

Down We Go

EFFECTIVE DEEP WATER CATCH AND RELEASE

By Maryellen Gordon, Senior Fisheries Biologist | Paul Perra, NOAA Recreational Fishery Coordinator, NOAA Fisheries North East Region
Earl Meredith, NOAA Recreational Fishery Coordinator, NOAA Northeast Fisheries Science Center

MARINE ANGLERS who fish deeper water may often see their released fish bobbing on the water's surface, floating like a balloon. This leaves an impression of wastefulness but much worse, causes mortality of these released fish, tarnishing an otherwise successful fishing trip.

Barotrauma!

When fish are rapidly brought up from deep water, they will likely suffer from barotrauma, a damaging condition similar to the bends experienced by scuba divers if they ascend to the water's surface too fast. Barotrauma is the injurious effect resulting from gases expanding faster than they can diffuse out of body tissues due to the decreasing pressure during ascent through the water column.

Fish with barotrauma effects may look stiff, dead, have extended eyes (pop-eyes), and/or an enlarged air bladder which results in the stomach being forced out through the esophagus. Yes, that's the stomach, not the air bladder. Anglers often mistake the protruding stomach for the air bladder and puncture the stomach, an extremely injurious error.

When released, barotrauma effects prevent a fish from swimming back to deep water leaving them floating helplessly, subjecting them to predation by birds, other fish or dangerous surface conditions such as water temperatures much warmer than they normally inhabit. Unfortunately, most bloated surface floaters will *not* survive.

Venting to Relieve Barotrauma

One approach to assist floaters is to "vent" the fish. Venting is performed by carefully inserting a needle into the fish's side to puncture its body cavity, releasing the expanded gases. A more detailed description on venting can be found at the Florida Sea Grant Web Site, <https://www.flseagrant.org/fisheries/venting>. In many cases, venting will allow the fish to descend and is a fast way to reduce floaters when catching many fish that must be released quickly. However, venting can cause serious internal injuries, infections and leave fish vulnerable to predators. Many discourage the practice of venting for these reasons.

Descenders Are Safer

In most cases, the use of a descending device is a preferred method to venting. A descending device is a conservation tool used to return fish to deep water, alleviating the "balloon" trail behind your vessel. These devices not only move the fish off of the water's surface but greatly increase the survival rate of released fish. Descending devices return the fish to the depth where it was caught without puncturing the body or causing potentially serious injury. The process of descending a fish allows the higher water pressure at greater depths to recompress gases that had expanded in body tissues at the water's surface. Many fish resume normal activities soon after their underwater release.

First, Proper Handling

Of key importance, anglers must always perform proper fish handling techniques at the surface prior to descending a fish. Remove hooks promptly when hooked in the lip or mouth; cut the line close to the hook if it's been swallowed too deeply to remove; handle the fish as gently as possible, returning it to the water quickly. (For more on proper fish handling techniques, see also page 13, *How to Release Hooked Fish*.) Each step will greatly enhance the survivability of released fish, especially those that also must contend with barotrauma effects. Any effort to reduce mortality by descending fish will be less effective after poor surface handling.

A common observation among experienced anglers about the general fishing community is that the majority of anglers are not releasing fish correctly. If more anglers employed proper fish handling techniques and releasing methods, the improved conservation ethic would benefit all recreational fish stocks. A National Oceanic and Atmospheric Administration (NOAA) report from 2011 states that 60 percent of the fish caught by marine anglers are released back to the water. That's 207 million fish!

East Coast Deep Water Fish Will Benefit

Descenders are more commonly used on the West, Gulf of Mexico and south Atlantic coasts. Such devices could prove beneficial for select East Coast fisheries, particularly in the Mid-Atlantic for species such as black sea bass, tautog and tilefish, all typically caught in water depths of more than 60 feet.

Studies on West Coast rockfish have demonstrated high survival rates for descended fish. Some fish have survived the barotrauma effects of being caught from hundreds of feet below the surface. An entertaining and very informative video on this subject can be found on YouTube at <https://www.youtube.com/watch?v=EiZFghvOyI>.



A West Coast canary rockfish with barotrauma effects (pop-eyes and protruding stomach)

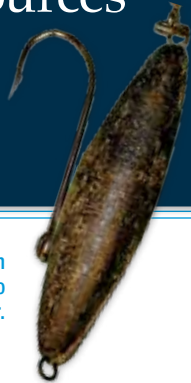
Fish Descending Device Sources

The Seaqualizer — www.seaqualizer.com

Shelton Descending Device — www.sheltonproducts.com

BLACKTIP Fish Recompression Device — www.westmarine.com

RokLees, The Fish Descending Device — www.ecoleeser.com



This fish descending device is constructed from an inverted barbless hook with a weight used to "escort" a bloated fish back to deeper water.

Types of Descending Devices

A descending device can be a simple tool made at home with inexpensive materials. One such device is a weight with an inverted (downward pointing) barbless hook which allows the device to be jerked upwards out of the fish when the desired water depth is reached.

Another easily constructed device to descend fish is a weighted utility or milk crate with a long rope. Weights or a chain can be fastened around the open rim which now becomes the bottom of the device when the crate is inverted, containing the buoyant fish as it is descended. Gases in the fish normalize as it reaches the depth at which it was caught and the fish recovers, swimming out of the crate's open bottom. Devices like these are available at some tackle shops, marine supply stores or online. (See above.)

For more details on descending devices, see the Florida Sea Grant website page at <http://flseagrants.ifas.ufl.edu/newsletter/2012/07/what-are-fish-descending-devices-2/#.UX6Hy7WW9GY>, or the California Sea Grant brochure titled *Bring That Rockfish Down* at <http://www.usc.edu/org/seagrant/research/Barotrauma.html>.

Scant Research

On the East Coast, the use of descending devices to mitigate barotrauma is in its infancy. Since 2011, four important and informative fish barotrauma workshops were conducted with participants such as scientists and fisheries managers, fish industry representatives, for-hire vessel operators and recreational anglers. The workshops addressed barotrauma issues, prevention and remediation in addition to recent works in this area, research needs and opportunities for collaborative studies. Details on the workshops can be found at the American Sport Fishing Association's FishSmart website <http://www.fishsmart.org/>.

No comprehensive scientific studies exist on the use of descending devices for recreationally caught species found in New England and Mid-Atlantic regions. While New Jersey Division of Fish and



A utility crate, when inverted and weighted around the rim, can function as a fish descending device.

Wildlife is encouraging anglers to pioneer the use of various barotrauma devices, more defensible scientific evidence must be gathered as to their effectiveness for our East Coast fish species. A partnership among the recreational angling community, fisheries managers and scientific fisheries organizations would be beneficial for conducting much-needed research on barotrauma and the efficacy of fish descending devices.

Become a Forerunner


Find an old utility crate, affix a long rope and weight the rim to make a descender. Rig up an inverted, barbless hook-and-weight release device. Flip through a catalog or search online for fish descending devices. Add a variety of these life-saving devices to your fishing gear. Try several on your next deep water fishing trip, comparing their effectiveness and ease of use. Be sure to inform New Jersey Division of Fish and Wildlife's Marine Fisheries staff, researchers and fellow anglers on the benefits of these practical devices. Consider yourself to be a pioneer in the prevention of barotrauma for East Coast, deep water fish. Your conservation efforts will improve their rate of survival. 

Photo Credits:

Fish: California Dept. of Fish and Wildlife

Lure: California Dept. of Fish and Wildlife

Utility Crate: Paul Perra NOAA