

## Explore Watersheds Without Getting Wet

By Sue Smith-Heavenrich

Want to know what a watershed looks like from a fish's point of view? You can do that at the Sciencenter. Their newest exhibit, "Ocean Bound!" features a big yellow submarine fitted out with a cockpit and a biologist's station. With the spin of a dial, young oceanographers can "pilot" the full-sized submersible on a journey from stream to lake to river to ocean—all through the magic of underwater video.

The exhibit uses underwater footage captured by local cinematographer David Brown, notes Lara Litchfield-Kimber, deputy director of the Sciencenter. The footage and the displays making up the exhibit were made possible with a \$750,000 grant from the National Oceanic and Atmospheric Administration (NOAA). NOAA doesn't usually award grants for projects so far inland, says Litchfield-Kimber, but this exhibit connects the things that happen upstream, in Tompkins County, to the health of the ocean.

The idea grew out of a brainstorming session that took place after the Sciencenter installed the touch tank—a saltwater aquarium filled with tide pool animals that children can examine up close and personal. "We brought the ocean here," says Litchfield-Kimber. The next question was how to connect "here" with the ocean.

Wouldn't it be great to travel from Fall Creek to Cayuga Lake, then into Lake Ontario, the Saint Lawrence River and out to the ocean in a tiny sub? Given that submersibles are terribly expensive, not to mention that they wouldn't fit in Fall Creek, Litchfield-Kimber suggested that perhaps someone in a wetsuit and scuba gear might do the same sort of journey. That idea



Photo by Chris Kitcher Photography

**With Underwater Adventure, inland oceanographers "pilot" a life-size submersible from mountain stream to the ocean, using a spin browser to explore underwater habitats.**

germinated into a grant proposal. "We needed to find a way to drive home the understanding that we are all connected to the ocean," she says. That link is your local watershed. No matter where you stand in Tompkins County, if you drop a plastic whale into a stream, it will eventually find its way to the Atlantic Ocean. Everyone grasps that water runs downhill, says Litchfield-Kimber, but people are a bit murky on the details. She discovered this when she started asking people "What is a watershed?" Most kids had no idea, she says. Even adults weren't too clear on it; some confused it with a "water closet."

Simply defined, a watershed is the land area that contributes water to a stream or lake. It includes springs and seeps, wetlands, ponds, creeks, forested hillsides, cornfields, lawns and soccer fields. Gullies and ravines trickle into streams, which in turn feed

into rivers. Smaller watersheds drain into larger watersheds; for example, the Fall Creek watershed drains into the larger Cayuga Lake watershed. That, in turn, drains into the Oswego River.

There are 14 watersheds in Tompkins County, and all but three drain into the Oswego River basin. Follow the water, and it flows into Lake Ontario, and from there into the Saint Lawrence River and eastward toward the ocean. What doesn't flow into the Great Lakes basin flows south into the Susquehanna River and out to Chesapeake Bay.

A lot gets carried to the ocean, like trash, motor oil, milk and muddy runoff from a storm. But, says Litchfield-Kimber, Sciencenter didn't want to focus solely on threats. So she and her team looked at what scientists are doing to monitor and restore watershed health.

One of the success stories is the River Otter Project. River otters lived in every New York watershed

until the early 1900s. Then a combination of habitat destruction, water pollution and overhunting nearly eliminated them from the state. In 1995, scientists began working with trappers to catch otters with the idea of reintroducing them into their historic homes.

The first group of otters was released into the Seneca River, and residents across the state were encouraged to report sightings of river otters. Over six years the project released close to 280 otters, and since then the river otter population has spread across the state.

People learn best when they get involved, so a big part of the Ocean Bound grant was developing displays that kids (and adults) manipulate. That's Tim Scott's ballgame. Scott is the Sciencenter's director of exhibits—the guy who moves an idea from paper to 3-D. Explaining how rain collects in streams and flows into the lake is one thing. Giving kids a joystick to control rain clouds empowers them to discover for themselves just how the storm water collects and flows.

When Scott builds exhibits, he must consider how to make his displays durable; people twist knobs and turn wheels. With more than 1,400 people thronging through the exhibit in the first 48 hours, anything that can be turned, tilted or twisted gets a real workout. He also needs to think about how the displays will break down for traveling; at the end of May this exhibit hits the road for a nationwide tour.

Exhibit components are built with panels—even the yellow sub where kids can meet a Fall Creek crayfish face-to-face. Where they can take an underwater tour of Cayuga Lake, explore an estuary and, like everything else washed into a Tompkins County watershed, end up in the Atlantic.