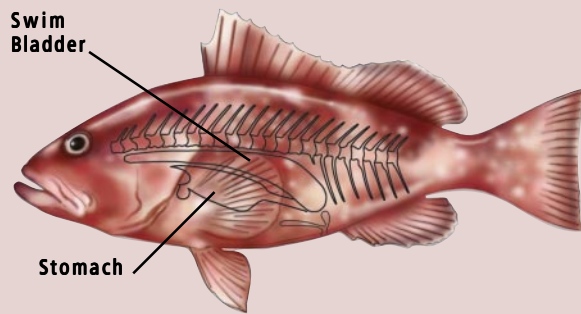


## THE PROBLEM

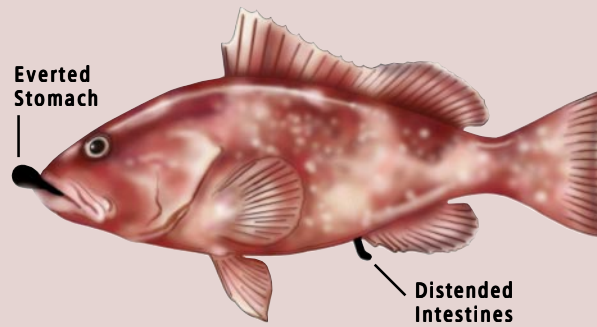
Many marine reef fish have a gas-filled organ called a swimbladder, which controls buoyancy and allows the fish to maintain a certain depth in the water column. The gas in the swimbladder can over-expand when fish are brought quickly to the surface by hook and line. This can result in serious injury to the fish, and if released in this buoyant condition, the fish may float away and die from exposure to the elements or become an easy target for predators. This defeats the purpose of fishery management laws such as minimum size restrictions and daily bag limits.

## SWIMBLADDER BIOLOGY

Many reef fish have a closed swimbladder, an internal organ filled with gases, mostly oxygen, carbon dioxide, and nitrogen. This organ is located in the peritoneal cavity attached to the fish's backbone beneath the dorsal fin.



Swimbladders can expand only so far before they burst. When the swimbladder bursts, the swimbladder gases escape into the fish's body cavity, where they can continue to expand. The pressure exerted by these gases is sufficient to push the stomach out the mouth and the intestines out of the anus.



Venting releases these gases from the body cavity, thus eliminating the pressure on the internal organs. If damage is not excessive, the organs will return in place on their own, once the gases are expelled. Venting also will allow the fish to overcome buoyancy problems and swim down to habitat depth, enhancing its immediate survival.

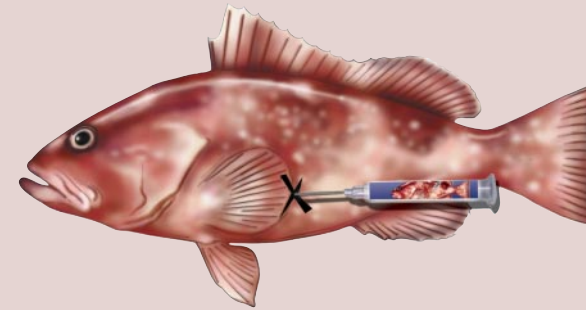
Scientific studies have shown that species with closed swimbladders such as red grouper, black sea bass, gag, and red snapper derive immediate benefit from venting.

## DETERMINING WHICH FISH TO VENT

The ability to judge which fish should be vented improves with practice and experience. After reeling in a fish, closely observe its condition. If the fish is bloated and floats (is unable to control its buoyancy) or if the fish's stomach is distended out of the mouth, the fish should be vented. If the fish appears normal, not bloated, and is able to swim down to habitat depth on its own, venting is not necessary.

## VENTING PROCEDURE

Vent the fish with a minimum of handling. If the fish's stomach is everted out of its mouth, do not puncture it or attempt to push it back into the fish's body. Expelling the swimbladder gases using the following procedure will allow the stomach to return to its normal position within a few hours.



Hold the fish gently but firmly on its side and insert the venting tool at a 45-degree angle approximately one to two inches back from the base of the pectoral fin. Only insert the tool deep enough to release the gases — do not skewer the fish. The sound of the escaping gas is audible and deflation is noticeable. If a fish is extremely bloated, use the hand holding the fish to exert gentle pressure on the fish's abdomen to aid deflation.

Keep a good grip on the venting tool during the entire process, so that an unexpected jerk from the fish does not dislodge the tool and cause injury to others. The fish's everted stomach should not be punctured. This practice is not efficient in releasing gas from the body cavity and results in additional injury.

Return the fish to the water as soon as possible. If necessary, revive it by holding the fish with the head pointed downward and moving the fish back and forth to pass water over the gills until the fish is able to swim unassisted.

## VENTING TOOLS



A venting tool can be any hollow, sharpened instrument that allows gases to escape. Ice picks and knives are not suitable because simply puncturing the fish is undesirable and can result in a mortal injury.

The Sea Grant/Novak Venting Tool, designed and developed by Florida Sea Grant in cooperation with Mote Marine Laboratory, can be purchased from Aquatic Release Conservation, Inc., online at [www.dehooker4ARC.com](http://www.dehooker4ARC.com), or by calling its toll-free number, 1-877-411-4272. Florida Sea Grant is not aware of any other commercial suppliers of venting tools.

A venting tool can be created out of a hypodermic syringe with the plunger removed, such as the one pictured above. A 16-gauge needle (cannula) is recommended on a 3-cc syringe as a handy size. A cannula cemented into a hollow wooden dowel also works as a venting tool. Cannulas and syringes can generally be purchased at farm supply stores.

Chlorine bleach is a good disinfectant to use when cleaning the venting tool between uses. Use a syringe cap or place a cork on the tip of the tool after use to prevent personal injury.



Fishing laws are designed to maintain a desirable spawning stock size to ensure adequate future recruitment of juvenile fish. Compliance with fishing laws is essential for sustaining U.S. sport and commercial fisheries. When compliance means releasing a fish, follow these guidelines to improve its survival.

## FISH SURVIVAL GUIDELINES

- Have a plan for releasing a fish before landing it. Because time is crucial in keeping a released fish alive, work quickly and in concert with others on board for quick releases.
- Avoid using gaffs and landing nets if possible.
- Handle the fish as little as possible and try to minimize its time out of the water.
- Handle the fish with wet hands, wet gloves or a wet towel to avoid removing beneficial fish slime, and avoid damaging the gills and eyes.
- Use a hook removal device or pliers to back out hooks with minimal damage to the fish. For deep-hooked or throat-hooked fish, cut the leader as close to the hook as possible. Use hooks which rapidly degrade in saltwater.
- Revive an exhausted fish in the water by passing water over its gills, using a gentle back-and-forth swimming motion until the fish recovers.

The fish venting information provided here is based on the best available research regarding reef fish venting as interpreted by a Florida Sea Grant advisory panel. This research was conducted in cooperation with scientists in the Fish Biology Program at the Center for Fisheries Enhancement, Mote Marine Laboratory.

## RICH NOVAK

Florida Sea Grant recognizes the contribution to fisheries conservation made by Richard L. "Rich" Novak, one of the state's foremost advocates of effective angler involvement in sustainable fisheries. Rich had more than 20 years of Sea Grant extension experience and had served as the Florida Sea Grant marine agent in Charlotte County from 1997 until his untimely death in 2004. He was a leader in the development and promotion of the fish venting tool and other catch-and-release techniques that reduce fish mortality.



For more information on fish venting or marine release techniques, contact your local Florida Sea Grant marine extension agent.



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# Venting

A Guide to  
Releasing  
Reef Fish with  
Ruptured  
Swimbladders

