Sport Fishing Survey in 1960 of the Lower Patuxent Estuary and the 1958 Year-Class of Striped Bass

Lloyd W. Shearer, Douglas E. Ritchie, Jr., and Charles M. Frisbie

ABSTRACT

The interview-count creel survey was conducted from July through November in the 12-square mile area around Solomons, Maryland where the Patuxent River joins Chesapeake Bay. Fishermen trolling for striped bass and bluefish and still-fishing for spot, white perch, Atlantic croakers, etc., were interviewed in their skiffs, runabouts, private cruisers, party boats, and on piers.

Two types of total catch estimates, one based on personal interviews (I contacts) and the other on postal card questionnaires (C contacts), were made for the five-month period. A total of 50,300 fish, weighing approximately 26,000 pounds were caught by I parties, which, on the average, fished 2.6 hours until interviewed. Analysis of C contacts which represented completed trips (35.8% of those distributed during the interviews) revealed that 167,000 fish, representing 12 species, and totalling 88,100 pounds, were caught. The average length of a C fishing trip was 5.5 hours.

Spot dominated the catches (80%), followed by striped bass, white perch, Atlantic croakers, bluefish, weakfish, and other species in order of importance.

Estimates from C contacts were higher because they were based on at least double the time fished by I contacts. For example, the I vs. C contact data of fish catch (all species) per angler per trip for the two methods of fishing are as follows: (a) trolling, 1.2 vs. 2.9 fish; and (b) still-fishing, 3.7 vs. 10.6 fish per trip. Comparisons of other estimates revealed further differences. A modified t-test, however, indicated no significant differences between the catch/effort ratios of I and C contacts, hence bias is apparently lacking in the latter group.

Scales from a sample of 286 striped bass taken by anglers revealed that 86 per cent were from age group II, or members of the 1958 year-class. Monthly length and weight data gathered from the apparently dominant 1958 year-class showed no increase in growth from July to November, suggesting that the high population density of two-year-old fish depressed normal increments of growth.

The average fork length of all striped bass in the sample was 13.2 inches, while that for age group II was 12.8. The mean weights for these two groups were: 1.3 and 1.2 pounds, respectively. Stomach contents of fish examined in September and October contained predominantly invertebrate and small fish remains and incidental plant fragments.

Introduction

The objectives of this survey were: (1) to compile data for a comparison of the quality and quantity of sport fishing in the lower Patuxent River with a simultaneous angling survey in the Potomac River estuary; (2) to observe changes and to compare results in 1960 with those made in summer 1952 in the lower Patuxent; (3) to perfect survey techniques for future surveys in the river and elsewhere; (4) to produce basic data for evaluating the magnitude and worth of the recreational fishery with re-

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Table 1.—Summary of general information on sport fishing in the lower Patuxent River, in the vicinity of Solomons, Maryland, based largely on crude estimates and non-scientific survey methods before 1952.

<table>
<thead>
<tr>
<th>Year</th>
<th>Months &amp; Date</th>
<th>Area Square Mi.</th>
<th>Number of Fishermen</th>
<th>Number of Trips</th>
<th>General Remarks on Angling</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932</td>
<td>Aug. 22–29</td>
<td>ca. 12</td>
<td>5,000</td>
<td>606</td>
<td>Location of greatest number of party boats in northern Chesapeake Bay.</td>
<td>Maryland Fishermen (1932:9)</td>
</tr>
<tr>
<td>1937</td>
<td>May- Oct.</td>
<td>ca. 12</td>
<td>40,000</td>
<td>Unknown</td>
<td>200,000 Atlantic croakers and 75,000 sea trout weigh up to 500,000 lbs. taken annually</td>
<td>Truitt and Vladykov (1937:226)</td>
</tr>
<tr>
<td>1938</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>290,000 pounds of fish taken annually</td>
<td>Truitt (1938:15)</td>
</tr>
<tr>
<td>1952</td>
<td>June-Aug.</td>
<td>ca. 40</td>
<td>15,000</td>
<td>4,000</td>
<td>100,000 pounds of fish Estimated period catch at 26,000 pounds (I) or 88,000 pounds (C) of all species</td>
<td>Walker (1954:6)</td>
</tr>
<tr>
<td>1960</td>
<td>Jul.- Nov.</td>
<td>12</td>
<td>18,600</td>
<td>6,300</td>
<td>This study.</td>
<td></td>
</tr>
</tbody>
</table>

spect to commercial netting and the local economy; and (5) specifically, to derive an estimate of the total catch of various species, their number and total weights by month in summer and fall, rates of catch, and other features of the fishery on the river and several piers in the lower Patuxent.

The lower Patuxent estuary and its confluence with Chesapeake Bay has long been an important area for angling and netting. For example, the Solomons region of the Patuxent River headed a list of 14 widely separated areas throughout tidewater Maryland in having the greatest number of party boats working, according to a spot survey made in one week in August 1932 (Maryland Fisheries, 1932:6-7). In the past, several investigators have considered the importance of sport fishing in the lower Patuxent River in the vicinity of Solomons, Maryland (Table 1), but none carried out an elaborate, sustained survey based on representative sampling methods. Most were based on crude estimates or counts of short duration, except for Walker (1954:1-6), who based his estimates on data obtained from (1) census cards made available to fishermen at boat liveries, (2) to several sportmen's clubs throughout the state, and (3) boat counts and interviews made in the area at regular intervals.

The importance of reliable data on the recreational aspects of fishing in Chesapeake Bay and its tributaries has increased in recent years because of legislative, economic, and biological needs. Therefore, there is an urgency for accurate and extensive data on numbers of fishermen, boats, quality and quantity of fish taken, and other aspects of the fishery. Accordingly, this survey was carried out as a partial contribution to the understanding of the baywide sport fishing industry.

Acknowledgments:—This survey was designed and carried out under the direction of Dr. Romeo J. Mansueti, of the Chesapeake Biological Laboratory, and we are grateful for his advice and criticism throughout the survey period. He critically reviewed the manuscript, contributed to the analysis of data, and made many important contributions to it. Dr. Vincent Schultz, of the Atomic Energy Commission, was consulted on various aspects of methodology, and we are indebted to him for his advice and help. Many people at the Chesapeake Biological Laboratory participated in the survey: namely, Dr. F. J. Schwartz, Grover Butz, Gary Gerberg, and Jerry Neff.

Description of the Area

The Patuxent River is a broad and relatively deep estuarine tributary of the Chesapeake Bay.