

# **Management Brief**

## **West Virginia Division of Natural Resources Wildlife Resources Section**

### **LARGEMOUTH BASS TAGGING STUDY**

#### **BACKGROUND**

The West Virginia Division of Natural Resources (DNR) recently completed a multi-year tagging study on largemouth bass. Angler catch and harvest of largemouth bass were evaluated in 14 impoundments ranging in size from Conaway Run Lake (30 acres) to Sutton Reservoir (1,500 acres). Tagging began in 2003 and concluded in 2006. Largemouth bass fisheries were regulated with a catch-and-release regulation, the statewide regulation (daily bag limit= 6, no size limit), or a minimum size limit regulation (12-inch). The goal of the study was to determine the percent of largemouth bass caught and/or harvest annually, the influence of length on catch and harvest, and the influence of regulations on harvest.

During the spring of each year, DNR collected largemouth bass using boat-mounted electrofishing units. T-bar anchor tags were inserted into collected bass. Anglers who caught tagged largemouth bass were encouraged by DNR through signs and windshield post cards to report the date, location, and if the fish was released or harvested. Various rewards were given to anglers for returning tags. A follow-up survey was sent to anglers who returned tags to gain an understanding of their opinions on current regulations, satisfaction with their angling experience, as well as the fish species they target.

#### **RESULTS**

DNR biologists tagged 4,008 largemouth bass. Anglers reported catching 1,456 tagged fish (36%) from all 14 lakes. Kimsey Run Lake had the highest percent returned (66%) and Beech Fork Reservoir had the lowest percent returned (24%). Largemouth bass were reported being caught up to 5 years after being tagged. Impoundments regulated by catch-and-release had a higher percent of tagged fish caught (44%) than either statewide regulation (33%), or minimum size limit regulation (32%). When taking account for anglers not reporting catching tagged fish or fish losing tags, it was estimated that in a given year 62% of largemouth bass greater than 11-inches were caught in impoundments regulated by catch-and-release, and 40% of largemouth bass were caught in impoundments regulated by either statewide or minimum size limit regulations.

Anglers only kept 7% of largemouth bass caught in impoundments where harvest was allowed. Percent harvest ranged from 18% in South Mill Creek Lake to 2% in Warden Lake. Percent harvest in study reservoirs in which harvested was allowed were Sutton Reservoir (4%) and Beech Fork Reservoir (2%). Annually, it was estimated that 3% of all largemouth bass greater than 11-inches in impoundments in which harvest was allowed were caught and kept. Only South Mill Creek Lake had an estimated annual harvest rate exceeding 10%.

Largemouth between 11 and 14 inches had a greater chance of being caught than were deemed present based on electrofishing collections. In contrast, fish larger than 14 inches were less likely of being caught than were deemed present. Interestingly, annual estimated catch was less for fish greater than 16 inches than fish less than 16 inches. Annual estimated harvest did not differ significantly for largemouth bass between 10 to 20 inches. However, once bass reached lengths greater than 20 inches, harvest was noticeably greater.

Over 550 anglers who caught and reported a tagged largemouth bass returned an opinion survey. Seventy-nine percent of these anglers reported that largemouth bass was their first choice to seek when fishing. Any species was their second choice followed by crappie and sunfish. Anglers reported a high approval with current regulations with over 70% reporting a level of satisfaction. Anglers reporting from catch-and-release impoundments had a higher level of satisfaction than anglers from impoundments where harvest was allowed (90% vs. 61%). Impoundments with the highest level of satisfaction were Upper Mud Lake (94%), Woodrum Lake (93%), and Conaway Run Lake (92%). Impoundments with a lower level of satisfaction were Plum Orchard Lake (57%) and Sleepy Creek Lake (51%).

## **CONCLUSION**

Although angler catch rates for largemouth were high in most study impoundments, largemouth bass harvest was extremely low in systems where keeping bass is allowed. The influence of regulations appeared to be minimized by the acceptance of anglers to the catch-and-release ethic. Fish less than 14-inches were caught at a greater proportion than what was believed to inhabit the impoundment, in contrast to larger fish. Anglers reported a high approval of current regulations in study impoundments, with all approval ratings in excess of 60%.

## **FUTURE ACTIVITIES**

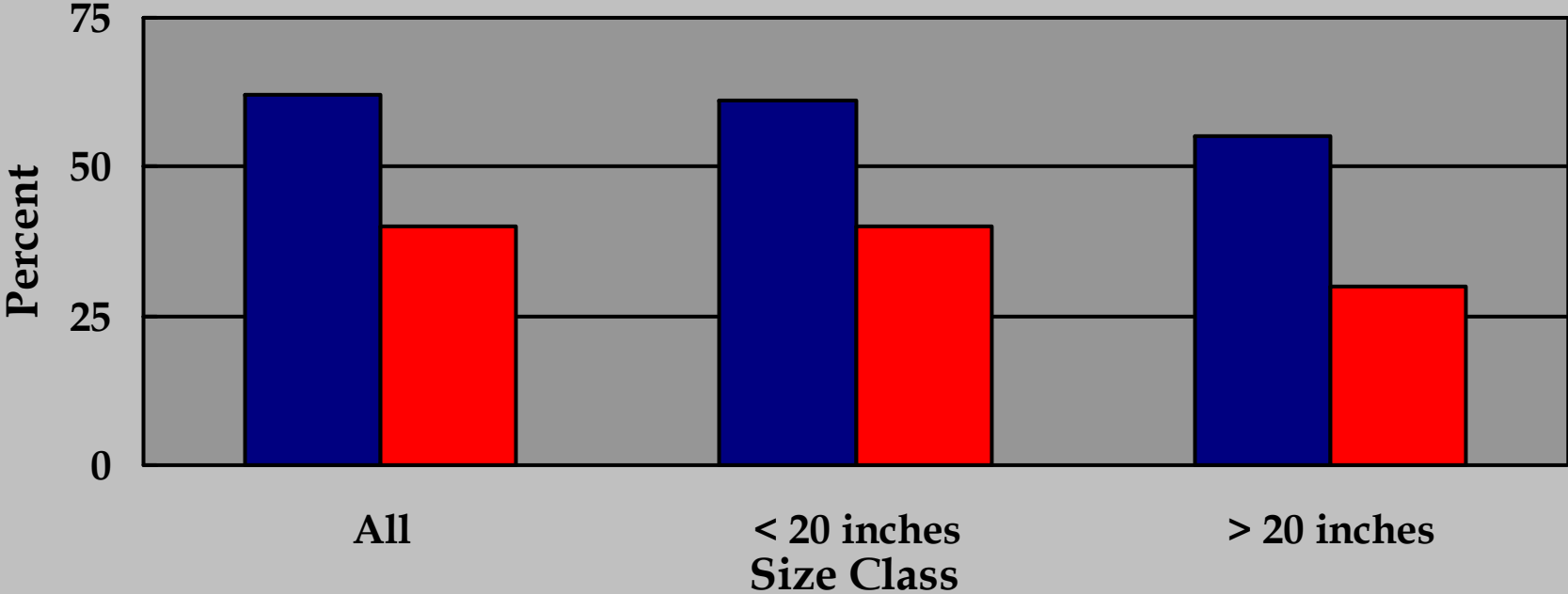
The investigative part of this study was completed in 2008, although it is anticipated that anglers will continue to report catching tagged fish for a few years. Based on the findings of this study, future management strategies can be considered.

## Largemouth Bass Tagging Summary

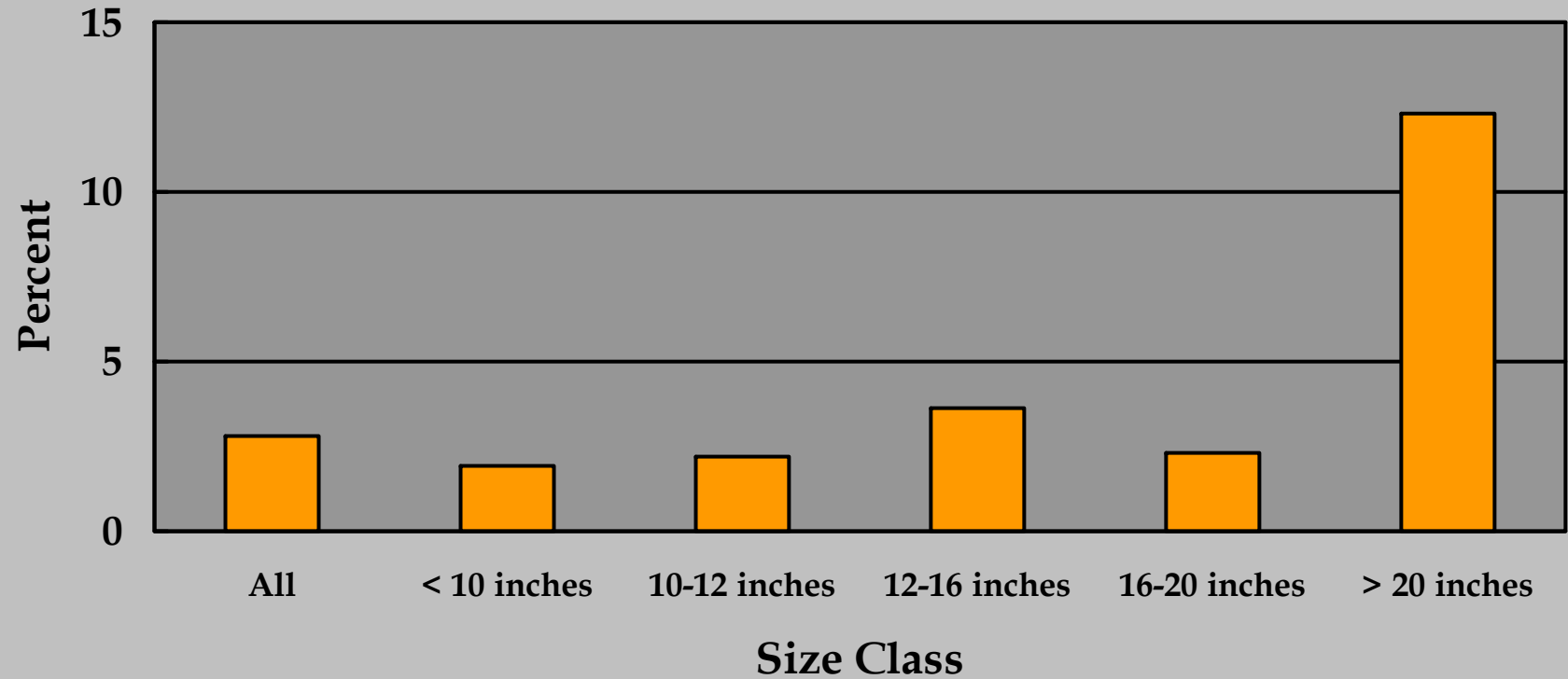
Lake	Regulation at Tagging	Year Tagged	Number		Percent Returned	Number		Percent Harvested
			Caught	Tagged		Released	Harvested	
Elk Fork	Catch/Release	2003	155	339	46	155	0	0
Plum Orchard	Statewide	2003	109	231	47	78	9	10
Kimsey Run	Catch/Release	2004	57	87	66	45	2	4
Sleepy Creek	Statewide	2004	56	168	33	39	6	13
South Mill Creek	Statewide	2004	45	87	52	32	7	18
Upper Mud	Catch/Release	2004	172	330	52	169	0	0
Woodrum	Catch/Release	2004	125	301	42	125	0	0
O'Brien	Catch/Release	2005	68	247	28	66	0	0
Sutton	Statewide	2005	121	412	29	74	3	4
Stephens	Statewide	2005	111	314	35	67	4	6
Warden	Statewide	2005	61	149	41	50	1	2
Conaway Run	<i>Minimum</i>	2005	71	150	47	54	3	5
Beech Fork	<i>Minimum</i>	2006	75	313	24	59	1	2
Charles Fork	Statewide	2006	37	100	37	24	1	4
Plum Orchard	Statewide	2006	60	331	18	42	3	7
Sleepy Creek	Statewide	2006	57	143	40	49	3	6
Stephens	Statewide	2006	76	306	25	52	8	13
<b>All Lakes</b>			<b>1,456</b>	<b>4,008</b>	<b>36</b>	<b>1,180</b>	<b>51</b>	<b>4</b>
<b>Minimum Regulation Lakes</b>			<b>146</b>	<b>463</b>	<b>32</b>	<b>113</b>	<b>4</b>	<b>3</b>
<b>Statewide Regulation Lakes</b>			<b>733</b>	<b>2,241</b>	<b>33</b>	<b>507</b>	<b>45</b>	<b>8</b>
<b>Catch and Release Regulation Lakes</b>			<b>577</b>	<b>1,304</b>	<b>44</b>	<b>560</b>	<b>2</b>	<b>0</b>
<b>Harvest Lakes</b>			<b>879</b>	<b>2,704</b>	<b>33</b>	<b>620</b>	<b>49</b>	<b>7</b>

# Annual Catch of Largemouth Bass by Regulation Class

■ Catch-and Release ■ Harvestable



## Annual Harvest of Largemouth Bass by Size Class





DNR Staff conducting tagging activities.



Largemouth bass inserted with a T-bar anchor tag.



*For More Information or Questions*  
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