

# AN EVALUATION OF SAMPLING TRAPS IN FARM PONDS

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Channel catfish (*Ictalurus punctatus*) and blue catfish (*Ictalurus furcatus*) are now reared in ponds totaling several thousand acres in southeastern United States. Pond-reared catfish are sold as food fish and to operators of pay fishing lakes. In intensive fish culture, weekly samples of at least 100 fish are needed to check the growth and general well being of the fish. The aim of this study was to determine if various types of fish traps could take adequate samples of fish from the pond. Eight different types of traps were fished in a 9-acre catfish-rearing pond near Gould, Arkansas. All failed to catch 100 fish per week.

## EQUIPMENT

We fished 9 traps--5 (1 to 5) were fabricated specially for this study; 4 (traps 6-9) were purchased from manufacturers.

Trap 1: A 2-foot square top made of  $1\frac{1}{2}$ -inch mesh hardware cloth and wooden strips (fig. 1). (All mesh sizes are bar measure.) The entrance, 2 inches high and 18 inches long, is formed by slanting wire walls from the trap top and bottom.

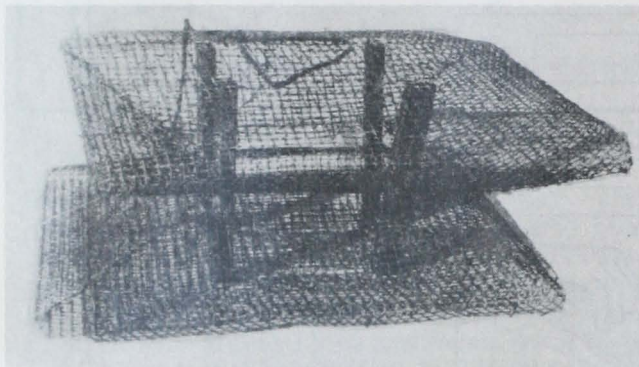


Fig. 1 - A 2-foot square trap with slanting wire walls, which form the trap entrance. Material is hardware cloth.

Trap 2: A  $\frac{1}{2}$ -inch mesh hardware cloth was used to build a cylindrical trap, 4 feet long by 19 inches in diameter (fig. 2). It has a single throat at one end that extends 14 inches into the trap and has a 2-inch diameter opening.

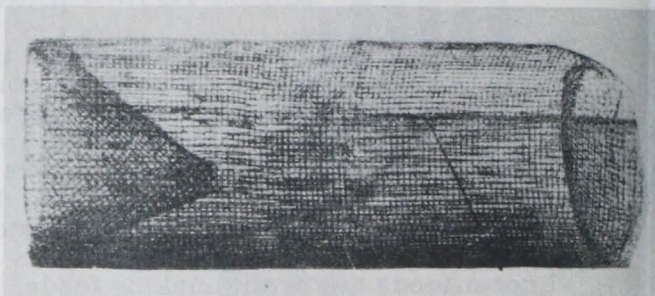


Fig. 2 - A cylindrical trap with one throat. Material is hardware cloth.

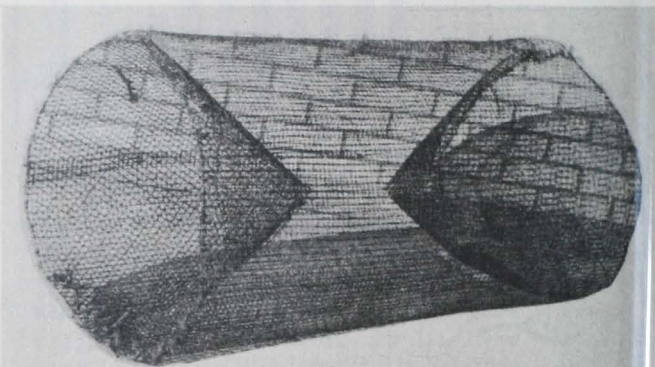


Fig. 3 - A cylindrical trap with two throats. Material is hardware cloth.

Trap 3: Cylindrical trap (fig. 3), constructed of 1-inch mesh hardware cloth; it has a throat at each end. The trap is 4 feet

long and the diameter 2 feet. The throats extend 12 inches into the trap and have 2-inch diameter apertures.

Trap 4: A cross-shaped trap made of  $\frac{1}{2}$ -inch mesh hardware cloth (fig. 4). The four compartments that form the cross are 1-foot square and 2-feet high. Fish enter through 2-inch square swinging doors at the angles formed by the cross walls.

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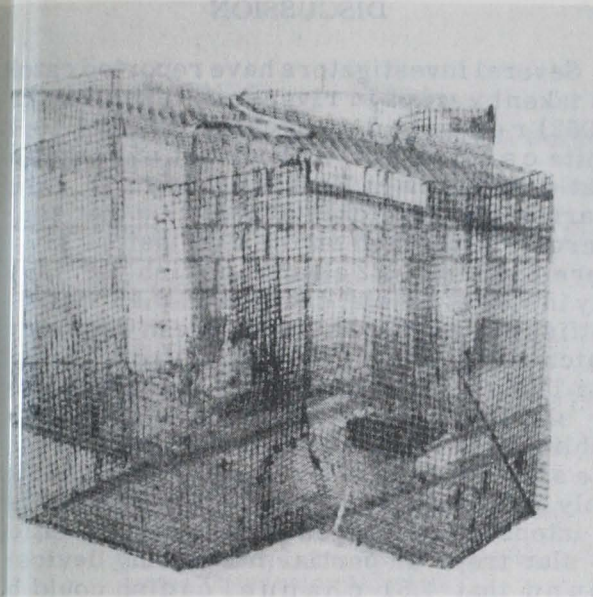


Fig. 4 - A cross-shaped trap with swinging doors located at the angles formed by the cross walls. Material is hardware cloth.

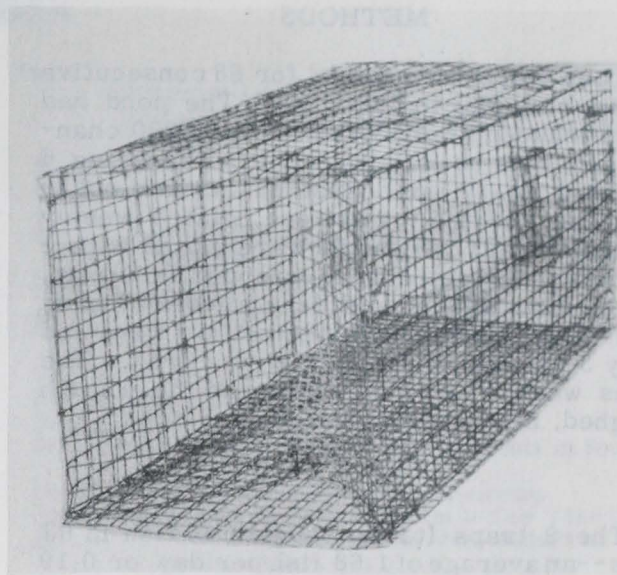


Fig. 6 - A rectangular trap with swinging doors. Material is welded wire.

Trap 5: A cylindrical trap, 4 feet long by 11 inches diameter, constructed of  $\frac{1}{2}$ -inch mesh poultry wire (fig. 5). A throat with a 2-inch aperture extends 22 inches into the trap.

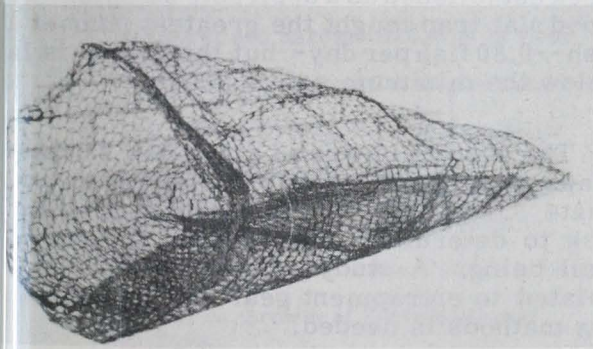


Fig. 5 - A cylindrical-shaped trap with one throat. Material is poultry wire.

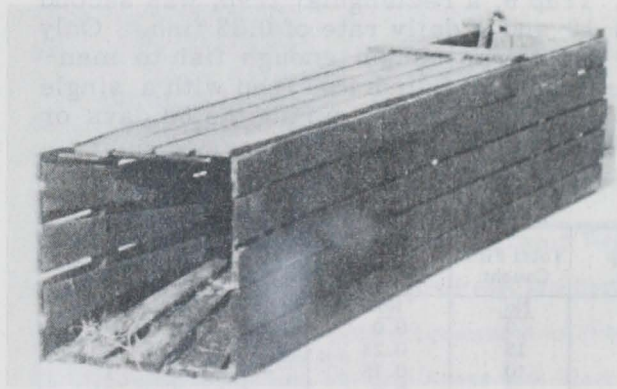


Fig. 7 - A slat trap with two throats. Material is wood.

Traps 8 and 9: Two 1-inch mesh nylon hoop nets were used. Each net has an overall length of  $10\frac{1}{2}$  feet and 7 white oak hoops, 2 feet in diameter. The hoop net has two throats, one between the second and third hoops, and one between the fourth and fifth hoops. A 10-foot wooden strip was nailed to the hoops to hold the trap erect in still water.

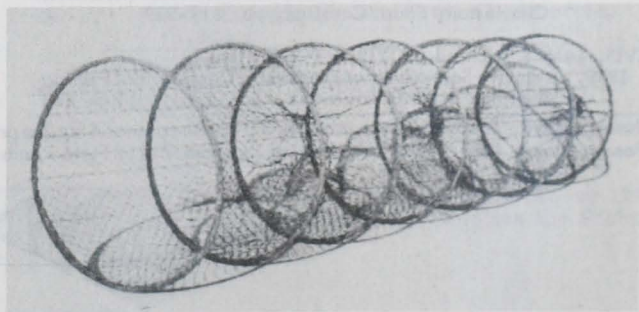


Fig. 8 - A hoop net with two throats. Material is nylon.

Trap 6: A rectangular trap, 3 feet by 13 inches by 13 inches, made of one-inch mesh welded wire (fig. 6). A V-throat is formed by 2 slanting wire walls. Fish enter through two swinging doors, 5 inches by 2 inches, located at the throat base.

Trap 7: A wooden slat trap, 5 feet by 11 inches by 11 inches, made of white oak strips,  $\frac{1}{4}$  inches wide and  $\frac{3}{8}$  inch thick with a  $\frac{1}{4}$ -inch space between them (fig. 7). Two throats formed by slanted oak strips are at one end. The outermost throat has an aperture of  $5\frac{1}{2}$  inches and the inner throat aperture is 2 inches in diameter.



## METHODS

The 9 traps were fished for 63 consecutive days during May to July 1965. The pond had been stocked in mid-March with 15,000 channel and blue catfish fingerlings averaging 6 inches long. A grid system was laid out in the pond and the traps were rotated weekly to avoid bias. All traps were baited with 1 pound of industrial cheese wrapped in burlap. The bait was attached near the middle of each trap. During the study, the catfish were fed daily 3 percent of their body weight. The traps were checked daily and the catch weighed, measured, and released.

## RESULTS

The 9 traps (table) caught 106 fish in 63 days--an average of 1.68 fish per day or 0.19 fish per trap-day. Trap 7, the slat trap, made the best catch--51 fish for 0.80 fish per trap-day. Trap 6, a rectangular trap, was second with 19 and a daily rate of 0.33 fish. Only one other trap caught enough fish to mention--trap 2, a cylindrical trap with a single throat, caught 15 fish during the 63 days or 0.23 fish per trap-day.

Trap No.	Total Fish Caught	Average Fish Caught Per Day	Percent of Total Fish Caught	Number of Days Trap Caught Fish
	No.	No.	%	No.
1	0	0.0	0.0	0
2	15	0.23	14.2	3
3	10	0.15	9.4	1
4	0	0.0	0.0	0
5	0	0.0	0.0	0
6	19	0.33	17.9	3
7	51	0.80	48.1	7
8 and 9 <sup>1/</sup>	11	0.17	10.4	5
Total or Average	106	1.68	100.0	

<sup>1/</sup>Two hoop nets were fished and their catches have been combined.

## DISCUSSION

Several investigators have reported catches taken by traps in rivers and lakes. Baker (1962) reported an average catch of 10.72 white catfish per 48-hour set of basket or slat traps in High Rock Reservoir, Ohio. Starrett and Barnickol (1955) found that commercial fishermen on the Mississippi River were catching 0.22 channel catfish per trap-day in basket or slat traps, and 0.13 channel catfish per net-day in 1-inch mesh hoop nets. Catch rates of channel catfish from Louisiana lakes were 2.15 fish per day with basket or slat traps (Posey and Schafer, 1963, unpublished<sup>1/</sup>) and 2.63 per day with 1½-inch mesh hoop nets (Davis and Posey, 1959). Only one study reported on trapping catfish in intensively managed ponds--an evaluation of slat traps as partial harvesting device--found that 4.61 channel catfish could be caught per trap-day (Posey, 1964, unpublished<sup>2/</sup>).

Because of the high densities of catfish in commercial rearing ponds, we assumed the fish could be trapped easily; however, this proved wrong. The traps failed to catch the minimum arbitrary number of 100 fish per week established as a desirable sample. The wood slat trap caught the greatest number of fish--0.80 fish per day--but this figure is far below the minimum set.

The results indicate that the sampling traps were ineffective for obtaining an adequate sample of commercially reared catfish to determine their growth and general well being. A study of catfish behavior as related to entrapment gear design and fishing methods is needed.

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- <sup>1/</sup>Posey, Lloyd, and Harry Schafer: 1963. Evaluation of Slat Traps as Commercial Fishing Gear in Louisiana.  
<sup>2/</sup>Posey, Lloyd: 1964. Slat Trap Fishing Experiments in Farm Ponds.

