



Weigh-Master Training Program

Minnesota B.A.S.S. Chapter
Federation

By Mark Gomez





Agenda

- Why Bass Die
- Improving Survival of Released Bass
- Organize Club Tournaments to Maximum High Survival
- Managing Social Interaction and Sharing Outdoor Resources
- Summary
- Questions and Answers





Our Objective

- The focus of this training is to
 - Maximize the survival of Bass caught and released during tournaments.
 - To provide Bass club tournament directors with useful knowledge which can be passed on to club members for use in everyday fishing and tournament situations
 - Promote responsible conservation methods at a grass roots level





Why Bass Die





Initial Mortality

- Analysis shows that water temperature is the most significant factor related to initial mortality
- Other factors include:
 - hooking and handling injury
 - exposure to sustained low dissolved oxygen
 - temperature shock
 - toxic chemicals, or chemical shock
- All these can, and do, contribute to initial mortality.





Initial Mortality continued

- Initial mortality is only part of the total mortality that bass suffer in tournaments.
- Some fish, even though they appear active and healthy after weigh-in, die after release (This mortality is called post-release, or delayed, mortality).
- Delayed mortality was also highly variable among the studied tournaments, ranging from zero to 52 percent.





Hooking and Handling

- Anglers should take special care not to touch or damage gill filaments when handling fish for unhooking, placing them in the livewell or holding them for photographs.
- Excessive sloshing over an extended period of time during rough-water rides, especially in a less-than-full livewell, may lead to injuries from contact with aerator components, dividers, or compartment lids. Keep your livewell full!





Water Temperature and Dissolved Oxygen

- Metabolism, and therefore oxygen demand, increases rapidly with temperature — fish in warm water need more oxygen than do fish in cooler water.
 - as water temperature goes up, bass need more oxygen
 - consume oxygen faster
 - water holds less oxygen
- In summary it takes more [aeration](#) to keep bass alive at warm temperatures.





Water Quality

- Assumption:
 - the water you use to fill your livewell is the same water the bass are living and is therefore tolerable.
- Fact:
 - livewell water quality constantly changes during the tournament day as bass excrete waste carbon dioxide and ammonia.





Water Quality - continued

- Carbon dioxide is usually removed when the water is aerated.
- Ammonia (NH_3 , the unionized form) is highly toxic and the danger increases with water temperature and pH.
 - At 80° F to 88° F coupled with a high PH, 10 pounds of bass held in a small livewell could excrete enough ammonia to reach a stressful level or even lethal level during a tournament day.
- If you exchange livewell water several times per tournament day, then there is no waste product problem.





Water Quality - continued

- Carbon dioxide is usually removed when the water is aerated.
- Ammonia (NH_3 , the unionized form) is highly toxic and the danger increases with water temperature and pH.
 - At 80°F to 88°F coupled with a high PH, 10 pounds of bass held in a small livewell could excrete enough ammonia to reach a stressful level or even lethal level during a tournament day.
- If you exchange livewell water several times per tournament day, then there is no waste product problem.





Water Quality - continued

- **pH** - Measurement used to survey the amount of acid or alkaline present in a material. pH is measured on a scale of 0 - 14. Neutral is 7; numbers below 7 are acid and above are alkaline. The lower the number, the stronger its acidity, and the greater the number, the stronger the alkalinity. pH stands for "**p**otential of **H**ydrogen" (for hydrogen causes a material to be acidic).
 - Along those same lines, a solution with a pH of 3.0 is 1000 times more acidic than a solution with a pH of 6.0. It's not merely double as many would think (ie 6 divided by 3) but rather is determined as $10 \times 10 (= 100) \times 10$ to equal 1000 times more acidic.





Stress

- Stress is a major cause of the delayed mortality for tournament-caught bass that appear lively and healthy at release.





15 Stress Factors

1. HOOKING
2. PLAYING
3. LANDING/HANDLING
4. AIR EXPOSURE
5. LIVEWELL
6. CULLING
7. BAGGING/HANDLING
8. STAGING TANKS
9. JUDGING TRAY
10. WEIGHING PROCESS
11. TRANSPORT FROM WEIGH-IN
12. SALT-DIP
13. RELEASE HOLDING TANKS
14. RELEASE HANDLING
15. RELEASE ENVIRONMENT





Stress Reduction

- Reducing stress, and thus reducing delayed mortality, requires three things:
 - 1) reducing handling injuries and loss of protective mucus
 - 2) healthy conditions in the boat livewell
 - 3) quick, efficient weigh-ins where fish are subjected to minimal handling while maintained in adequate life-supporting conditions throughout the weigh-in.





Stress Reduction-continued

- Be aware that simply holding several fish in a livewell adds stress even when the livewell provides otherwise healthy conditions for the bass.
- Handling is a stressor.
 - Bass are handled several times within the tournament process
 - Heart rate and metabolism increase
 - More oxygen is needed to reduce stress
- Some handling is unavoidable, it should be kept to a minimum





Improving Survival of Released Bass





Hooks In Or Out?

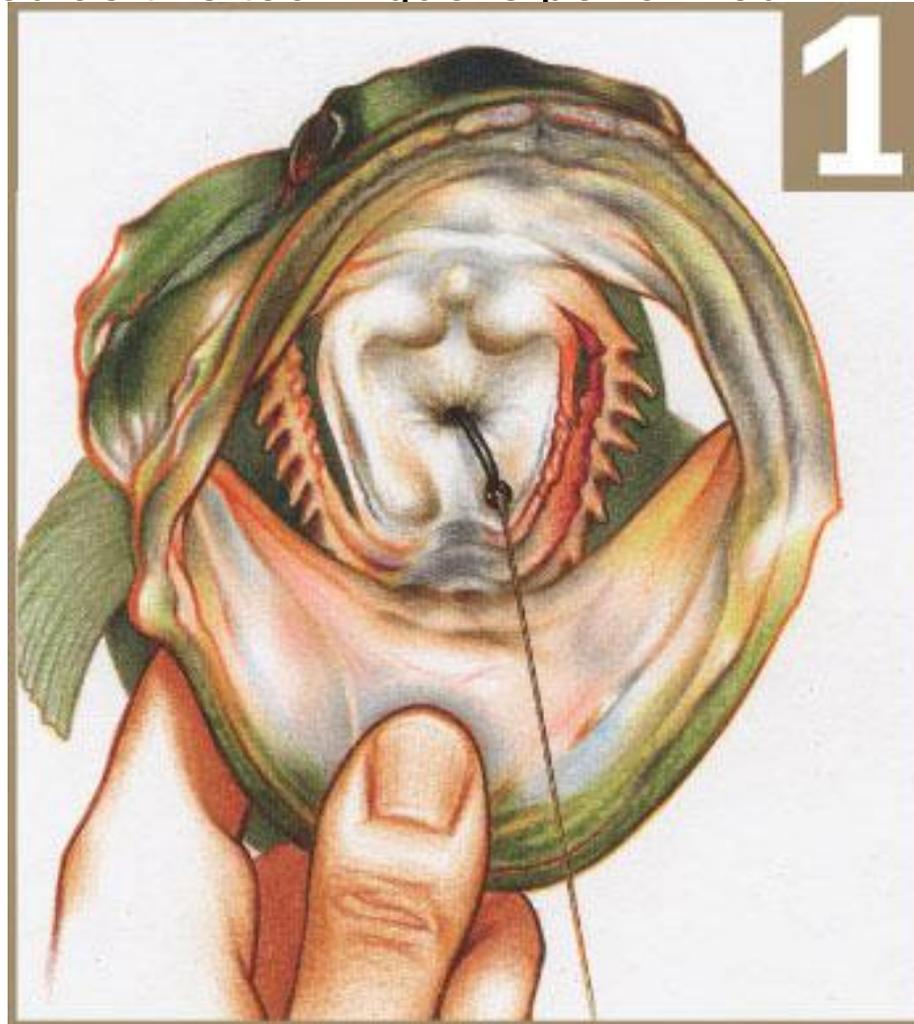
- For years it was assumed that it was best to leave the hook in a deeply hooked fish because the metal would rust away, would be dissolved by gastric acids.
- Recent studies, however, have confirmed that this may not always be the case.
- Today, the thinking is that every effort should be made to remove hooks as quickly and with as little tissue damage as possible.





Deep Hook Removal

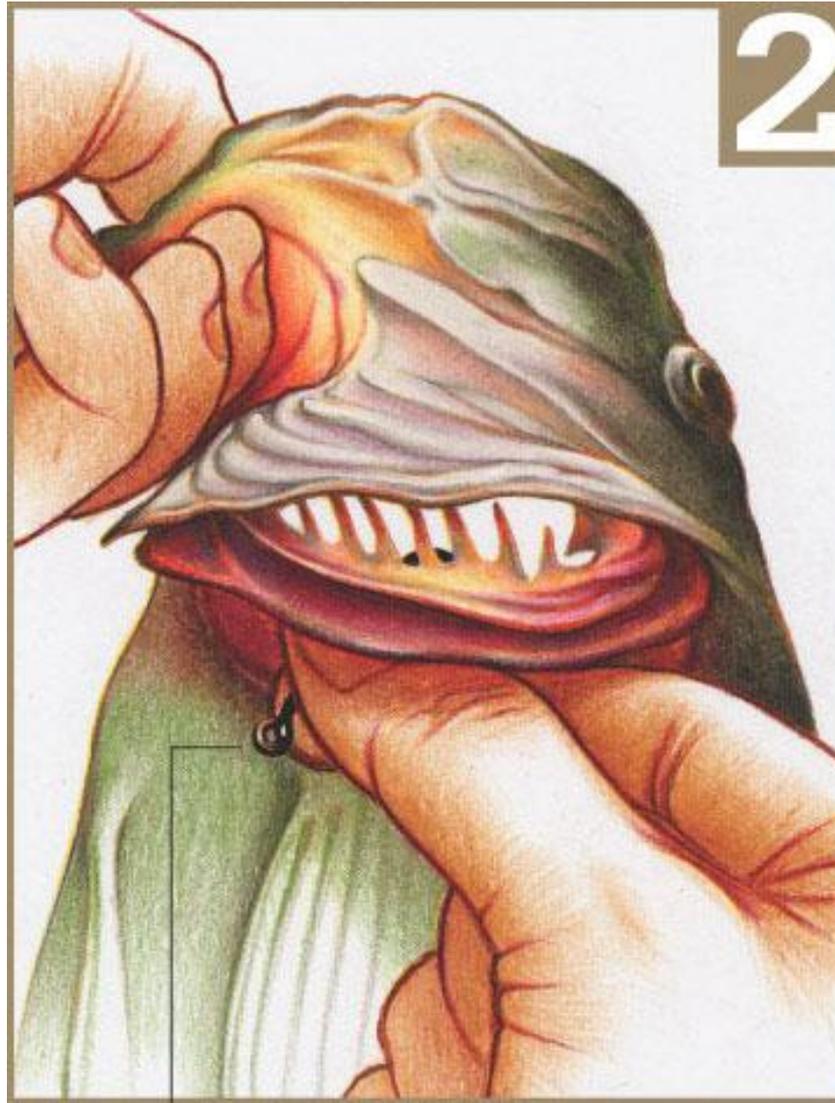
- (1) With the hook in the gullet, note which side of the fish's mouth the hook shank is toward. Note: For illustration sake, the line is eliminated here in steps 2 through 5. In reality, the line stays connected as this technique is performed.





Deep Hook Removal

(2) With a finger or two, reach in through the last gill arch on that side of the fish and push and pull down on the hookeye so the hook turns and . . .





Deep Hook Removal

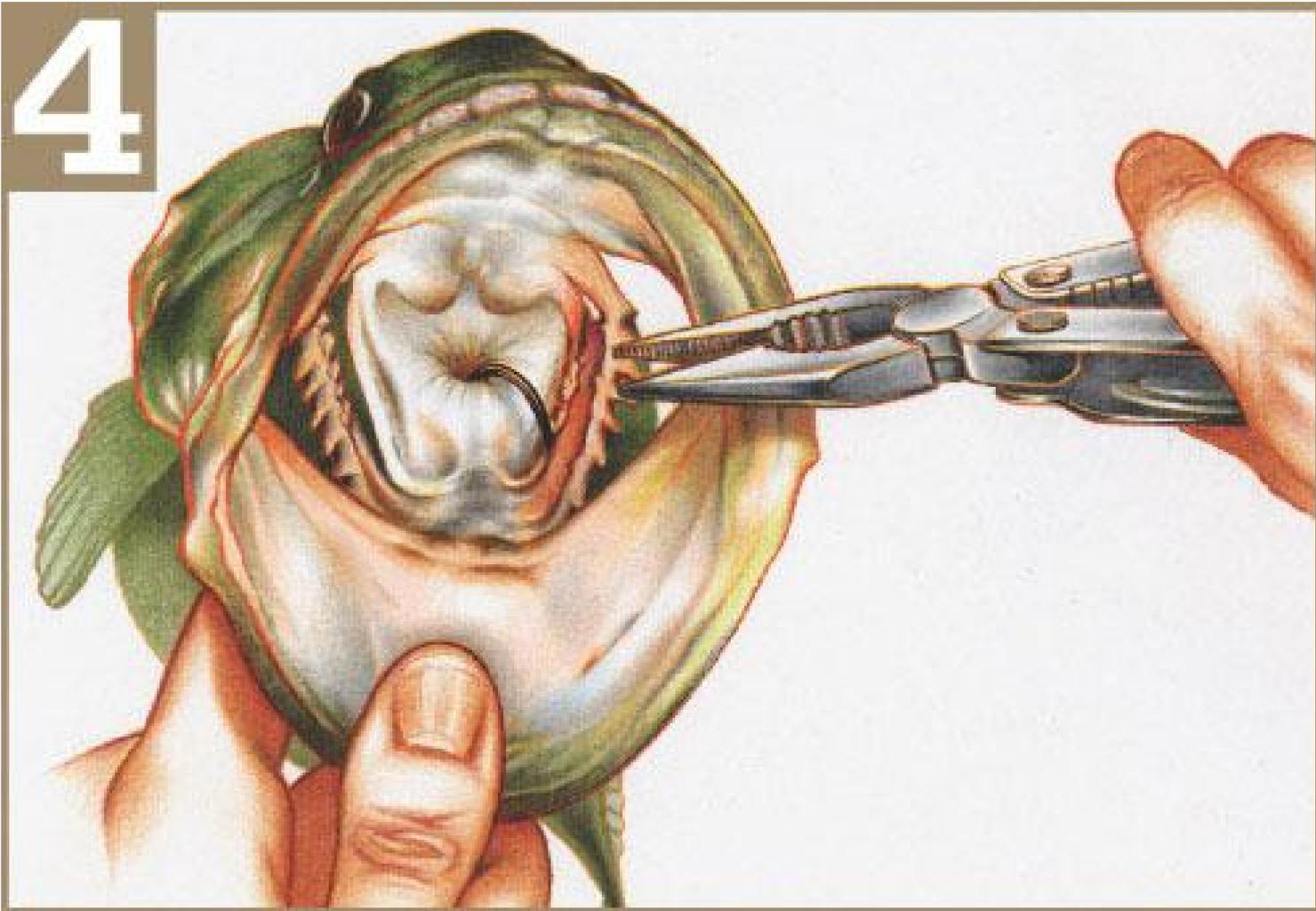
(3) rolls out below the gill toward the side of the fish. At that point, amazingly, the hook, barb and all, almost always pops free from its hold in the fish's gullet.





Deep Hook Removal

(4) Reach into the fish's mouth and grip the bend in the hook (which is now up) and . . .





Deep Hook Removal

(5) lift it free. If the fish's mouth is too small to reach in with your hand, use a needle-nose pliers to grip the hook bend.





Leave the Hook

- John Foster, Recreational Fisheries Coordinator for the Maryland Department of Natural Resources, studied striped bass at Chesapeake Bay.
- Foster theorized that the lengths of line hanging from a fish's mouth kept the hook-shank flat against the side of the esophagus and allowed food to pass. Without the line, food could move the hook and close the throat.
- Based on his research, Foster recommended anglers carefully remove even deeply imbedded hooks. If the hook can not be removed, then it seems better to leave about 18 inches of line attached.
- Another good idea is to carry strong wire-cutting pliers. Cut off protruding barbs in the throat and the hook shank falls free easily.





Air Exposure

- Unhook fish quickly and measure them on a wet measuring board or rule.
- Keep fish submerged while cameras are being readied for photos
- Get the photo, then get the fish back into the water or into your water-filled bag as quickly as possible





In The Livewell

- Many of the obstacles to improving the survival of released fish revolve around maintaining adequate water quality in the livewell.
- There are four keys to providing a healthy livewell environment:
 - eliminating the possibility of mechanical injury,
 - maintaining adequate dissolved oxygen
 - controlling water temperatures
 - removing toxic metabolic waste.
- Mechanical injury is best addressed by proper livewell design and construction.
- Oxygen level and water temperatures are controlled with aeration or oxygen injection and the addition of fresh water (at water temperatures below 75° F) or ice (at water temperatures above 75° F). Toxic ammonia is removed by periodically flushing the livewell with fresh water.





Livewell Ventilation

- Livewell air space ventilation is a fancy term for getting fresh air into the livewell compartment.
- 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.
- To solve this problem, there are two easy options.
 - First, lift the livewell lids regularly to allow fresh air to circulate into the compartment.
 - Another alternative is to vent the Venturi aspirator so that it is pulling in fresh air





Livewell Water Quality Management

- 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.
- As water temperatures increase, a timer-controlled aeration system cannot replenish oxygen as fast as a large catch of bass can use it.
- To flush metabolic wastes, exchange at least half of the livewell water every two hours, refilling with fresh water from areas with good water quality.





Organize Club Tournaments to
Ensure Maximum Survival





Contingency for Dog Days

- Be prepared to make changes on the fly when extreme heat is a factor
- Adjust tournament start times
- Consider reducing the tournament duration
- Switch to paper tournaments





Conduct a Paper Tournament

- Weigh your fish using a ruler and reap the benefits
 - Eliminate the bulk of the risk to the fish
 - Eliminate the need for weigh-in and boat beach areas
 - Reduce the end to end tournament time
 - Catch & Release lakes become eligible for paper tournaments
- Clubs use the Minnesota DNR Length to Weight chart as a standard to determine tournament weights
 - *See Minnesota DNR 2006 fishing regulations manual on Page 64*
- Measurements are validated by both anglers and the “honor system” is a default





Bass Weight Chart

Length (inches)	Weight (lbs.)
12	1.0
13	1.3
14	1.7
15	2.1
16	2.5
17	3.0
18	3.6
19	4.2
20	5.0
21	5.7
22	6.6
23	7.6





The Weigh-In Site

- The location of the weigh-in site can affect the survival of fish by increasing or decreasing the time they are out of good life support conditions, and affect the organization of the weigh-in.
- Good Weigh-in site:
 - Facilities close to where boats are moored.
 - Contestants can walk from boats to weigh-in area in less than one minute.
 - Facilities close to good release site: a low pier within a short walk, or situated so the live-release boat, truck or trailer can be parked close to the weigh-in station.
 - Weigh-in facilities in the shade. Room for spectators without interfering with the movement of contestants.





From the Boat to the Scales

- The weigh-in can strongly influence the stress level of fish because they must be removed from the water to be judged live or dead, measured for minimum length, and weighed.
- The two most important elements of a successful weigh-in that minimize stress to the fish achieving the highest survival are
 - 1) minimal handling
 - 2) minimal time when the fish are not in a “life support system”
- Keep fish in the livewell until they can be brought to the scale without waiting in line





Releasing the Fish

- Even diligent anglers and a well-conducted weigh-in will NOT achieve maximum survival, if the fish are released in the wrong place.
- The fish should be released into water at least 3 feet deep.





Releasing the Fish

- Have you been counting? How many times have the fish been handled?
- Every time a fish is handled, more stress is added.
- Admittedly, the fish have been disturbed and exposed to air, and thus stressed, on and off for about five minutes, but the fish have been handled only three or four times.
- Minimize the effects of cumulative stress by transporting the fish from the scale to the release point in bags filled with clean lake water





Releasing the Fish

- Here are some, but by no means all, characteristics of good sites:
 - Clear water. Good water circulation — for example, on the main lake or in a large bay or cove near the main lake.
 - Hard, clean bottom.
 - Away from boat traffic.
 - Launch areas away from heavy public use.
 - Deep water or deep water nearby.
 - Relatively cool water.





Delayed Mortality

- With growth in the number of catch and release tournaments, it's a common belief that released fish "live to fight again another day."
- Biologists agree that at least a 25% loss rate is not unrealistic
- One release mortality study conducted by the Texas Parks & Wildlife Department revealed post tournament mortality figures as high as 39%
- More study is needed to obtain consistent data





When Mortality Occurs

- Have an established plan to dispose of dead fish
- Make use of the fish if possible
- Demonstrate responsible behavior to the non-tournament angling public





Managing Social Interaction and Sharing Outdoor Resources





Permit Requirements

- In Minnesota, ALL tournaments are required to obtain a County Sheriff's permit
- See the “Permit Contact Info by County” document on the [mnbf.org](http://www.mnbf.org) website to obtain contact information for Minnesota County Sheriffs departments
 - <http://www.mnbf.org/tournaments/permitcontacts.html>
- Many counties Sheriffs do not require anything more than a courtesy phone call





Interaction with Sport Fishing Anglers

- Maintain an adequate distance from non-tournament anglers
- Avoid confrontations
 - With lakefront property owners
 - At the boat ramp
 - With other watercraft operators
- Adhere safe boating laws and fishing regulations
- Inspect all club boats before leaving the ramp to prevent the spread of invasive species to other waters
- Project a positive image of the tournament fishing community





Summary

- It's our duty to conserve the resources that we share for future generations of outdoor enthusiasts
- Demonstrate our commitment to conservation
- Lead by example
- Share conservation knowledge





Questions & Answers





Information Sources

- Keeping Bass Alive
 - By Gene Gilliland, Hal Schramm, and Bruce Shupp 2002
- In-Fisherman Magazine
 - By Doug Stange 2006
- FishingHotspots.Com
 - By Paul Kautz

