

## Blue Fish Sustainable Fishing and Barotrauma

**Barotrauma:** Most fish species possess a swim bladder that slowly inflates or deflates to allow fish to maintain neutral buoyancy – neither rising nor sinking. When fish are caught at depths greater than 10 meters, barotrauma can occur in most fish species. Barotrauma results from sudden decompression that causes the expansion of a fish's swim bladder leading to physiological alterations and physical injuries to the fish.

**Research:** In a study involving a total of 212 fish caught on the St. Lawrence River:

- incidence of barotrauma first appeared in fish caught at six meters.
- barotrauma increased rapidly after ten meters
- barotrauma was present in all fish caught at depths below 21 meters; and
- mortality occurred in 67% of the fish showing signs of barotrauma, even in those fish with less severe signs (e.g., mild bloating and slight loss of equilibrium).

**Signs of barotrauma:**

- bloating (89%);
- loss of equilibrium (66%);
- stomach eversion (62%);
- bulging eyes (18%);
- hemorrhaging in the eyes and fins (12%); and,
- anal eversion (5%).

**Mortality:** barotrauma can result in fish mortality due to birds-of-prey, predation by predatory fish and internal injury, and can occur as much as 24 hours after fish are released.

## Facts About Barotrauma - Continued

**Trolling:** monitoring how deep we fish, or troll lures is one way to avoid incidents of barotrauma. However, fish will swim up as much as 10 meters to pursue a lure. Use sonar to determine how deep fish are suspending prior to targeting identified fish.

**Rate of Retrieve:** The speed you bring a fish to the surface makes no difference in the rate of mortality. Only Lake Trout and salmon are able to release the pressure in their swim bladder by “burping”. Most all other sport fish, including panfish, are unable to release swim bladder pressure voluntarily.

**Fizzing:** It’s possible to use a syringe to puncture the swim bladder to release pressure. However, an adequate size needle is required to allow gasses to pass, and precise placement of the needle is necessary to avoid damaging vital organs.

**Finn Clips:** Weighted fin clips can be used to assist fish experiencing barotrauma to maintain an upright posture / equilibrium in the live-well of boats. While this may reduce stress levels in fish, it does not eliminate barotrauma itself.

**Release Devices:** Weights and cages are being sold for use in lowering fish back to the depths where they were caught. Such devices are being implemented in several recreational marine fisheries along the United States coastline.

**Conclusion:** if you know the species of fish you’re targeting at depths greater than 10 meters are able to voluntarily adjust pressure in their swim bladder, or the fish being caught are to be harvested for food, or you have been trained to fizz fish using a needle, or you possess a descending device, then mortality from barotrauma can be managed. Otherwise, catch-and-release fishing is a sustainable fishing practice when targeting fish at depths less than 10 meters.