxic cheese?

## TWIG NOTES

*Sources: National Ocean Service, http://nos.noaa.gov /products/pubs_hypox.html; Ohio State's Wilma H. Schiermeier Olentangy River Wetland Research Park, http:// swamp.ag.ohio-state.edu/ORW.html. An article on ways to reduce the dead zone, co-written by Bill Mitsch, director of the park, is available on the park's Web site. Click on "Studies Done at the Olentangy River Wetland Research Park."*