

KEEPING BASS ALIVE: A Guidebook for Anglers and Tournament Organizers

Gene Gilliland, B.A.S.S. Conservation Director
Dr. Hal Schramm, U.S. Geological Survey (retired)
Todd Driscoll, Texas Parks & Wildlife Dept. (retired)



PART 1. The TOURNAMENT ANGLER'S role in improving survival of released bass

HOOKING, LANDING, AND HANDLING

- Minimize deep hooking. Set the hook quickly. Use barbless or circle hooks when practical.
- **Do not play fish to exhaustion.**
- **Limit air exposure to no longer than you can hold your breath!**
- **Protect the slime coat. Keep them off the carpet or deck. Grasp the line or the lower jaw.**
- Use a rubber or vinyl-coated soft mesh landing net if allowed – not hard knotted nylon.
- Hold smaller fish vertically by the lower jaw. Hold larger bass with two hands.
- Remove hooks quickly. Learn the hook-reversal technique for gut-hooked fish
- If this cannot be done quickly, use cutting pliers to cut the hook shank as close to the bend as possible.



Courtesy In-Fisherman Magazine

BASIC LIVEWELL MANAGEMENT

- Livewell oxygen levels need to be five (5) parts per million or higher. Oxygen is added by aeration.
- Livewells can pump in fresh lake water or recirculate livewell water. **A recirculating system is essential when the boat is on plane, being trailered, or when you are controlling livewell temperature (see below).**
- Be sure you understand the livewell control settings for freshwater intake versus recirculation.



Water temperatures are coolest early in the morning. Cooler water holds more oxygen. Take water from open areas, avoiding stagnant backwaters, sloughs, or boat launch sites.

- **Water temps below 75°F for Largemouth Bass or below 70°F for Smallmouth Bass:**
 - Pump fresh water regularly but also recirculating pump continuously.
- **Water temperatures over 75°F for Largemouth Bass or 70°F for Smallmouth Bass:**
 - Fill the livewell, close drains, set the system to full-time recirculation.
 - **Cool livewell water 5-7°F below morning surface water temperature using small amounts of ice.** Eight to ten pounds of ice will cool 30 gallons of water for 2 to 3 hours. Experiment for your livewell.
 - **Excessive ice results in temperature shock and increased mortality after fish are released.**
 - Crushed ice drops temperatures faster but does not last as long as block ice or water frozen in plastic soft drink or milk bottles. The chlorine in ice is insignificant and will not harm your fish.
 - **Monitor temperatures with a floating thermometer** and add ice to maintain constant temperature. Consider the weather and carry sufficient ice for the entire day.
 - Periodic partial exchanges of water will help reduce waste product buildup, but it is not necessary with proper aeration. However -- **do not pump in hot or stagnant surface water.**



LIVEWELL ADDITIVES

- **Commercial livewell additives and oxygen enhancers may contain ingredients that are not approved by the U.S. Food & Drug Administration (FDA)** to treat water containing fish that could potentially be consumed by humans. For this reason, State and Federal fishery agencies do not recommend the use of any of these products. This includes Hydrogen Peroxide and Sodium Percarbonate.
- **FDA does approve non-iodized salt (NaCl). One (1) cup per 15 gallons of livewell water when in recirculation mode.** Avoid salt if using in-livewell oxygen generating devices as this may produce chlorine.
- For ammonia reduction when recirculating use FDA-approved ClorAM-X® at One (1) tablespoon/10 gallons.



OXYGEN INJECTION

- **For catches of Largemouth Bass over 20 lbs. when water temperature is above 75°F (70°F for Smallmouth Bass), aeration alone may not maintain safe oxygen levels. Oxygen injection from a pressurized cylinder or an oxygen concentrating device can maintain oxygen saturation in the livewell water.**
- Pressurized cylinders must be secured and maintained in good condition.
- When using oxygen supplementation, run recirculation pumps to create surface agitation and help expel carbon dioxide and excess (supersaturated) oxygen.
- For a detailed look into the science of oxygen supplementation and an inexpensive DIY system, see:

<https://tpwd.texas.gov/fishboat/fish/recreational/catchrelease/livewell.phtml>



LIVEWELL VENTILATION

- **Lift livewell lids regularly** to allow fresh air to circulate into the compartment.
- Vent the recirculating system aspirator to fresh air with a length of vinyl tubing.
- **Install livewell lid vents** that allow fresh air in, carbon dioxide out, and moderate temperature.

REDUCING MECHANICAL INJURY

- Make sure there are no obstructions or fittings that would injure fish in the livewell.
- **Keep livewells full.** Reduce sloshing by plugging overflow drains prior to rough water runs.
- Use “pool noodles” or floating perforated foam mats to help cushion the ride.
- **Distribute fish between livewells or compartments to reduce crowding and stress.**



CULLING

- Culling is legal in many states and provinces. In some states a decision to keep or release a fish must be made before a fish is placed in the livewell. Know the local regulations.
- Metal cull clips that require penetrating the fish's mouth should not be used.
- **Cull tags that have strong spring clips or ratchets can pinch too tight and increase stress and cause open sores. Choose clips that lock in place but do not pinch hard.**
- **Colored dorsal fin clips are a good alternative that allow identification of individual fish without pinching a clip on the jaws.**
- Keep smaller fish in a separate compartment. Only tag fish that are likely to be culled.

BAROTRAUMA RELIEF – FIZZING

- Fish caught from water greater than 20 feet can suffer from over-expansion of the swim bladder (hyper-buoyancy). Fish suffering from this condition are less likely to survive.
- If fish can be released immediately, they will often swim down to the depth where water pressure naturally recompresses the swim bladder. If not, they must be fizzed.
- **Fizzing is best done in the boat as soon as the fish shows signs of distress.** Treat fish quickly if fish cannot maintain upright position, float on their sides or belly up, are constantly rolling, or diving.
- **Learn proper fizzing technique** using a 1-1/2" 18-gauge needle fitted with an internal wire reamer.
- The needle is inserted approximately ½ to 1 inch behind (towards the tail) the tip of the pectoral fin.
- Hold fish under water as you remove the reamer to see bubbles escaping from the needle.
- Do not squeeze the fish to force out more gas.
- **A Texas Parks & Wildlife Department study found mouth fizzing resulted in significantly higher risk of damage to internal organs and lower survival and is therefore no longer recommended.**
- Studies have proven that weighted fin clips do NOT cure barotrauma or reduce related mortality.
- Detailed fizzing instructions are found in these videos:

www.bassmaster.com/conservation-news/video/fizzing-smallmouth-bass/

www.bassmaster.com/conservation-news/video/how-and-where-to-fizz-largemouth-bass/



AT THE WEIGH-IN

- **Use weigh-in bags provided by the tournament officials.** They control pace by the number of bags out.
- **Fill weigh-in bags with at least two gallons of livewell water... do not use warm water at boat side.**
- Put only five fish in a bag, fewer if they are over 4 pounds each. Use a second bag if needed. Waiting in line with fish in a closed bag for more than two (2) minutes will reduce survival as oxygen is rapidly depleted.



KEEPING BASS ALIVE: A Guidebook for Anglers and Tournament Organizers

Gene Gilliland, B.A.S.S. Conservation Director
Dr. Hal Schramm, U.S. Geological Survey (retired)
Todd Driscoll, Texas Parks & Wildlife Dept. (retired)



PART 2. The TOURNAMENT ORGANIZER'S role in improving survival of released bass

WEIGH-IN PROCEDURES FOR TOURNAMENTS WITH LESS THAN 25 ANGLERS OR TEAMS

TOURNAMENT DURATION & BAG LIMITS

- In hot months, reduce tournament duration to no more than six (6) hours to minimize time in the livewell and bag limits should be reduced to no more than three (3) per angler.

THE WEIGH-IN

- Require use of organization's weigh-in bags to control the pace of the weigh-in.
- Weigh-in bags should have a capacity of five (5) gallons with an outer vinyl bag and an inner mesh bag.
- Anglers add minimum two (2) gallons of livewell water to transport fish to the check station.
- Fish should never be confined in closed weigh-in bags for more than two (2) minutes.
- Fish are dumped out of the mesh bag into the check station sink to determine legal length and live or dead (for penalty purposes).
- Double sink allows angler to place water-filled outer bag in other side, placing mesh bag back inside as the weighmaster returns each fish after they are checked.
- At the scales, the angler's mesh bag containing the fish is pulled out of the outer bag, allowed to drain briefly, and placed on the scales (fish remain in the mesh bag).
- Fish should be out of water no more than 10-20 seconds.
- After weighing, the mesh bag is placed back in a water-filled outer bag and transported to the release site.



POST WEIGH-IN

- Anglers carry bag to the release site. Permits may require transporting fish away from the weigh-in site.
- No dead or dying fish should be returned to the tournament waters under any circumstances. Do not release any fish that appear to be weak or cannot maintain an upright position.
- Dead fish should be separated and placed on ice to be kept, given away, or properly disposed of.

WEIGH-IN PROCEDURES FOR TOURNAMENTS WITH GREATER THAN 25 ANGLERS/TEAMS

TOURNAMENT FORMAT

- Summer tournaments – as above, use shorter hours, lower bag limits.
- **The field should be divided into flights of no more than 25 anglers/teams per flight. Allow at least 10-15 minutes between flight check-in times.**
- Limit weigh-in bags to prevent lines from exceeding what waiting line tanks can accommodate (see below).

THE WEIGH-IN

- Procedures follow those explained previously.

WAITING LINE TANKS

- Set up 100-150 gallon plastic or poly (*not* galvanized steel) holding tanks.
- Tanks accommodate no more than four (4) anglers at a time.
- **Waiting line tanks should be in a shaded area or have a covered canopy.**
- Compressed air via a 110V compressor supplies air to the tanks, with air diffuser stones in each tank.
- If no electric power is available, a 12V air pump can supply lower flow volume to two or three tanks.
- Aerating the entire tank and using mesh bags is more efficient than having droppers for each closed bag.
- **Temperature control is especially important in warm weather. When surface water temperature first thing in the morning exceeds 75°F (70°F with Smallmouth Bass), tanks should be 5–7°F cooler.**
- **Use floating thermometer to monitor tank temperature and have sufficient ice available to add periodically.**
- A bottled oxygen system with regulators, flow meters and oxygen diffuser stones; or an oxygen concentrating device, can be substituted for the air compressor system.



POST WEIGH-IN

- Anglers or Tournament Staff/volunteers carry bags to the release site or release boat/trailer.
- Weigh-in bags must cycle back to the waiting line for the next flight.
- **No dead or dying fish should be returned to the tournament waters under any circumstances. Do not release any fish that appear to be weak or cannot maintain an upright position.**
- Dead fish should be separated and placed on ice to be kept, given away, or properly disposed of.

USE OF RELEASE BOATS or TRAILERS

- Tournaments with more than 75 anglers/teams -or- if weigh-in location is where fish would be released into shallow, stagnant, warm water or with excessive boat traffic, should **consider the use of a live release boat or trailer to help move fish away from the weigh-in site** (if allowed by state fisheries authorities).
- Tanks should be equipped with bottom release (for boats) or chute (for trailers) to minimize handling.
- Fill tanks with lake, river, or reservoir water if possible. If using municipal water, treat with the prescribed amount of commercial chlorine neutralizer.
- Tank capacity should be minimum of 500 gallons. Multiple compartments allow separate releases.
- **Fish loading density must not exceed one (1) pound of bass per gallon of water. Tournament Staff must keep a running tally of pounds during the loading.**
- Treat tanks with non-iodized table salt at a rate of 2-1/2 pounds/100 gallons of water. There are no commercial livewell treatment chemicals that have FDA approval for use on fish that might be caught again and eaten. Only water conditioners that remove chlorine or ammonia are allowed.
- **Maintain temps at 5–7°F cooler than early morning lake, river, or reservoir water temperature when temps are over 75°F (70°F for Smallmouth Bass).**
- Prepare tanks at least 30 minutes before weigh-in. Add ice sparingly at first, check temperatures, then add more if needed (easy to cool - nearly impossible to warm up). Start with 30 pounds/150-gallon tank and add more ice as needed to achieve the desired temp.
- **The tanks should have pure oxygen supplied from a welding-style oxygen bottle with a high-pressure regulator and a precision flow meter, or from a high-capacity oxygen concentrating device.**
- Oxygen is delivered through a diffuser specifically designed for oxygen. Fine-pore stones put out micro-bubbles that sufficiently saturate the tank water with oxygen.
- **Dissolved oxygen levels should be maintained at five (5) parts per million (ppm) or higher in all holding tanks. Work to achieve oxygen saturation for a given temperature (search – “oxygen saturation at water temperature” to find the target saturation).**
- An oxygen/temperature meter should be available to monitor dissolved oxygen in the waiting tanks and the release boat/trailer. Local DNR Fisheries staff may have equipment to assist with testing.
- Fish should be distributed evenly among the tanks during the weigh-in. Load tanks sequentially to prevent overloading a single compartment.
- **Release staff must be trained to identify the need for fizzing and know proper technique.**
www.bassmaster.com/conservation-news/video/fizzing-smallmouth-bass/ and
www.bassmaster.com/conservation-news/video/how-and-where-to-fizz-large-mouth-bass/
- Fish should be released in water less than 20 feet deep, a minimum of one-half (1/2) miles from the weigh-in site, and at least 100 yards from shore (or more if required by lake authorities).
- **Dead or dying fish should NOT be returned to the tournament waters under any circumstances.** Make prior arrangements for proper disposal.





USE OF TEMPORARY HOLDING TANKS

- If water temperatures are below 75°F (70°F for Smallmouth Bass), then surplus fish may be released at the weigh-in site once the release boat/trailer has reached maximum capacity ... IF... water quality at the weigh-in site is deemed sufficient to prevent mortality (i.e. not stagnant or polluted).
- However, if water quality is not suitable, temporary holding tanks should be located as close to the release boat/tank as possible, covered or placed in the shade.
- The same water quality standards should also be used for temporary holding tanks. Providing adequate oxygen (not simple aeration) and proper temperature control are critical.
- Fish are transferred to the release boat/trailer as soon as it has refilled and is ready to receive more fish.
- **If the release site is deemed unsafe and no temporary tanks are available, the weigh-in should be suspended until the release boat/trailer has been refilled, cooled as needed and ready for another load.**

STAFF REQUIREMENTS

- For larger events with multiple flights, there should be at least one worker controlling the number of bags being distributed at the “bag line” and recycling bags after each bag of fish is weighed.
- Two (2) workers at the check station, one to examine fish and one to record numbers and penalties.
- A weighmaster puts fish on the scales and may also act as an MC announcing weights.
- Release boats or trailers will require staff to handle loading and additional personnel for flogging as needed.

FISH-FRIENDLY WEIGH-IN PROCESS

