KEEPING BASS ALIVE

A GUIDEBOOK FOR TOURNAMENT ANGLERS & ORGANIZERS

INTRODUCTION

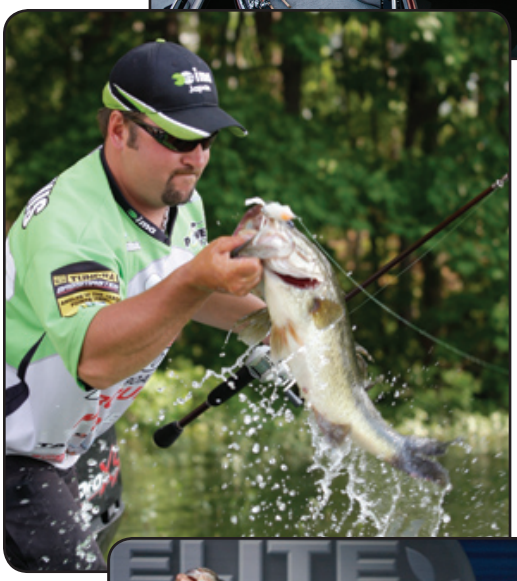
Thirty-five years ago, B.A.S.S. introduced the catch-and-release concept to tournament bass fishing. Post-tournament survival of released bass has increased significantly since then as technology has improved and angler knowledge has increased. B.A.S.S. has played a key role in publicizing the development and use of state-of-the-art fish-care techniques. The first edition of Keeping Bass Alive was a milestone publication that became the standard that anglers and tournament directors looked to for information.

In this second edition, our objective remains the same - to provide anglers with information to maximize the survival of bass that are caught and released during tournaments. We have created a guidebook that can do just that. This version of KBA hits the highlights. Anglers and tournament organizers can find more detail in the web version on www.Bassmaster.com in Community > Conservation > Keeping Bass Alive.

THE ANGLER'S ROLE IN IMPROVING SURVIVAL OF RELEASED BASS

Black bass can be "recycled." They can be caught in tournaments, weighed-in, released, and caught again another day. Occasionally, however, fish die during a tournament. Biologists understand these consequences but studies have shown that tournaments generally have negligible impact on bass populations.

However, it is without a doubt, in tournament anglers' best interests to do everything they can to maximize the survival of released fish - both to protect the resource and to project a positive image that will ensure the future of the sport.



KEEPING BASS ALIVE: A Guidebook For Tournament Anglers & Organizers

Second Edition

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HOOKING, LANDING AND HANDLING

Minimize deep hooking by setting the hook as quickly as possible. Consider the use of circle hooks in appropriate baits. They have been shown to significantly reduce gut hooking. Do not play fish to exhaustion since this adds to stress levels and lengthens their recovery period.

PROTECT THE SLIME COAT. Fish secrete a protective "slime" or mucus as a barrier to disease. Every effort should be made to avoid removal of the mucus coat.

- Swinging or flipping fish into the boat and onto the floor should be avoided. Pulling small fish out of the water by the line allows the angler to grasp the lower jaw without having to grasp the fish's body.
- The use of a landing net may be preferred. Landing nets made of soft, woven, knotless nylon or rubber do much less damage to the fish than nets made of hard, knotted nylon twine.
- When holding the bass, grasp the lower jaw. This usually immobilizes the fish, provides a good, firm hold and allows the angler to remove the hook(s) without touching the fish's body. Once the fish is in the boat, hold it vertically, touching it elsewhere as little as possible. Never bend the fish's head down or try to hold the fish horizontally by the lower jaw.

MINIMIZE HOOK REMOVAL INJURY. For years it was assumed that it was best to leave the hook in a deeply hooked fish because the metal would rust away. Recent studies, however, have confirmed that this is not always the case. Every effort should be made to remove hooks as quickly and with as little tissue damage as possible.

- Use long-nosed pliers, hemostat or hook removing tool to grasp and remove hooks.
- Learn the hook-reversal technique where the eye of the hook is pulled out the gill opening towards the fish's tail, thus reversing the hook bend, allowing for easy extraction through the mouth using long-nosed pliers.

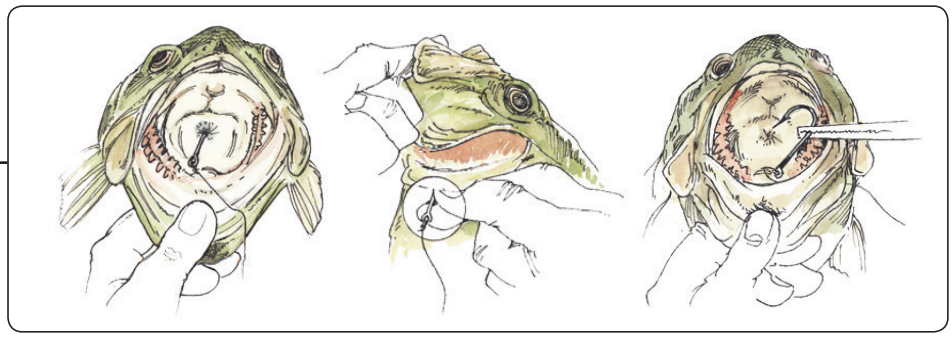
AIR EXPOSURE. Each air exposure adds more stress — landing, unhooking, measuring, bagging, weigh-in, etc.

- Unhook fish quickly and measure them on a wet measuring board or rule. Place them in the already filled livewell.
- As a rule-of-thumb, limit air exposure to no longer than you can hold your breath – because a fish out of water is holding his.

CULLING. Culling is legal in many states and provinces. However, in others a decision to keep or release a fish must be made immediately, before the fish is placed in the livewell. Be sure you know the local rules regarding culling.

- If livewell space is available, the smallest fish should be kept in a separate compartment. This makes identification and exchange very efficient. Alternatively, using a marker that clearly identifies the smallest fish and facilitates capture and removal from the livewell is an acceptable solution.
- Culling systems are now available that utilize small spring clips that clamp over the fish's lip. These clips are attached to a short piece of color-coded floating tubing or rope. The main objective is to use a marking system that allows easy identification and reduces handling stress and injury.
- Do not use the shower curtain or safety-pin clips that require punching a hole in the fish's mouth
- Do not use the culling tubes or ropes to hoist fish from the livewell. Use the rope to lead the fish to the surface, then grasp them by the lower jaw.

Minimizing Hook Removal Injury



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WATER QUALITY

Anglers must take an active role in maintaining the health of their catch. Do not assume that the boat's livewell system will automatically do all that is needed. You must have good equipment and you must also know how to use it under every kind of circumstance.

REDUCE MECHANICAL INJURY. This is best addressed by proper livewell design and construction. Make sure there are no obstructions or fittings that would injure fish in the livewell.

- The more water a livewell can hold, the more pounds of bass it can hold. Measure the capacity of your livewell, and do not exceed a ratio of more than 1 pound of bass per gallon of water.
- Distribute fish between livewells or livewell compartments to reduce crowding and stress.

LIVEWELL BASICS. The single most important factor in maintaining the health of your catch is keeping the oxygen level in the livewell water above 5 ppm. Oxygen is added to the water (aeration) by pumping water through some device that causes air to be mixed with the water. This can be accomplished by air intake, spraying, or water surface disturbance.

- Livewells can be operated to pump in fresh lake water or recirculate livewell water. A recirculating system is essential to provide aeration when the boat is on plane, when the boat being trailered, or when you are controlling livewell temperature (see below). If your boat does not have a recirculating system, add one. Brands of boats differ, so be sure you understand the livewell control settings for fresh water intake and recirculation.
- Livewell pump capacity is a major factor affecting aeration efficiency. Pumps should move at least 500 gallons of water per hour (gph) to assure maximum aeration. Replace existing pumps if they do not deliver at least 500 gph per livewell.
- Dual pump systems are recommended — one as an intake pump to fill the livewell, and one that functions only in a recirculating mode.
- Livewell pump failure will result in dead fish. Carry a spare pump motor to facilitate emergency replacement on the water. Carry a spare pump with sufficient wire and hose to allow pumping lake water into the livewell if the built-in pumps are not readily accessible.

LIVEWELL TIMERS. Most boats have timing devices that cycle the aerator pumps "on" for a predetermined period of time every few minutes. Adjustable timers can be set to cycle on every 3 to 15 minutes. With some brands, "Maximum" means maximum time between aeration cycles - in other words; "Maximum" means minimum aeration. Know how your timer operates.

- Continuous pump operation is an absolute must for proper aeration when you have more than a few pounds of bass in the livewell. If the control on your aerator does not provide continuous operation, replace it with a control that has this capability.

VENTILATION. Aerators depend on mixing air with the water. If the air trapped in the space between the water's surface and the livewell lid is stale, you are not mixing fresh air (or oxygen) with the water.

- Lift the livewell lids regularly to allow fresh air to circulate into the compartment or vent the aspirator so that it is pulling in fresh air.
- Some livewell systems pull (aspirate) air into the aeration device. Make sure the air tube is not obstructed. Some of these systems can be easily improved by inserting a length of the appropriate-diameter aquarium air tubing into the vent hole on the top of the aspirator and routing the tubing to fresh air.

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LIVEWELL MANAGEMENT

MAINTAINING GOOD OXYGEN AND WATER QUALITY. Take responsibility for the care of your catch. Regardless of the brand of boat or type of livewell aeration system, keeping bass alive requires proper livewell operation.

- Begin by filling your livewell early in the day, at your first fishing spot. 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.
- While the freshwater system is filling the livewell, turn on the boat's recirculating pump and run it continuously until the livewell is full to build oxygen.

Maintaining healthy oxygen and water quality in livewells depends on temperature because warmer water holds less oxygen and bass in warmer water consume more oxygen and produce more dissolved wastes—carbon dioxide and ammonia—that can be toxic.

WHEN WATER TEMPERATURE IS BELOW 75° F

- Fill the livewell as described above
- Run the livewell pumps on intake mode to add fresh water
- Run the livewell pumps continuously if you have more than 5 pounds of fish in the livewell.

WHEN WATER TEMPERATURE IS ABOVE 75° F

When surface water temperature increases above 75° F, temperature control with ice, partial water exchange to remove dissolved wastes, and the addition of salt to aid osmotic regulation are essential to maximize survival.

- Fill the livewell as described above
- Set the livewell system to operate in recirculating mode
- Cool the livewell water by adding block ice

SURFACE WATER TEMPERATURE	LIVEWELL WATER TEMPERATURE
75-80° F	75° F
81-85° F	78° F
ABOVE 85° F	80° F

- As a guide, one 8-pound block (or two frozen half-gallon milk jugs) of ice cools a 30-gallon livewell 10°F for about 3 hours. Experiment with your boat's livewell volume and calculate the amount of ice you need to achieve the desired drop in water temperature.
- Block ice melts more slowly than crushed or cube ice, provides more constant temperature modification and can be easily stored for later use. Don't be concerned about chlorine in the ice. The little that remains when the ice melts will come out of solution with proper aeration.
- Monitor livewell water temperatures with a plastic aquarium thermometer or install a temperature probe in the livewell.
- If you have more than 5 pounds of bass in the livewell, pump out half of the livewell water every 3 hours, then refill with fresh water from areas with good water quality.
- Add ice to lower the temperature to the desired range (see table).
- Avoid adding water from stagnant backwaters or shallow areas that may be extremely warm and low in oxygen.
- Run the recirculating pumps continuously if you have more than 5 pounds of bass in the livewell.

OXYGENATION. When large catches of bass are expected, oxygen uptake in livewell water can be improved by flowing pure oxygen from a pressurized cylinder, or via an oxygen-generating device. With the pressurized system, a regulator controls the flow through a bubble hose. Oxygen generators give off tiny bubbles directly into the water and are designed to work only when submerged.

- Use caution with pressurized cylinders and make sure they are secured and hoses and fittings are maintained in optimal condition.
- Oxygen generators should be wired through a switch that will allow the operator to turn them on and off as necessary.

LIVEWELL CHEMICAL ADDITIVES. Bass expend a lot of energy keeping the salt concentration of their body fluids within a certain, narrow range. Adding a small amount of salt to fresh water helps reduce stress.

- Add non-iodized salt at a rate of 1/3 cup per 5 gallons of

(Continued on next page)

livewell water. Pre-measure the salt into plastic bags and carry several with you for later use.

- Most commercial livewell additives contain salts, but some also contain ingredients that are not approved by the U.S. Food and Drug Administration for use on fish that may be treated, released, then caught again at a later date and possibly eaten by humans. For this reason, State and Federal fisheries agencies cannot recommend the use of these products.
- Oxygen generators can generate chlorine if used with livewell additives that contain salt. It is best to avoid the use of salt when running these devices.
- There are also no approved livewell additives that help sustain adequate oxygen in the livewell water that have been proven to be safe at all concentrations.

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FIZZING

SWIM BLADDER RELIEF ("FIZZING"). Fish caught from deep water, generally greater than 18-20 feet, can suffer from over expansion of the swim bladder (this is called a "hyperbuoyant" condition). Fish suffering from this condition cannot maintain a normal upright position or submerge and are less likely to survive. Fizzing is the answer. Tournament officials must be trained and proficient with this technique so they can perform the procedure on fish brought to weigh-in. However, air bladder relief is best done as soon as the fish shows signs of distress. This means that anglers should also learn the technique so that the procedure can be performed in the boat as soon as hyperbuoyancy is detected.

- Swim bladder over-inflation can be remedied by inserting a 2-inch-long, 18-gauge hypodermic needle into the swim bladder to relieve the excess gas pressure. The needles can be obtained from farm or veterinary supply firms.
- Side Method. The needle is inserted approximately ½ to 1 inch behind (towards the tail) the tip of the pectoral fin.
- Holding the fish under water during the procedure helps let you know that the needle has entered the swim bladder because bubbles can be seen escaping from the needle. Do not squeeze the fish to force out more gas.

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THE WEIGH-IN

THE WEIGH-IN. Most, but not all, tournaments are well organized and use fish-friendly facilities and procedures. Nevertheless, there are things the conservation-minded angler can do to ensure the highest survival of their catch after release from the weigh-in.

- Use the weigh-in bags provided by the tournament officials, not your own. Tournament officials use the number of bags to regulate weigh-in pace.
- Contestants should fill their bags with livewell water, not lake water, before putting their catch into the bag. Put only five fish in a bag, fewer if they are over 4 pounds each. Use a second bag if needed. Carry the bag of fish to the weigh-in facility and immediately immerse it in the waiting line tank.
- If the tournament uses aerated life-support tanks in the waiting line, contestants should have perforated or mesh bags. The holes in the bag allow free exchange of aerated water.
- Dip water from the tank into your bag or use provided nozzles or air lines to refresh the water in your bag. Do not simply float your bag in the tank as you wait to move forward in line.
- If a life-support tank is not used, the bags should have no holes and fish should be quickly weighed and released. Keep your fish in the livewell until called by the tournament officials to bring them to the scales. Waiting in line with fish in your bag for more than 2 minutes will reduce their chances for survival significantly.

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