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## RETURN RATES OF STRAP TAGS AND PETERSEN TAGS

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During January, February and March, 1962, a total of 1,593 Florida Large-mouth Bass were tagged in five lakes of central Florida with Monel metal strap tags and Petersen disc type tags.

The strap tags (sizes 3 and 4) were applied to the jaws of 745 bass in the same manner described by DeQuine (1949). Eight hundred and forty-eight red Petersen disc tags were attached by the insertion of a .0359" gauge 3" nickel pin between the first and second spinal rays of the dorsal fin through the fish's back.

High value awards were offered for return of the tags to sport fishermen through a Joseph Schlitz Brewing Company sponsored fishing derby (Cope-land, 1962).

A summary and totals of the numbers and percents of tag returns as of September 14, 1962 occur in Table I.

TABLE I  
COMPARISON OF RETURN RATES OF STRAP AND PETERSEN TAGS FROM  
FLORIDA LARGEMOUTH BASS

Lake	Strap Tagged			Petersen Disc Tagged			Total Tagged		
	No. Tagged	No. Re- turned	% Re- turned	No. Tagged	No. Re- turned	% Re- turned	No. Tagged	No. Re- turned	% Re- turned
Apopka	172	3	1.7	84	4	4.8	256	7	2.7
Dora	150	16	10.7	200	47	23.5	350	63	18.0
Eustis	132	23	17.4	202	23	11.4	334	46	13.8
Griffin	68	5	7.4	164	21	12.8	232	26	11.2
Harris *	223	60	26.9	198	48	24.2	421	108	25.7
TOTAL	745	107	14.4	848	143	16.9	1,593	250	15.7

\* Two recaptured fish without tag numbers were not included in the figures.

The rate of return of the Petersen type tag from Lake Apopka was 4.8%, Lake Dora 23.5%, Lake Eustis 11.4%, Lake Griffin 12.8%, and Lake Harris 24.2%.

Returns of strap tags was 1.7%, 10.7% 17.4% and 26.9% for each of the lakes in the order mentioned.

A summary of all tag returns for the lakes indicated the Petersen tags were returned at a rate of 16.9% whereas the strap tags were returned at a 14.4% rate.

Although variations occurred from lake to lake, it could be concluded that the Petersen type was returned at a slightly greater rate. However, the differ-

ence between returns of the two types was not enough to conclusively consider one greatly superior to the other.

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## TWO DEVICES FOR APPLYING HERBICIDES TO SMALL PONDS

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#### ABSTRACT

Two boat-mounted machines for applying herbicides or other similar materials to small ponds are described.

A dry materials spreader was assembled from three lawn-type fertilizer spreaders. Powered by a small air-cooled gasoline engine the spreader operated effectively to uniformly distribute granular herbicides, lime or similar materials. Distribution of granular material at rates ranging from 100-1,000 lbs. per acre was possible.

A boat-mounted spray rig employing a 15-foot boom eliminated the need for a two-man crew for treating small ponds with liquid materials. The spraying operation could be controlled by the boat operator once the spray tank has been filled and the sprayer was started.

Both of the machines can be assembled from commercially available parts by a good mechanic in a relatively short period of time.

#### INTRODUCTION

Devices employed in applying herbicides to small ponds have been relatively few and simple. Where water or oil carriers were employed the chemical was distributed by dipper, or power sprayer (Surber, 1948). For treatment of hatchery ponds, sprayers used are usually of the agricultural type although in some cases spray rigs have been especially developed for a specific set of conditions.

The increased use of granular or other dry formulations of herbicides has resulted in a need for equipment to apply such material more or less uniformly to the vegetation to be treated. A Gandy fertilizer spreader was employed by Grigsby, Hamilton and Smith (1956) to apply granular 2,4-D. Satisfactory performance of such equipment appears to be limited to ice covered areas or to relatively dry pond bottoms. At Marion, granular herbicides have been applied with a portable, man-powered grass seeder. Distribution of seed or materials is accomplished by means of a spreading device powered by a hand crank. This method of distributing dry herbicides was more applicable to our existing pond conditions but exposed the operator unduly to dust or toxic fumes from the chemicals being spread. Also, uniform coverage of an area was difficult to achieve on windy days.

Two pieces of equipment have been developed at the Marion National Fish Hatchery in recent years to fill the need for equipment to apply liquid and dry herbicides to small ponds. Both are boat mounted, capable of being operated by one man and can be assembled from component parts that are commercially available. A person with some mechanical aptitude, or the average small-town

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