Black Bass Advisory Subcommittee

July 6, 2016

C-1 Conference Room

6:00 pm – 8:30 pm

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Tidal Bass Program

The missions of the tidal bass program are:

- To ensure population integrity and sustainability of tidal populations of black bass in Maryland;
- To promote and protect angling opportunities of constituents;
- To respond to public concerns of the black bass fishery in tidal freshwater rivers of Maryland with well-researched answers and awareness programs or materials.

About the tidal bass survey:

The Tidal Bass Survey team began systematically collecting data on the distribution of largemouth bass (Micropterus salmoides) in the 1980's. These early surveys were conducted in the Potomac River. In 1999, the survey methods were standardized among rivers. The rivers with the longest data sets include the Potomac River and the Choptank River. The survey now includes the Patuxent River, the Upper Bay region, the Chester River, the Nanticoke River, and the Wicomico River.

Tidal Bass Program
More Information:
http://dnr2.maryland.gov/fisheries/Pages/bass/index.aspx

Reports and Publications

This content is in .pdf format. If you do not have the free viewer from Adobe you can download the latest version of Adobe Reader here.

Our 2016 Standard Operating Procedure documents how we conduct our sampling.
Our Stocking Policy describes how we stock.
Our Re-distribution Policy describes how we could help re-distribute fish after tournaments.
Our Tidal Bass Fishery Management Plan
FMP Update 2014

2016 Bass Roundtable

- Bass Roundtable Agenda 2016
- Bass Roundtable Minutes 2016
- Bass Roundtable Presentation
- Bass Roundtable Notes

Fishery Management Plan

Goal of the Plan

To develop a management framework that enables the creation of policy decisions for conflicting user groups (i.e., stakeholders) and guides the protection, maintenance and improvement of largemouth bass fisheries in Maryland tidewater.

History of the Plan

Development in 2011 initiated by Chief of Inland Fisheries

Black Bass Roundtable was asked by DNR for feedback on the content in 2011. Internal development/review in 2012 and 2013. Draft went out for public comment and provided to Sport Fisheries Advisory Commission for comment in 2013.

The Plan was officially adopted by the Department into regulation and signed by Secretary Belton in 2015.

Tidal Bass Surveys

MARYLAND DEPARTMENT OF NATURAL RESOURCES

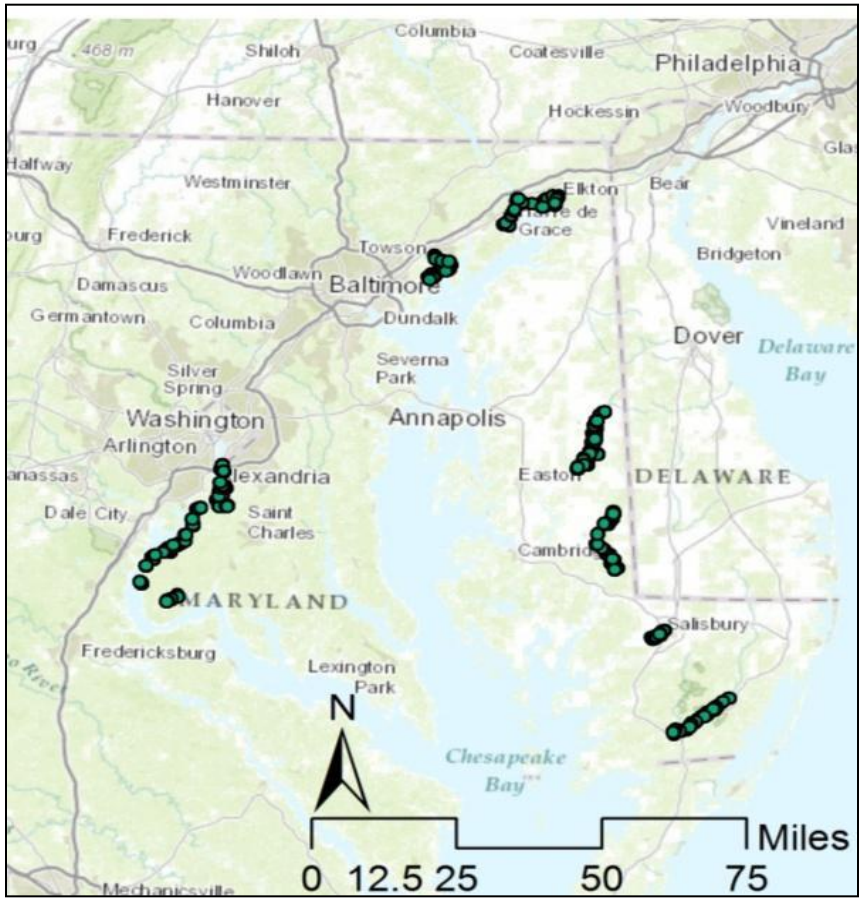
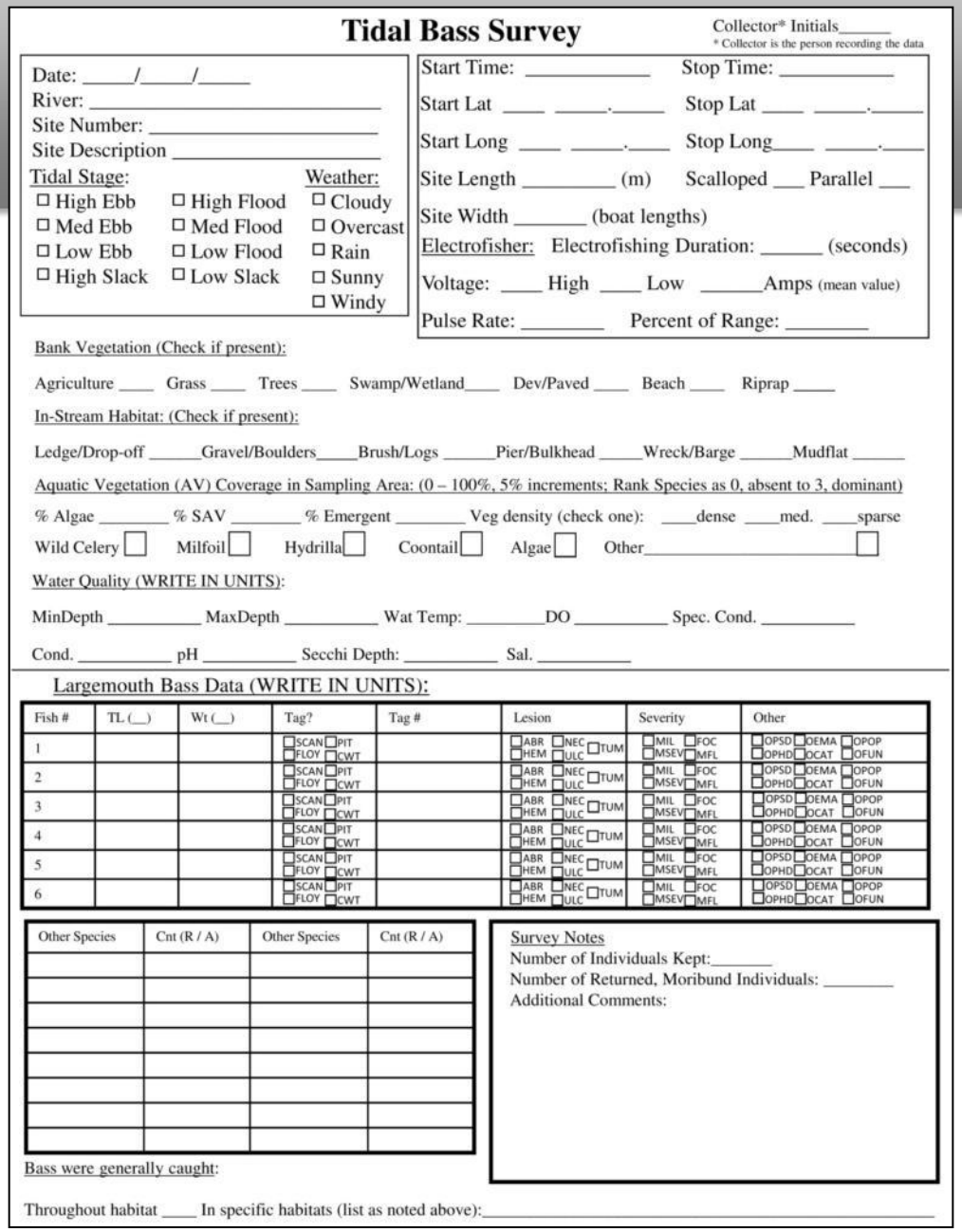


Figure 1. Map of survey sites for largemouth bass (*Micropterus salmoides*) in Chesapeake Bay watershed during the tidal bass survey (fall 2015).

Watch a Video:
https://youtu.be/vPHS_GaLiis



Tidal Bass Survey

Collector* Initials_____
* Collector is the person recording the data

Date: _____/_____/_____
River: _____
Site Number: _____
Site Description _____

Tidal Stage:
☐ High Ebb ☐ High Flood
☐ Med Ebb ☐ Med Flood
☐ Low Ebb ☐ Low Flood
☐ High Slack ☐ Low Slack

Weather:
☐ Cloudy
☐ Overcast
☐ Rain
☐ Sunny
☐ Windy

Start Time: _____ Stop Time: _____
Start Lat ____ _____._____ Stop Lat ____ _____._____
Start Long ____ _____._____ Stop Long____ _____._____
Site Length _____ (m) Scalloped ___ Parallel ___
Site Width _____ (boat lengths)
Electrofisher: Electrofishing Duration: _____ (seconds)
Voltage: ____ High ____ Low _____Amps (mean value)
Pulse Rate: _____ Percent of Range: _____

Bank Vegetation (Check if present):

Agriculture ____ Grass ____ Trees ____ Swamp/Wetland____ Dev/Paved ____ Beach ____ Riprap ____

In-Stream Habitat: (Check if present):

Ledge/Drop-off _____Gravel/Boulders____Brush/Logs _____Pier/Bulkhead ____Wreck/Barge _____Mudflat _____

Aquatic Vegetation (AV) Coverage in Sampling Area: (0 – 100%, 5% increments; Rank Species as 0, absent to 3, dominant)

% Algae _____ % SAV _____ % Emergent _____ Veg density (check one): ____dense ____med. ____sparse

Wild Celery ☐ Milfoil ☐ Hydrilla ☐ Coontail ☐ Algae ☐ Other_____ ☐

Water Quality (WRITE IN UNITS):

MinDepth _____ MaxDepth _____ Wat Temp: _____DO _____ Spec. Cond. _____

Cond. _____ pH _____ Secchi Depth: _____ Sal. _____

Largemouth Bass Data (WRITE IN UNITS):

Fish #	TL (__)	Wt (__)	Tag?	Tag #	Lesion	Severity	Other
1			☐SCAN ☐PIT ☐FLOY ☐CWT		☐ABR ☐NEC ☐TUM ☐HEM ☐ULC	☐MIL ☐FOC ☐MSEV ☐MFL	☐OPSD ☐OEMA ☐OPOP ☐OPHD ☐OCAT ☐OFUN
2			☐SCAN ☐PIT ☐FLOY ☐CWT		☐ABR ☐NEC ☐TUM ☐HEM ☐ULC	☐MIL ☐FOC ☐MSEV ☐MFL	☐OPSD ☐OEMA ☐OPOP ☐OPHD ☐OCAT ☐OFUN
3			☐SCAN ☐PIT ☐FLOY ☐CWT		☐ABR ☐NEC ☐TUM ☐HEM ☐ULC	☐MIL ☐FOC ☐MSEV ☐MFL	☐OPSD ☐OEMA ☐OPOP ☐OPHD ☐OCAT ☐OFUN
4			☐SCAN ☐PIT ☐FLOY ☐CWT		☐ABR ☐NEC ☐TUM ☐HEM ☐ULC	☐MIL ☐FOC ☐MSEV ☐MFL	☐OPSD ☐OEMA ☐OPOP ☐OPHD ☐OCAT ☐OFUN
5			☐SCAN ☐PIT ☐FLOY ☐CWT		☐ABR ☐NEC ☐TUM ☐HEM ☐ULC	☐MIL ☐FOC ☐MSEV ☐MFL	☐OPSD ☐OEMA ☐OPOP ☐OPHD ☐OCAT ☐OFUN
6			☐SCAN ☐PIT ☐FLOY ☐CWT		☐ABR ☐NEC ☐TUM ☐HEM ☐ULC	☐MIL ☐FOC ☐MSEV ☐MFL	☐OPSD ☐OEMA ☐OPOP ☐OPHD ☐OCAT ☐OFUN

Other Species	Cnt (R / A)	Other Species	Cnt (R / A)

Survey Notes
Number of Individuals Kept:_____
Number of Returned, Moribund Individuals: _____
Additional Comments:

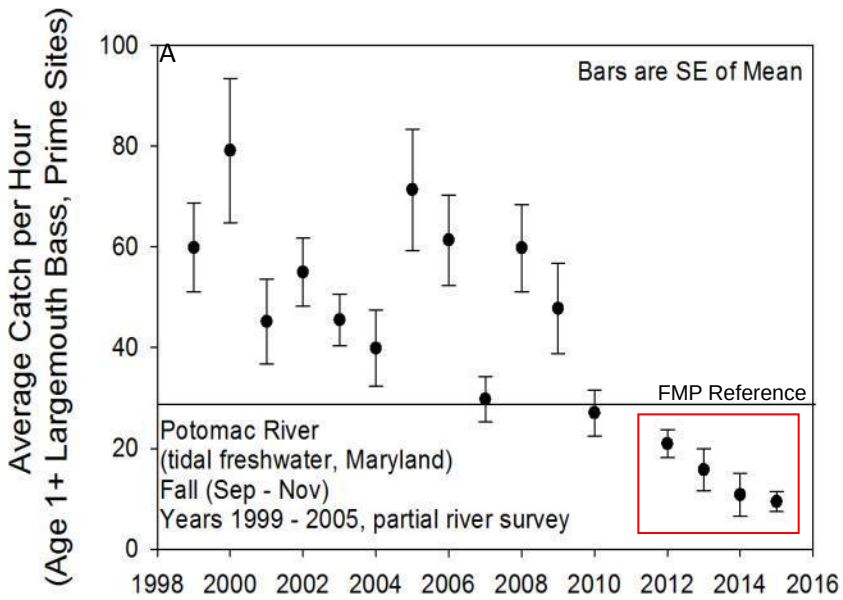
Bass were generally caught:

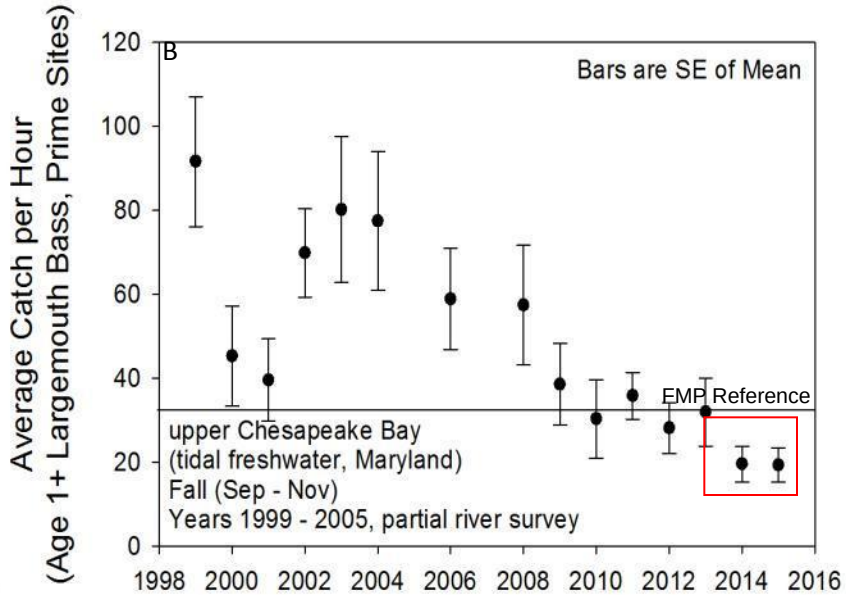
Throughout habitat ____ In specific habitats (list as noted above):_____

- Data collected during fall using boat electrofishing
- Data entered into an inland fisheries database
- Data undergo quality assurance/quality control during data collection and data entry phases

More Information consult our SOP: http://dnr2.maryland.gov/fisheries/Documents/Tidal_Bass_Survey_SOP.pdf

Problem Illustrated by: Fishery Independent Surveys





Fishery Dependent Information:

Tx reported catch in 2015 (PR) declined from 3 bass/angler to 2 bass/angler

Strategies and Actions

Implemented Actions

- Provide comments during environmental review…(e.g., Dominion Power)
- Write letters on official letterhead to stakeholders – promoting and protection…(e.g., to directors)
- Work with Artificial Reef program staff…(e.g., Smoots Bay reef)
- Target tidewater areas that require stocking…(e.g., 95,000 fry 2016 to Potomac)
- Improve and promote angler awareness that increases survivorship…(e.g., email to approximately 40,000 licensed anglers who target black bass in Maryland)
- Engage in meaningful studies…to improve survivorship…(e.g., mark-recapture study)
- Discourage transportation of largemouth bass among river systems…. (e.g., tournament best management practices)

Strategies and Actions

Additional Actions for 2017?

- Promoting survival and abundance of older, larger fish may be additionally accomplished by adjusting creel limits or size limits (Fishery Management Plan: Action 4.3.1) when
  - there are too few adults in the population…; and
  - catch rates for adults are too low to provide a quality fishery
- Additional action may be warranted because
  - fishery independent surveys indicate a decline in catch
  - fishery dependent reports indicate a problem with the fishery

Strategies and Actions

Additional Actions?

Method One: Extend Maximum Size Restriction

Option 1. Continue tournament permit condition

a) Implemented on June 16, 2016 for Potomac River and the most popular upper Chesapeake Bay weigh-in sites;

b) Allows a 5 fish possession with a 12-inch minimum, but only 1 of those fish may be greater than 15-inches between June 16 and October 31, or

c) Requires tournament director and anglers to adhere to a standard of conditions when conducting a tournament to maximize fish care/survival.

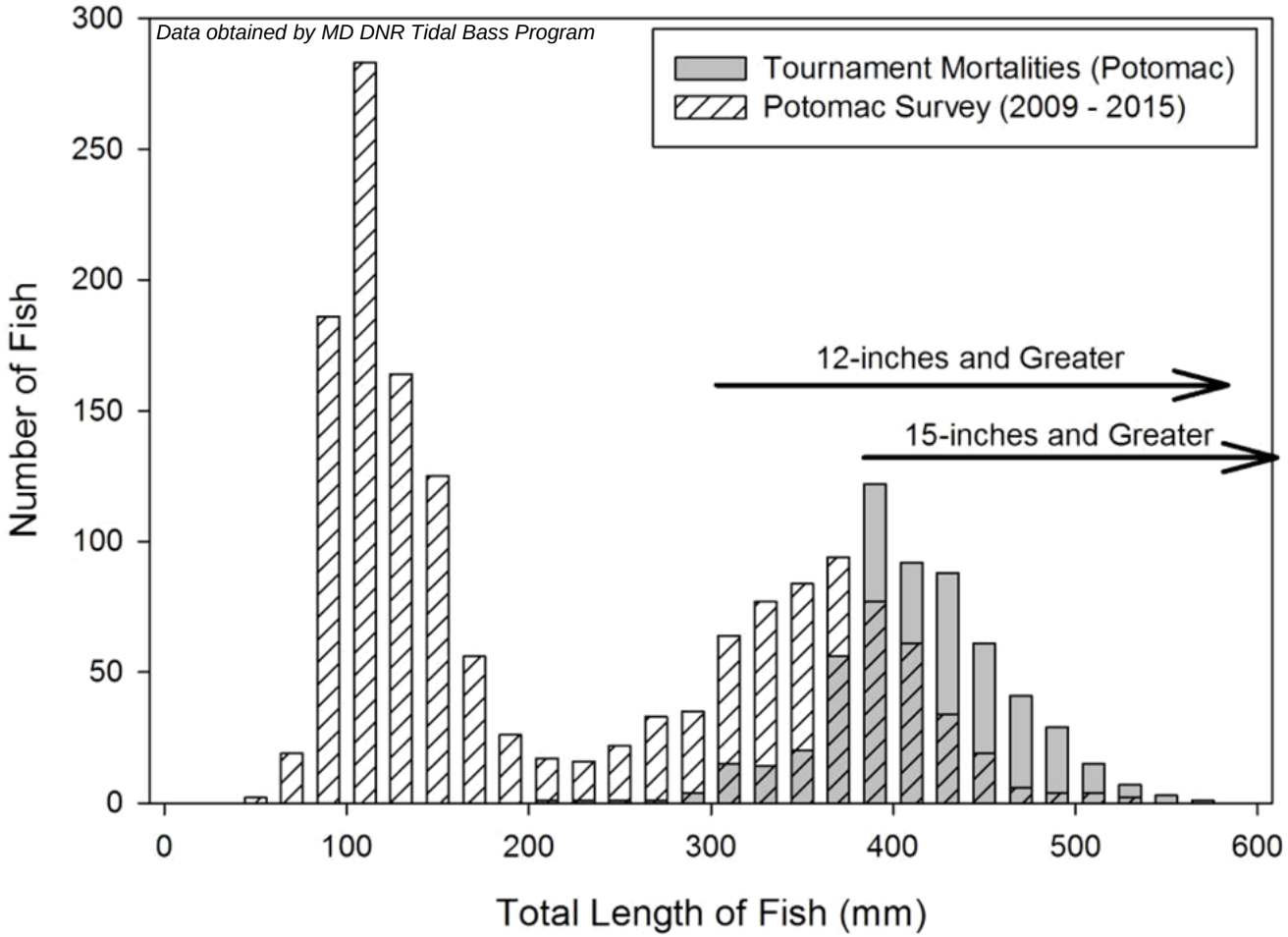
Option 2. Institute statewide regulation

a) Propose statewide regulation for all tidewater anglers

b) Allow a 5 fish possession with a 12-inch minimum, but only 1 of those fish may be 15-inches or greater, June 16 – end of February

c) Similar in style to management of bass fisheries in Florida by the Florida Fish and Wildlife Conservation Commission - on July 1, 2016, regulations will change statewide to include a 5-fish creel with only one allowed that is 16-inches or greater, unless a waiver is provided by the State.

Method One: Extend Maximum Size Restriction



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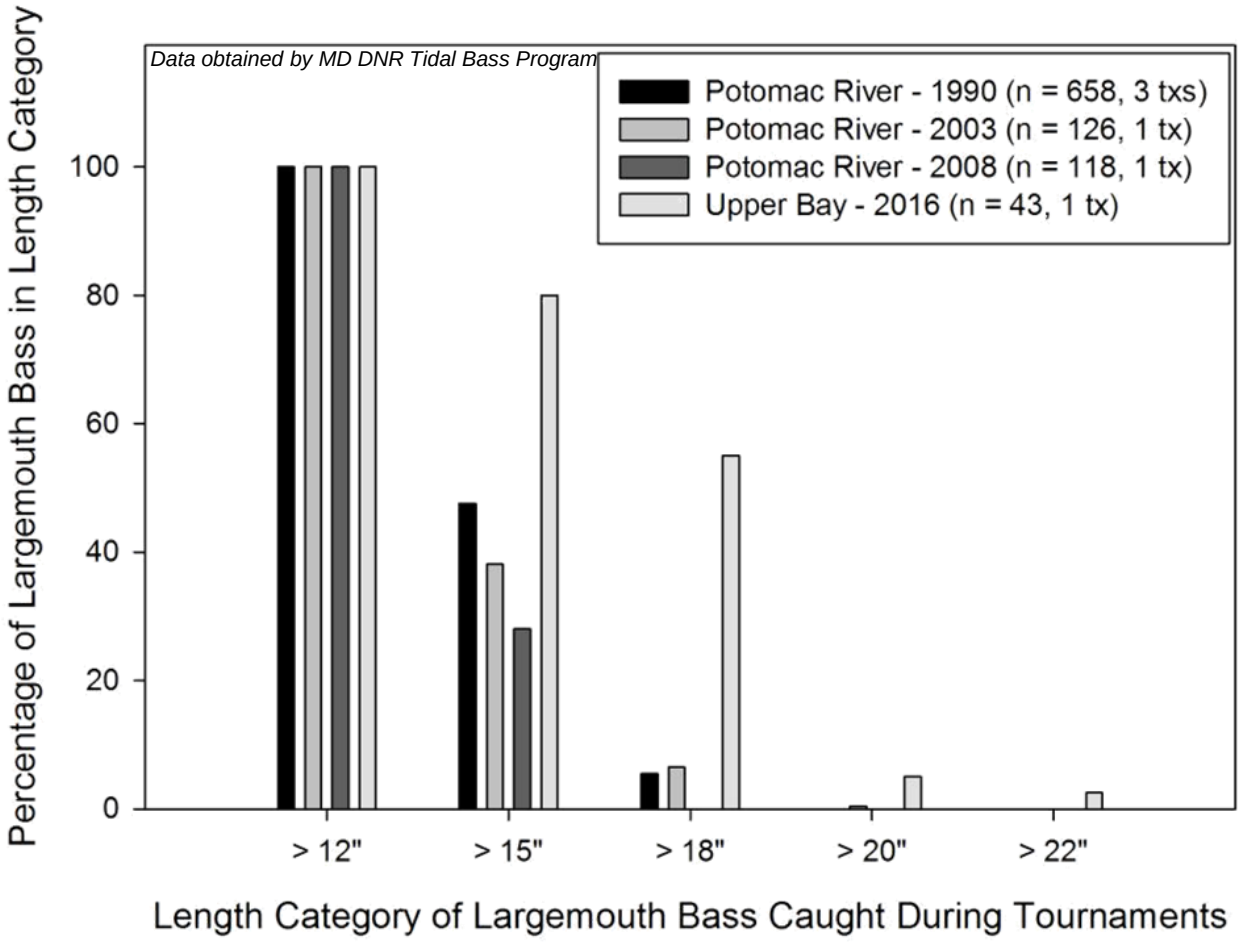

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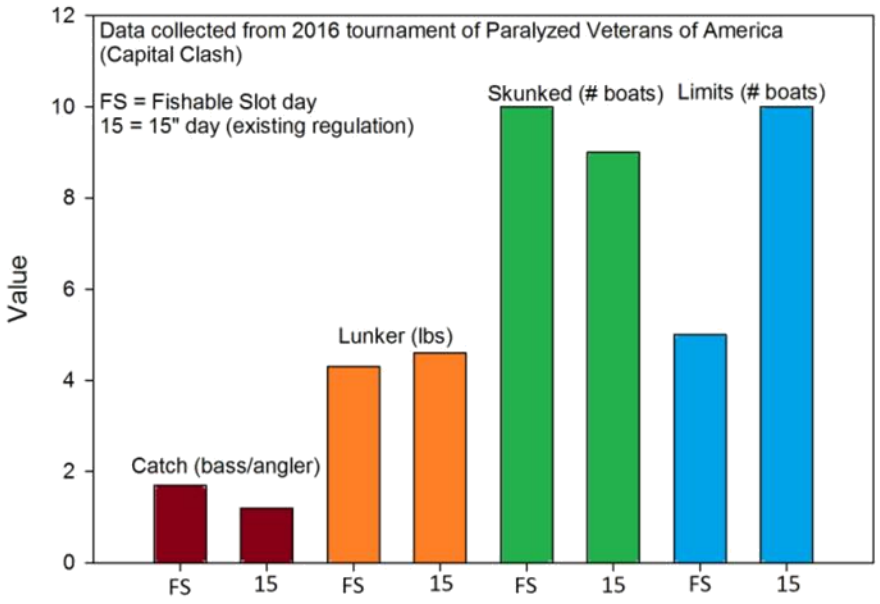
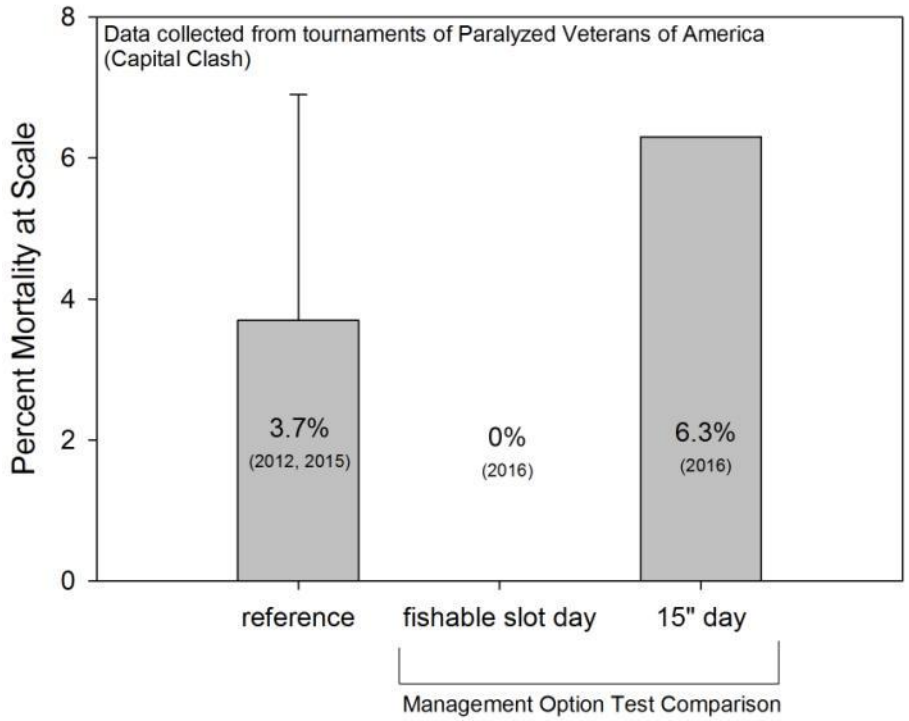




Strategies and Actions

Additional Actions?

Method Two: Implement Closed and/or Catch-and-Return Areas

Option 1. Institute year-round no target in 2 areas – one location in Upper Bay and one in Potomac River

Possible locations: all or upper Chicamuxen Creek; all or portions of Furnace Bay

Option 2. Institute year-round catch-and-return in 2 areas- one location in Upper Bay and one in Potomac River

Possible locations: all or upper Chicamuxen Creek; all or portions of Furnace Bay

Option 3. Institute year-round catch-and-return in four areas - two locations in Upper Bay and two in Potomac River

Possible locations: Piscataway Creek and upper Mattawoman Creek; all or portion of Furnance Bay (Mill Creek) and Swan Creek

Strategies and Actions (Continued)

Additional Actions?

Method Two: Implement Closed and/or Catch-and-Return Areas

Option 4. Institute spring (March 1 – June 15) catch-and-return in four areas - two locations in Upper Bay and two in Potomac River

Possible locations: Piscataway Creek and upper Mattawoman Creek; all or portion of Furnance Bay (Mill Creek) and Swan Creek

Option 5. Institute a mix of no target and catch-and-return during spring - two locations in Upper Bay and two in Potomac River

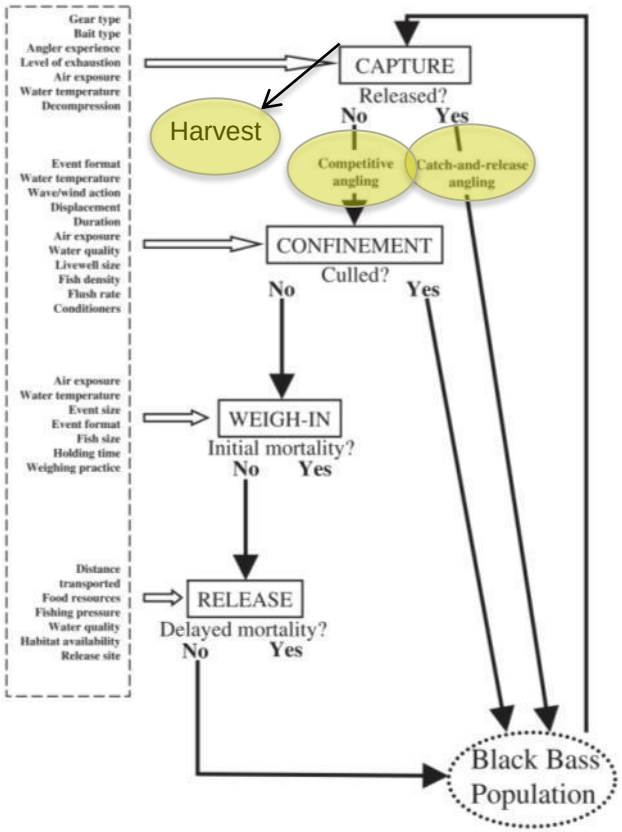
Possible locations: Piscataway Creek (no target) and upper Mattawoman Creek (catch and return); all or portion of Furnance Bay (Mill Creek) (no target) and Swan Creek (catch and return)

Option 6. Statewide, spring catch-and-return

Location: Statewide

Method Two: Implement Closed and/or C&R

Year-Round Catch-and-Return



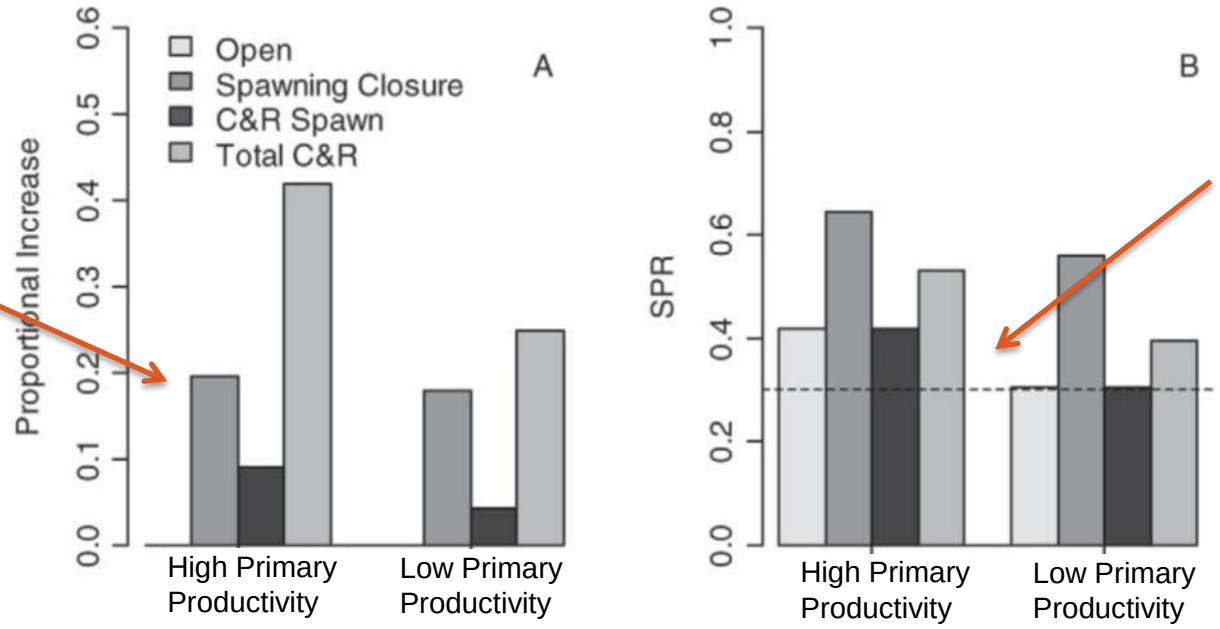
Slightly modified from Siepker et al. 2007

- Harvest = 100% mortality
- C&R angling = 1 in 10 to 1 in 5 mortality (10-20%) (Bartholomew and Bohnsack 2005, Love et al. 2015)
- Competitive angling = more challenging to estimate mortality, but ~1 in 20 at scale (5%) and from near 0 (spring) up to 3 in 10 (summer) (up to 30%) post-release or delayed mortality (Gilliland 2002, Love et al. 2015).

Method Two: Implement Closed and/or C&R

Year-Round Catch-and-Return and Spring Management

When harvest/mortality levels are high, spring closures, spring C&R and year-round C&R may increase # adults; capture rate constant among seasons.



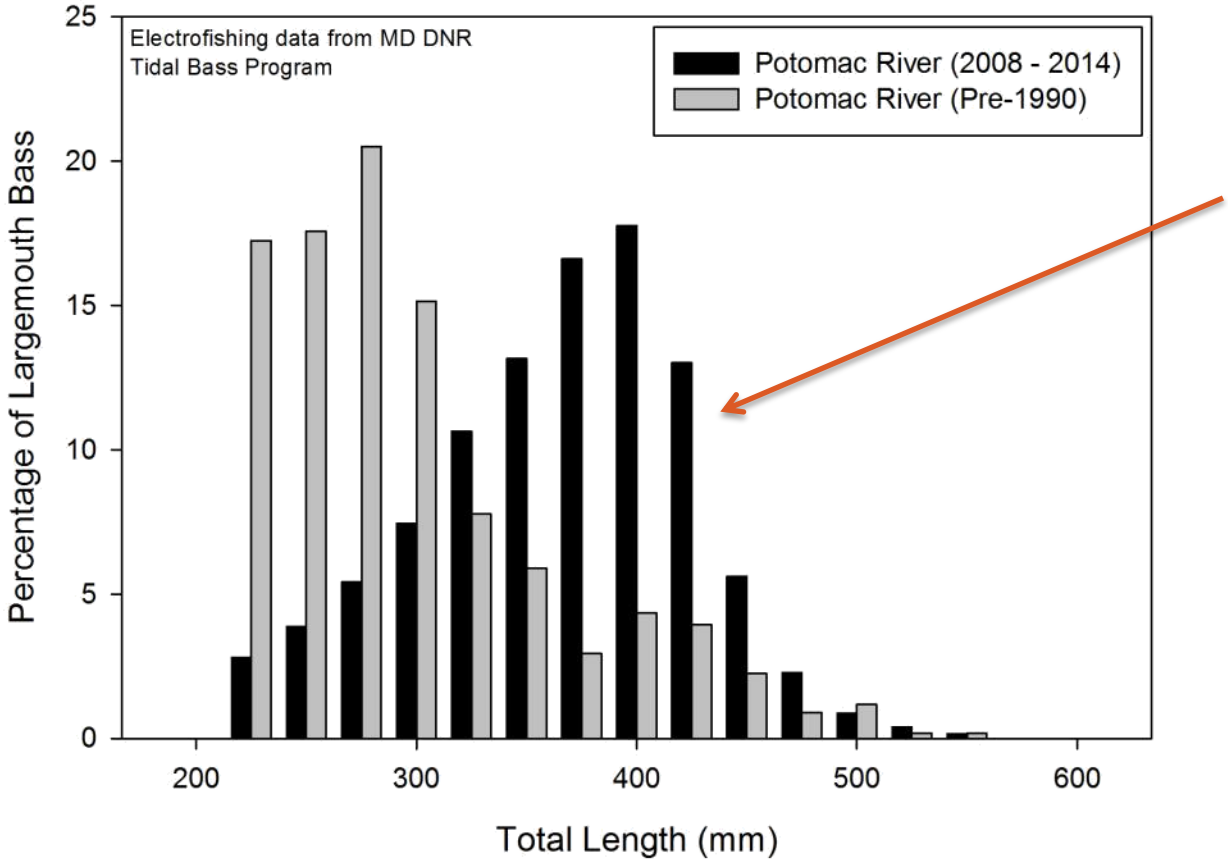
None of the scenarios indicate a significant loss in recruitment due to fishing, though it's close for LPP

FIGURE 1.—Responses of a largemouth bass fishery with an instantaneous capture rate of 0.45 and an instantaneous harvest rate of 0.20 to various regulatory scenarios. Panel **(A)** shows the increases in the abundance of fish age 4 and older resulting from three alternative scenarios relative to the increase in the baseline scenario (an open fishery with a 356-mm minimum length limit). The alternative scenarios are full fishery closure during the spawning season, catch-and-release fishing during the spawning season, and all-year catch-and-release fishing. Panel **(B)** shows the spawning potential ratios (SPRs) resulting from the four regulatory scenarios; the dashed line represents the SPR threshold of 0.30.

From Gwinn and Allen 2010

Method Two: Implement Closed and/or C&R

Spring Management – Catch and Return (12-15”)



Spring-time catch and immediate release of 12-inch to 15-inch began in 1989 and appears to have improved relative abundance of those size classes. Applying such restrictions to all sizes of fish within selected areas could likewise increase catch of large fish. Note that during this change in regulation, though, there was also a change in style of fishing by a majority of anglers from harvest to catch-and-release.

Method Two: Implement Closed and/or C&R

Spring Management – Reproduction? Focus: Catch-and-Return

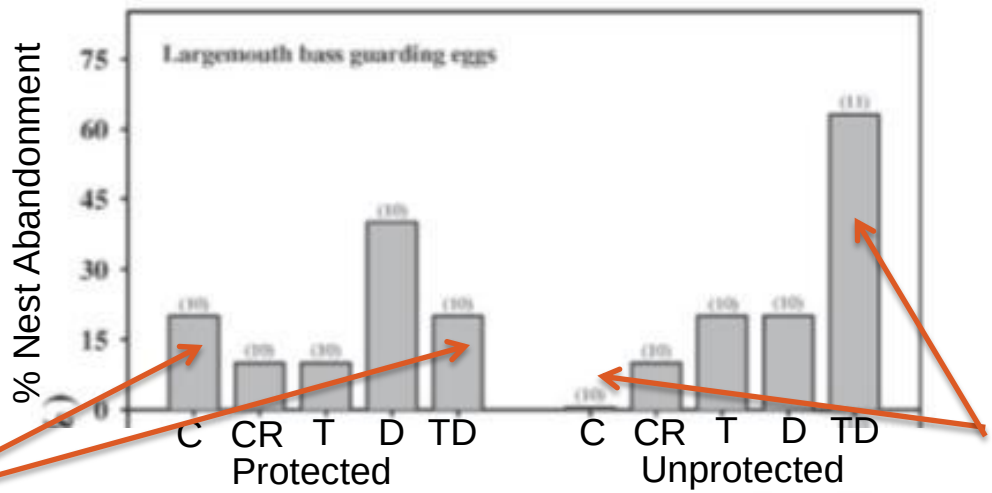


FIGURE 1.—Rates of nest abandonment (%; at 24 h postangling) by egg-guarding largemouth bass and egg- or fry-guarding smallmouth bass in the Control group (C) or in groups subjected to Catch-and-Release (CR), Time (T), Distance (D), or Time + Distance (TD) components of recreational angling (see Methods) in southeastern Ontario lakes. Nests were either protected (with a screen cover) or unprotected from brood predation. Sample sizes for each treatment combination are shown in parentheses.

fromSiepker et al. 2009

With refugia, largemouth bass nest abandonment is not highly influenced by retention and displacement of 1 km (6/10th of a mile).

Without refugia, largemouth bass abandon nests much more often because of retention and displacement of 1 km (6/10th of a mile).

Method Two: Implement Closed and/or C&R

Spring Management – Reproduction? Focus: Closed Season

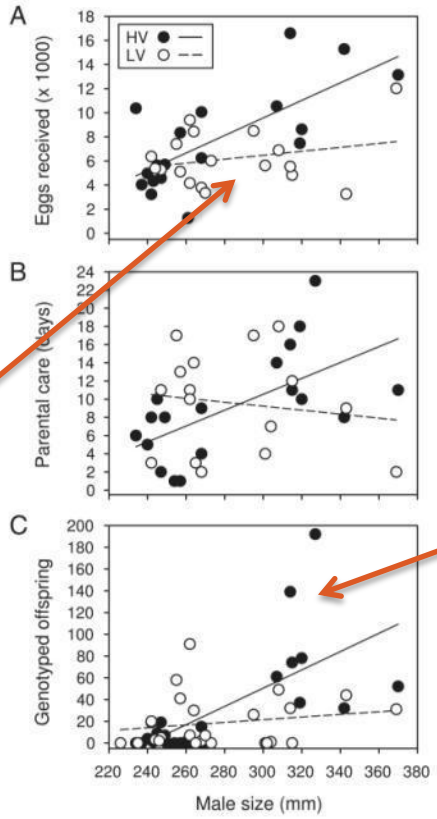


Fig. 1. (*A*) Number of eggs in individual largemouth bass nests of males with high vulnerability to angling (HV, full circles and solid lines) and low vulnerability to angling (LV, open circles and dashed lines), (*B*) duration (days) of parental care (starting at swim-up fry stage) provided by the nest-guarding males, and (*C*) number of genotyped fall recruits across nest-guarding males of different sizes.

From Sutter et al. 2012

Additional benefits from a closed spring season: Highly aggressive males (dark circles) that are more vulnerable to capture by anglers produce more eggs and exhibit longer parental care than males that are less aggressive and vulnerable (empty circles)

Aggressiveness is inherited. Genetic traits related to aggressiveness may be lost over time if the nests of those males fail, and could lead to evolution of a population characterized by less aggressive males.

Summary

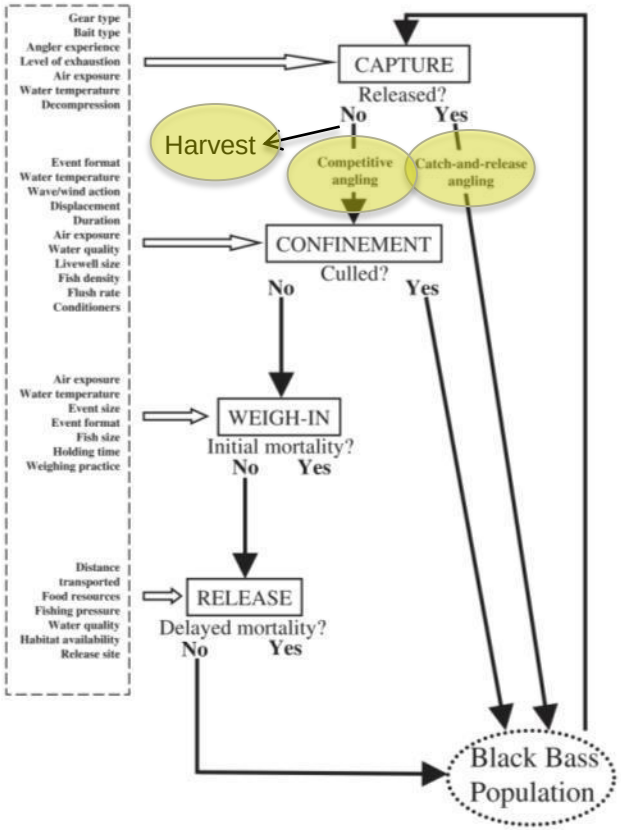


Figure 1. Conceptual model of events that occur during black bass catch-and-release and competitive angling that cause physiological response, stress or mortality among captured fish. Boxed items represent the four common activities that fish may experience during catch-and-release and competitive angling. Filled arrows are pathways for either release of a fish back into an aquatic system or to another event. If physiological response, stress or mortality occur important causal mechanisms are identified within the dash-lined box. Potential causal mechanisms related to one of the four common events are shown with non-filled arrows.

Slightly modified from Siepker et al. 2007

- Can limiting harvest and competitive angling and/or C&R angling in targeted areas make a difference?
- Areas that will most benefit include those heavily targeted by anglers where harvest/mortality levels are high and for spring, and if reproduction is a consideration, then areas that may offer moderate to poor refugia.

OPTION(S)	Expectation	Complications
1: Year-round, No Target	Prevents catch-and-release mortality and translocation in prime areas year-round; prevents nest failure in spring; demonstrates a regulatory action	Evidence to support its effectiveness is demonstrated when harvest and fishing mortality rates are high and angling effects overshadow habitat effects; additional enforcement requires identification of angler in the area, targeting bass; will create a new regulation for an off-limits area for bass anglers but allow other anglers to fish the area.
2: Year-round, Catch and Return	Prevents mortality from harvest and translocation in prime areas, year-round; prevents nest failure in spring, if related to translocation or harvest in prime areas; demonstrates a regulatory action.	Some empirical evidence to support its effectiveness, but only when harvest or fishing mortality rates are high in the area; additional enforcement requires identification of an angler in the area possessing bass; will create a new regulation for an area that prohibits *some* forms of bass tournament fishing, but allows other bass anglers to target bass.
3: Year-round, No Target/Catch and Return mix	See Above	See Above
4 - 6: Springtime, a) Catch and Return (limited areas); b) No Target (limited areas); and c) Catch and Return statewide	All options could prevent nest failure in spring, if nest failure is mainly related to targeting, translocation or harvest in prime areas; No target areas additionally prevent catch-and-release mortality during a period (spring) when bass are more easily targeted in prime areas; demonstrates a regulatory action.	May be effective when harvest or fishing mortality rates are high and angling effects overshadow habitat effects; enforcement requires identification of angler in the area, targeting bass or possessing bass, depending on the area; will create multiple areas with specialized restrictions (unless statewide) that prohibits some forms of bass tournament fishing, and could prevent bass anglers from targeting bass, but allows other forms of fishing in that area during spring.