



F. EUGENE HESTER

Bait Buckets and Aquatic Hitchhikers



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Threats to North Carolina's diverse aquatic resources come in many varieties, but the common thread is that none of them got here on their own. Humans are responsible for all of these potential disasters in the making.

written by

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Unusual catches have always been a source of fascinating fish tales. Historically, stories of large, trophy-sized fish receive the most attention, but more and more, anglers have accounts to share of encounters with unfamiliar species.

In 2007, an angler reported catching an odd fish from upper Lake Wylie. This 31-inch, 13-pound fish was certainly something that you would not expect to catch on a May afternoon in North Carolina. The angler reported that the large fish was equipped with sharp teeth, and most remarkably, it was able to survive several hours out of water before it was released.

Sensing the uniqueness of the fish, the angler sent photos to fisheries biologists with the N.C. Wildlife Resources Commission. Through these photos, biologists were able to identify the fish as a Northern snakehead, a species native to Asia. Since appearing in the United States for the first time a few years ago in Maryland, Massachusetts and Pennsylvania water bodies, snakeheads have received a great deal of attention. Much of the interest surrounding them is due to the fish's exotic nature, which includes its ability to breathe air, and its aggressive and disruptive habits when established outside its native range.

Snakeheads, like all illegally introduced species, have the potential to disrupt resident fish communities. It is unfortunate that other introduced species such as white perch, spotted bass, river herring and various plants and microbes have not received the same amount of attention. They also can have negative impacts on the state's fisheries—something that should be of serious concern for people who depend upon and enjoy these resources. North Carolina's aquatic systems are under assault from a wide range of these introduced species.

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What's the Harm?

Consider the food web: Nutrients provide energy for microscopic plankton, which are eaten by small fish that ultimately serve as food for larger game fish. Nature is full of many of these interactions, which hang in a delicate balance. If anglers and fisheries managers are not careful and proactive, this ecological balance can be easily disrupted, and the consequences can be severe and long-lasting. It takes only one introduction of fish from a bait bucket or livewell to upset ecological stability and harm fishing.

For example, well-intentioned anglers have spread white perch (a native to the coastal waters of the Atlantic Ocean) across inland waters of North Carolina. White perch feed on the eggs of bass, crappie, striped bass, sunfish, walleye and white bass, just to name a few. In addition, white perch compete for available food with other young fishes — including sport fish. As a result,

the introduction of white perch often leads to the decline of resident sport fish species.

In October 2008, biologists captured 35 white perch from Lake James during a routine sample for walleye. This collection confirmed that white perch are now present in all six Catawba River impoundments within North Carolina.

Another fish expanding its range in North Carolina is the spotted bass (or Kentucky bass). Spotted bass are often angler favorites due to the fish's aggressive nature. Unfortunately, this aggressiveness has encouraged illegal stockings and caused harm. With the increase in the diversity and number of bass, anglers often notice a brief improvement in a largemouth or smallmouth bass fishery after spotted bass are established. In reality, the honeymoon period is not likely to last very long.

Given time, spotted bass have the ability to outcompete resident largemouth and

smallmouth bass and hybridize with them. Ultimately, spotted bass populations can become stunted (concentrated at small sizes). These threats are greater in the nutrient-poor reservoirs of the Mountain region of the state, where spotted bass often interbreed with smallmouth bass and directly compete with them for limited food resources. However, these impacts are not just relegated to Mountain impoundments. In Lake Norman, a recent study found hybridization between spotted and largemouth bass. In addition, the two fishes were shown to utilize similar food and habitat types. While illegal stocking of spotted bass may seem to enhance a fishery initially, the potential to replace resident bass with smaller spotted bass and hybrids negates the perceived short-term benefits.

Introduced game fish are not the only species that shift the ecological balance of fish communities. Forage fish introductions

can severely impact ecosystems as well. Blueback herring are a common bait fish for striped bass and hybrid striped bass, but their introductions have wreaked havoc on numerous white bass and walleye fisheries in North Carolina.

Anglers using blueback herring for bait established them in Lake Chatuge and Georgia's Lake Nottely where they were first noticed in the late 1990s. Despite their small size and delicate appearance, blueback herring were able to move downstream through hydropower turbines, and by 1998 they were established in Hiwassee Reservoir. Research has shown that blueback herring eat larval fish and fish eggs. As a result, walleye and white bass reproduction in Hiwassee Reservoir was virtually nonexistent by 2000. Similar research has shown the alewife, a cousin of the blueback, is equally destructive to sportfish communities.

It's Not Only Fish

In addition to adding unwanted fish species to new environments, stockings can spread fish diseases (illnesses that affect fish and not humans). Fish often carry disease without showing any symptoms, but without examination from a fish disease specialist, it is impossible to know if a fish is disease-free.

Recently, the largemouth bass virus, commonly referred to as LMBV, has been linked to die-offs of largemouth bass across the United States. It is common for infected largemouths to not display any signs of the virus until they become stressed, and at that time, the virus begins to damage the fish's swim bladder. Although it appears the virus is fatal only to largemouth bass, it can be carried by many members of the sunfish family, even healthy-looking bluegills.

Trout fisheries are also threatened by disease. The microscopic parasite that causes whirling disease has devastated rainbow trout fisheries in the western and northern United States. Because the parasite infects the host's brain and spine, young fish with whirling disease tend to spin or "whirl" when trying to swim. Death can occur from the infection alone, but often, the irregular swimming induced by the parasite causes mortality by reducing a fish's ability to feed and avoid predators. This Eurasian parasite was brought to the United States via fish stockings and is easily spread by the continued introduction of infected fish into new water.

Furthermore, the parasite can be spread by anglers who do not properly clean their gear following fishing trips to waters infected with whirling disease. In addition to parasites and diseases, other unwanted organisms can catch a ride on fishing gear and wind up causing damage to aquatic systems. Invasive aquatic plants such as hydrilla and giant salvinia, exotic mussels such as zebra and quagga mussels, and even algae, like didymo, can severely alter ecosystems and have tremendous environmental and economic impacts once they become established.

What Can We Do?

As responsible anglers, there are things we can do to prevent the spread of nuisance aquatic species. First, never transport water in your livewell or bait bucket from one water body to another. Dump your livewell water in the place you obtained it or on the ground. Second, always check your boat, boat trailer, boots, waders and fishing tackle for aquatic hitchhikers such as plants, animals and mud. Finally, take the time to properly clean and dry your gear. Before you relaunch your boat or enter another stream, wash and dry anything that has contacted water at another location. Not only will these steps help prevent the unintentional introduction of fish, but they will also assist in the effort to stop the spread of other nuisance aquatic organisms (including those not visible to the naked eye).

Remember, introduced fish can alter resident fish communities by competing with them, eating their young, altering their genetics and transmitting disease. The next time you hear people say they are going to "add more bait" or "stock more fish" by emptying their live wells or bait buckets into another body of water, think about the lessons learned over time and remind them of the possible consequences. They may think they are doing something positive, but let them know the truth: Illegal stockings ultimately can ruin your favorite fishing spot.

Anglers and agencies devote a lot of energy to the conservation and wise use of North Carolina's natural resources. Sadly, it takes only one misinformed individual to undo management efforts and permanently alter fishing waters. Illegal introductions and aquatic hitchhikers help create unstable and unpredictable environments that are difficult to manage and are unwanted by all.

Find Out More

N.C. Wildlife Resources Commission
www.ncwildlife.org

Protect Your Waters —
Stop Aquatic Hitchhikers
http://www.protectyourwaters.net/prevention/prevention_generic.php#3

Zebra and Quagga Mussel Information
<http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel/>

United States Department
of Agriculture —
Animal and Plant
Health Inspection Service
<http://www.aphis.usda.gov/>

N.C. Exotic Pest Plant Council
<http://www.se-eppc.org/northcarolina/>

Didymo
<http://www.epa.gov/region8/water/didymosphenia/>

Largemouth Bass Virus
<http://www.in.gov/dnr/files/LMBV.pdf>

Do your part to help prevent the illegal introduction of fishes into your favorite waters by reporting wildlife violations in North Carolina to 1-800-662-7137. By acting responsibly and working together, anglers and the N.C. Wildlife Resources Commission can help maintain our fishery resources for future generations of anglers. As a result, we can ensure that our catches do not include unwelcome fishes, like snakeheads, and our fish tales do not focus on how things used to be. ♦

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Page 4: The zebra mussel can alter ecosystems and is very difficult to eliminate. Page 5: Largemouth bass virus infects this top inland game fish with few visible symptoms. Above left: White perch is perhaps the state's most widespread invasive fish in inland waters. Above right: Hydrilla is an invasive aquatic plant found in a number of inland reservoirs. Lower right: The spotted bass competes with the largemouth and the smallmouth for food resources.

