Pennsylvania Fish & Boat Commission Biologist Report

Raystown Lake

Huntingdon and Bedford Counties

Striped Bass Evaluation

PFBC biologists Geoff Smith and Dave Nihart deploying a gill net in Raystown Lake during an early-spring survey conducted in 2016

Raystown Lake is an 8,300 acre reservoir located in southern Huntingdon and northern Bedford counties in south central Pennsylvania. The 29,314 acre Raystown Lake project area, which includes the reservoir and surrounding land, is owned and managed by the U.S. Army Corps of Engineers, Baltimore District. The dam impounds the Raystown Branch of the Juniata River approximately six river-miles upriver from its confluence with the Juniata River just south from the Borough of Huntingdon. The dam was authorized by Congress under the Flood Control Act of 1962 and construction commenced during fall 1968. Following completion of the dam in fall of 1973, the reservoir reached full pool in 1975. Raystown Lake is the largest impoundment located entirely within the borders of Pennsylvania. For a more comprehensive description of the Raystown Lake project, visit the U.S. Army Corps of Engineers, Baltimore District website.

Raystown Lake, a “two-story reservoir”, supports a diversity of warm-, cool-, and cold-water fisheries and therefore offers a wide range of angling opportunities. The “two-story” reservoir characteristic is a function of reservoir depth that allows cold- and cool- water thermal habitat maintenance throughout all season including summer. Currently, populations of Lake Trout, Striped Bass, Walleye, Muskellunge, and tiger muskellunge are maintained and/ or supplemented through routine stockings of juvenile fish by the Pennsylvania Fish and Boat Commission (PFBC). In addition to PFBC stockings, the Pennsylvania Striped Bass Association and the Keystone Striper Club also stock juvenile Striped Bass in Raystown Lake to bolster populations of that species. Other sportfish populations such as Largemouth Bass, Smallmouth Bass, Black Crappie, White Crappie, Bluegill, Yellow Perch, Brown Bullhead, and Channel Catfish are sustained through natural reproduction. With the exception of all species of trout and Rainbow Smelt which are managed with special regulations, Raystown Lake’s fisheries are managed with Commonwealth Inland Waters angling regulations.

Fisheries Management Division biologists periodically assess the status of the fisheries residing in Raystown Lake to determine relative abundance, size structure, age and growth attributes, among other parameters for fisheries management purposes. During late-March 2016, Fisheries Management Area 7 biologists conducted a gill net survey targeting legal-length (≥ 20 inches) Striped Bass for this purpose.

Fisheries Biologist John Frederick with a nice-sized Striped Bass captured from Raystown Lake during the 2016 early-spring gill net survey

A total of 88 Striped Bass ranging from 18 inches to 38 inches in total length were captured during the survey (Figure 1). The largest Striped Bass captured was approximately 38 inches and weighed slightly over 21 pounds, which is a typical weight for a Striped Bass this long from Raystown Lake (Figure 2). The catch rate of Striped Bass greater than or equal 20 inches and 30 inches in total length was 0.31 fish/net hour and 0.13 fish/net hour, respectively; both the highest gill net catch rates on record dating back to 1983 (Figures 3 and 4).

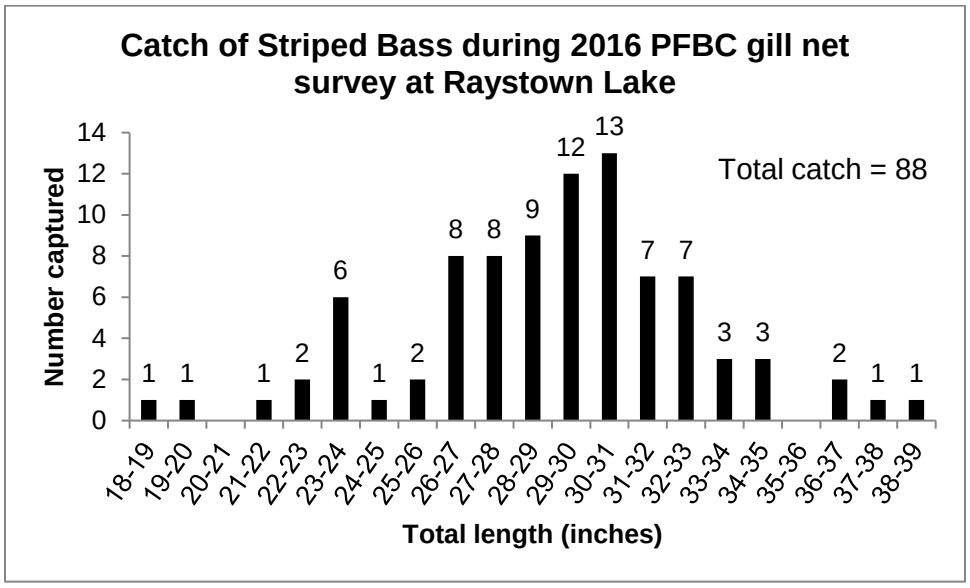

Figure 1. Length-frequency distribution of Striped Bass captured during the 2016 PFBC gill net survey at Raystown Lake.

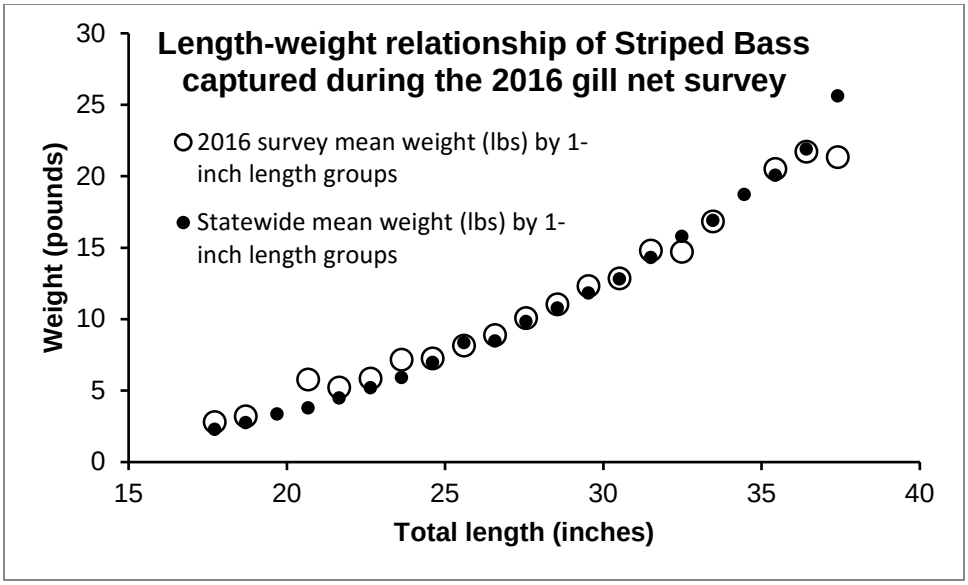

Figure 2. Length-weight relationship of Striped Bass captured during the 2016 PFBC gill net survey at Raystown Lake.

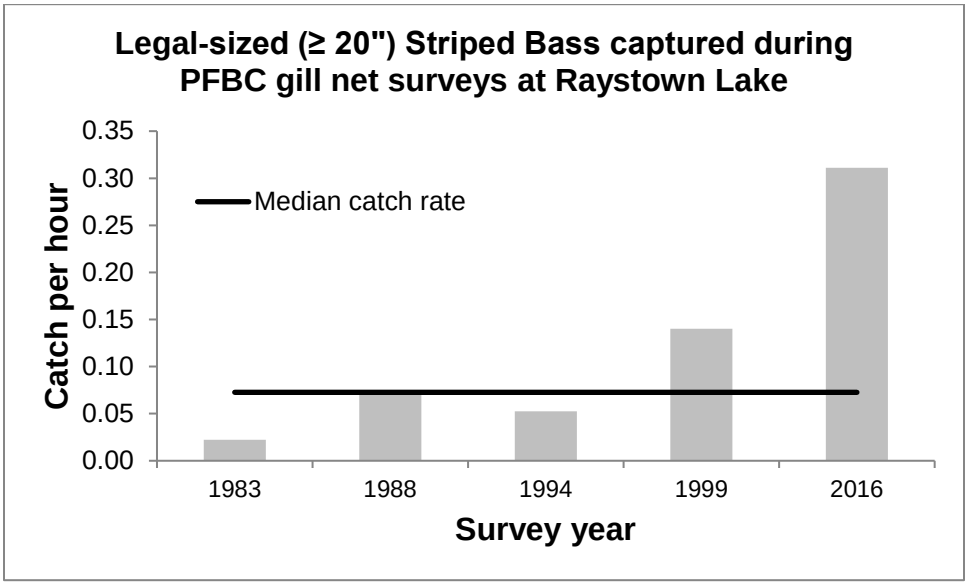

Figure 3. Catch rate of Striped Bass 20 inches and longer captured during gill net surveys conducted at Raystown Lake during the period of record from 1983 to 2016.

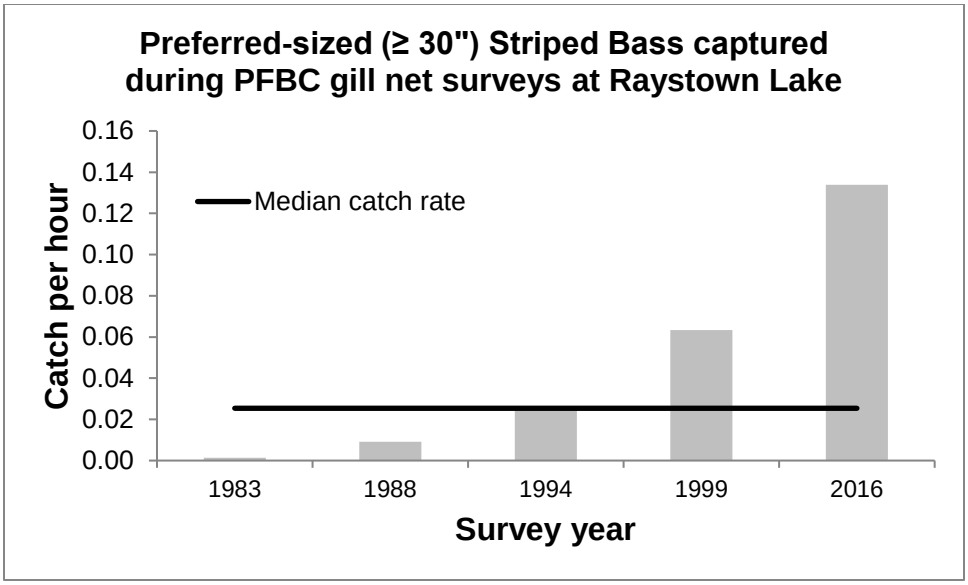

Figure 4. Catch rate of Striped Bass 30 inches and longer captured during gill net surveys conducted at Raystown Lake during the period of record from 1983 to 2016.

The length and weight of Striped Bass captured during the survey can be used to assess the condition of the overall population, a segment of the population, or individual fish. Condition indices, such as Relative Weight, which is a comparison of the weight of fish of a given length in a population to a widely-accepted standard for that species, offer fishery managers a tool to evaluate the effects of various management strategies and, indirectly, ecological interactions in fish populations and communities such as predator-prey interactions. Generally speaking, a Relative Weight around 100 describes a fish in good condition, while a Relative Weight values less than or greater than 100 describe fish characterized by thin or plump condition, respectively. For example, when Relative Weight values are well below 100, problems may exist in food availability or feeding conditions. But, when Relative Weight values are well above 100, fish may not be making the best use of abundant food resources. The average Relative Weight of Striped Bass in Raystown Lake varies through time and by length group based on aquatic community dynamics in the reservoir, and was 101 for legal-length Striped Bass captured in 2016 and 97 for the segment of the population 30 inches and longer (Figure 5). These values provide evidence that this segment of the Raystown Lake Striped Bass population is making good use of available resources and is not currently resource limited.

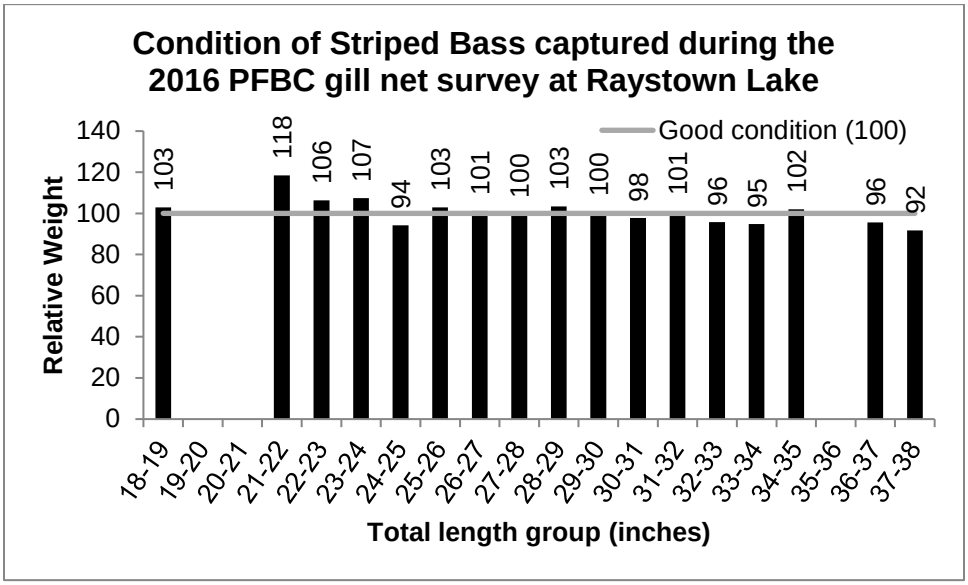

Figure 5. Relative Weight of Striped Bass captured during the 2016 PFBC gill net survey at Raystown Lake.

Age and growth attributes were also determined for Striped Bass captured during the survey using scales and sometimes otoliths, or inner earstones. This information provides valuable insight regarding habitat suitability, food abundance, and the effect of management actions such as harvest regulations on the population. Based on analysis from the 2016 survey, Striped Bass residing in Raystown Lake reach the legal-length of 20 inches in approximately three years and 30 inches in approximately six years. When compared to past surveys, the 2016 Raystown Lake Striped Bass population was growing slightly slower than in the past beyond age-3; however, older fish were captured in 2016 than during previous investigations (Figure 6).

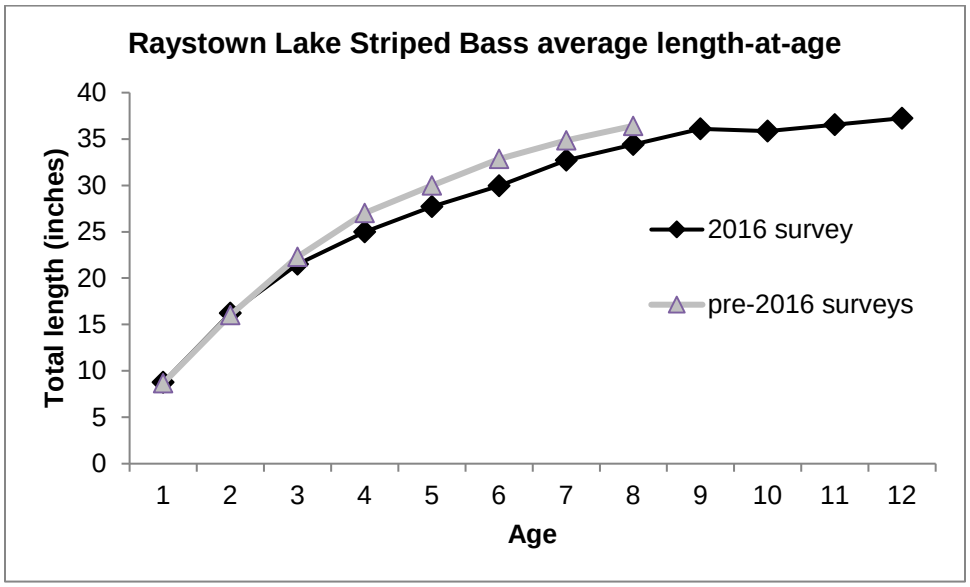

Figure 5. Average back calculated length-at-age of Striped Bass captured during PFBC gill net surveys conducted at Raystown Lake.

Fisheries Biologist Keith Beamer with another excellent Striped Bass captured from Raystown Lake during the 2016 early spring gill net survey

Kris Kuhn, Area 7 Fisheries Manager

John Frederick, Area 7 Fisheries Biologist