



Harrison Lake 2011

Harrison Lake is an 82-acre impoundment located on U.S. Fish and Wildlife Service land in Charles City County. Harrison Lake serves as the main water supply for the Harrison Lake National Fish Hatchery. The lake provides anglers with a peaceful setting to try their luck on a variety of fish species. The lake is a valuable public resource for the Charles City County area. Access to the lake is free with the lake being open during daylight hours only. Facilities include a gravel boat ramp, courtesy pier and a few small fishing piers located from the peninsula adjacent to the dam.

The Virginia Department of Game and Inland Fisheries sampled Harrison Lake on March 30th and May 5th, 2010. The previous DGIF electrofishing survey was conducted on May 16, 2007. A full community sample was conducted to observe the present fishery on May 5th. A predator only sample run was conducted on March 30th. The electrofishing effort of 3,300 seconds (0.92 hours) was used to attain a representative sample of predator species (bass, crappie, chain pickerel and bowfin). Full community collection was done during two 20 minute runs for an effort of 2,400 seconds (0.66 hours). The water temperature was 12.1°C on March 30th and 25.5°C on May 5th. Electrofishing effort consisted of shocking along the shoreline habitat as close as possible, with the majority of the effort concentrated in the 2 to 4 foot depth range. Effort was made to stick to the bank and shoreline brush as close as possible. The sample revealed a diverse assemblage with 15 species collected. The most abundant species were the bluegill, redear sunfish, largemouth bass, creek chubsucker, black crappie and warmouth.

Species	# Collected	Largest Length	Average Length
Largemouth Bass	52	21.4"	10.2"
Bluegill	226	7.4"	2.8"
Black Crappie	24	12.3"	7.9"
Redear Sunfish	79	10.3"	6.3"
Chain Pickerel	10	15.7"	12.3"
Bowfin	3	21.6"	18.8"
Warmouth	14	8.6"	6.2"

Table 1. Summary of the primary fish species collected by electrofishing of Harrison Lake, March 30th and May 5th, 2010.

Largemouth Bass

Harrison Lake provides a fair to decent bass fishery. A total of 52 largemouth bass were collected for a CPUE (Catch Per Unit of Effort) of 56.7 f/hr. This catch rate showed an increase when compared to the 2007 survey (CPUE: 39 f/hr). This catch rate is below the rate of most impoundments within the region. The size distributions of the collected

bass can be seen on the enclosed length frequency graph. The majority of the bass sample consisted of bass in the 8 to 14 inch range. The high proportion of bass in this size range shows what the average fisherman will most likely be catching. The assemblage of older bass (15 to 21 inch range) most likely represents a combination of a few year-classes. The sample showed some fair recruitment from the 2009 year class with a total of 13 bass in the 3 – 5 inch range. The average sized bass measured 10.2 inches. Our sampling efforts are just a representative picture of the fish community collected along the shoreline on the sample days. There may be larger bass that eluded the shocking boat by hanging in deeper water or escaping from the electric field.

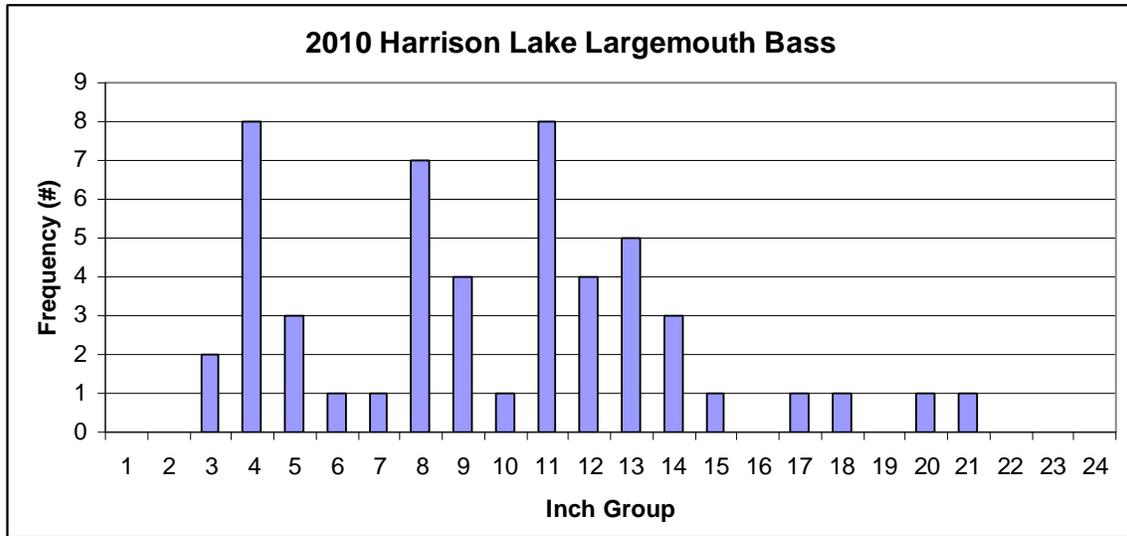


Figure 1. Length frequency of largemouth bass collected from the electrofishing of Harrison Lake, March 30th and May 5th, 2010 (N: 52, CPUE: 56.7/hr)

With largemouth bass being the most popular game fish in this country, it has been considered that a “preferred” bass is one that is over 15 inches in length. It is through this size classification that population dynamics are analyzed. The PSD (Proportional Stock Density) is the proportion of stock-sized bass (8 inches or larger) that are also equal to or greater than 12 inches (quality size). The sample showed a PSD value of 53, which is a direct reflection of the 20 quality-sized bass. A total of 38 were of stock size or larger. A balanced bass/bluegill fishery has a bass PSD value within the 40 – 70 range. The PSD value is similar to the 2007 survey (PSD: 55). The RSD-P (Relative Stock Density of Preferred bass) is the proportion of bass of stock-sized bass that are also equal to or greater than 15 inches in length. The RSD-P value of 13 is a direct reflection of the collection of only 5 preferred-sized bass. The RSD-P value is well below that encountered during the 2007 survey (RSD-P: 32).

Weights were taken on largemouth bass to calculate relative weight values. Relative weight values are an indication of body condition. A value from 95 to 100 represents a fish that is in the healthy range and finding a decent amount of food. A higher relative weight value indicates fish with a better body condition. The relative weight values for stock, quality, preferred and memorable-sized bass (>8”, >12”, >15” and >20”) were 91, 90, 95 and 103 respectively. These values when compared to 2007, showed a slight decline for stock (Wr: 93) and quality (Wr: 92) fish. The relative weight value for preferred-size fish

was identical at 95. The two memorable bass from the 2010 survey showed an improvement from 2007 (Wr: 96). The bass less than 15 inches in length are experiencing some difficulties in finding enough prey items to forage upon. The largest bass measured 21.4 inches and weighed 5.7 pounds.

Bluegills

Harrison Lake has a bluegill fishery that is dominated by fish less than 5 inches in length. Our electrofishing effort collected 226 bluegills for a CPUE of 339 f/hr. This CPUE showed a very slight decline from the 2007 survey (CPUE: 346 f/hr). Bluegills ranged in size from 1 to 7 inches. The majority of the bluegills were juvenile fish in the 1 to 3 inch range. The PSD for bluegill is the proportion of bluegill over 8 cm (stock size) that are also at least 15 cm (quality size). The bluegill PSD of 18 is a reflection of the 14 quality-sized bluegills greater than 5.9 inches. A total of 76 stock-sized bluegills were collected. The 2007 survey revealed a more impressive bluegill PSD value of 32. The 2010 PSD value is just below the optimal PSD range of 20 to 40 that would represent a balanced fishery. The presence of gizzard shad within Harrison Lake and the limited nutrients of the watershed may both have a factor in the low abundance of larger bluegills.

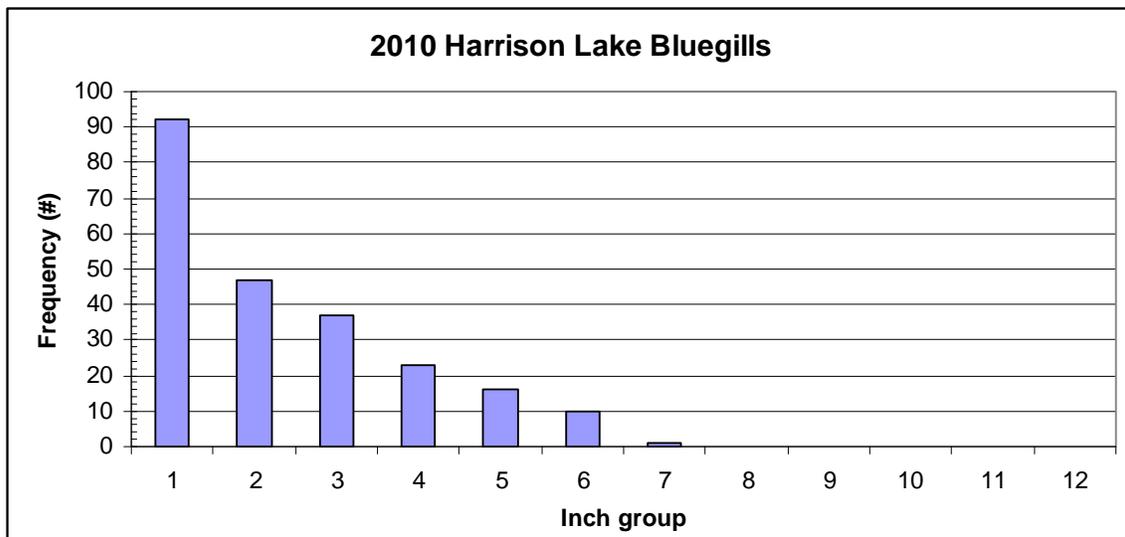


Figure 2. Length frequency of bluegills collected from the electrofishing of Harrison Lake, May 5th, 2010 (N: 226, CPUE: 339/hr)

Black Crappies

The sample provided a limited number of black crappies. A total of 24 crappies were collected (CPUE: 26.2 f/hr). This catch rate showed some improvement from 2007 (CPUE: 14 f/hr). Black crappies tend to school in deeper water more than largemouth bass and bluegill. This makes it difficult to draw too many conclusions on the strength of the crappie population. If the population was really abundant, we most likely would have collected more crappies along the deeper edges of the shoreline cover. The black crappies ranged in size from 4 to 12 inches with the majority in the 5 to 9 inch range. The average

size for crappie measured in at 7.92 inches. The relative weight values for the black crappies showed some improvement from the 2007 survey. The relative weight values for stock (93), quality (88) and preferred (89) showed some improvement from the 2007 survey (Stock: 86, quality: 86 and preferred: 80). All values were below the desired range of 95-100, but not many waters have crappies within that relative weight range.

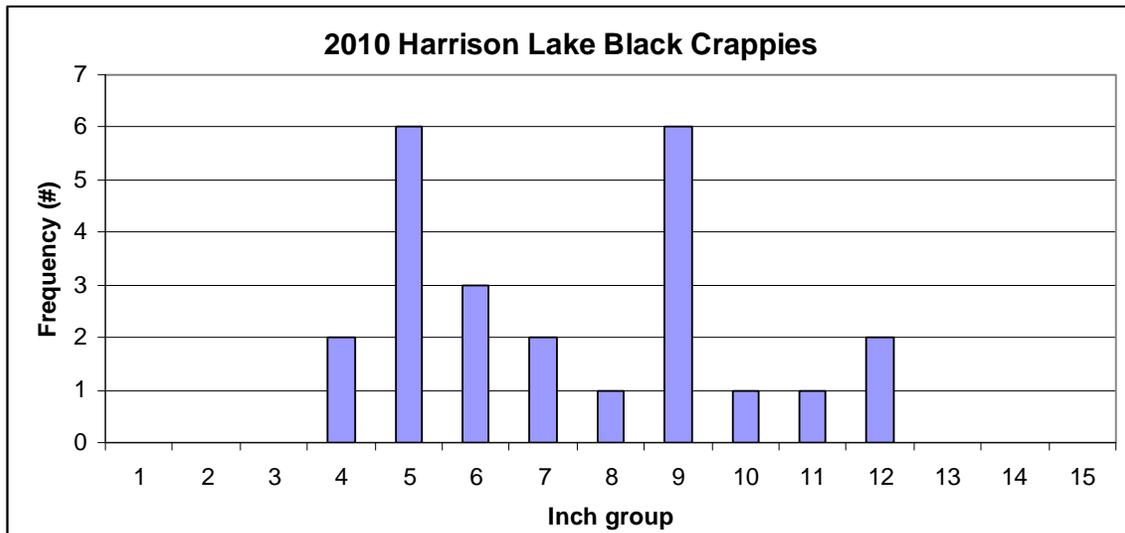


Figure 3. Length frequency of black crappies collected from the electrofishing of Harrison Lake, March 30th and May 5th, 2010 (N: 24, CPUE: 26.2/hr)

Redear Sunfish

The sample revealed a decent population of redear sunfish. A total of 79 redear sunfish were collected for a CPUE of 118.5 f/hr. This catch rate showed a major improvement from the 2007 survey (CPUE: 62 f/hr). The redear sunfish ranged in size from 1 to 10 inches with a large percentage of the sample in the 5 to 8 inch range. The upper flats of the lake are productive areas for redear sunfish. The largest redear sunfish measured 10.3 inches with the average size at 6.3 inches. Young anglers may have better success in catching decent redear sunfish in the 8 to 9 inch range when compared to the limited number of larger bluegills that are present.

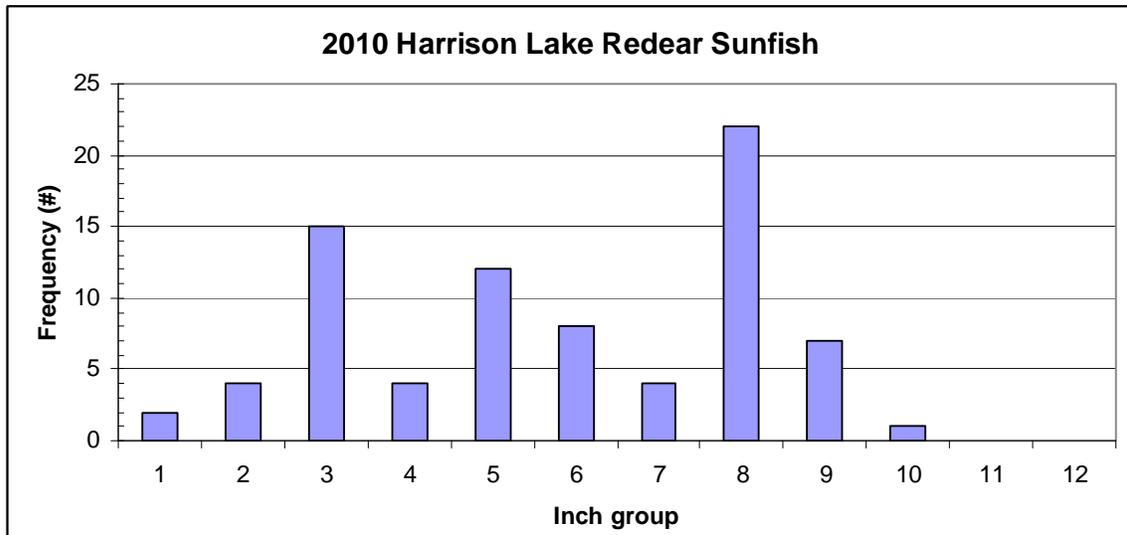


Figure 4. Length frequency of redear sunfish collected from the electrofishing of Harrison Lake, May 5th, 2010 (N: 79, CPUE: 118.5/hr)

Chain Pickerel

The sample revealed a limited number of chain pickerel with only 10 collected. The catch rate of 10.9 f/hr showed a decline from the 2007 survey (CPUE: 22/hr). The 2010 survey collected pickerel in the 7 to 15 inch range. Anglers have been able to catch a few larger chain pickerel from the lake over the last few years. The chance is always present to catch a larger pickerel, but anglers should not expect to catch too many large pickerel from the lake.

Bowfin

Harrison Lake provides some angling opportunities for bowfin. The surveys were only able to collect three bowfins (CPUE: 3.3 f/hr). The 2007 sample was more successful with collection of 14 bowfins (CPUE: 14/hr). The bowfins measured 15.4, 19.4 and 21.6 inches in length. The bowfins will provide some excitement for anglers that are trying to catch bass and chain pickerel. One angler was able to catch a 31" citation-sized bowfin during 2010.

Additional Species

Harrison Lake has more diversity in the form of 9 additional species. These species collected in limited abundance were brown bullhead (2), American eel (5), creek chubsucker (38), flier (3), gizzard shad (4), golden shiner (6), bluespotted sunfish (8), mud sunfish (1) and warmouth (14). The juvenile creek chubsuckers will provide additional forage for the predator species. The warmouth, with the majority in the 6 to 8 inch range, can provide some excitement for panfish anglers.

Sample Summary

The electrofishing sample of Harrison Lake showed a diverse fishery consisting of 15 fish species. The largemouth bass population appears to be reasonably balanced even

though a limited number of bass were collected. The length distribution graph easily shows the presence of various year classes. Due to the abundance of juvenile-sized bass, average-sized bass measured 10.2 inches in length. The largest bass measured at 21.4 inches and weighed 5.7 pounds. I would recommend that anglers release as many largemouth bass as possible to protect the current population.

The bluegill population appeared to be rather close to the 2007 survey with a CPUE of 339 f/hr. The majority of the bluegills were less than 5 inches in length. Only 14 quality-sized bluegills were collected. The survey revealed a limited number of black crappies with only 24 collected. The redear sunfish population appears to be in good shape with a high percentage of fish in the 8 to 9 inch range. The survey did not yield much insight into the chain pickerel population with only 10 fish collected. The pickerel population appears to be dominated by fish less than 15 inches in length. The survey was not very successful in finding the bowfin population as only 3 bowfins were collected. Harrison Lake offers a wide variety of fish species for anglers to target. Anglers might want to keep an open mind and try fishing for these species with smaller lures or baits that would create strikes from crappies, warmouth and redear sunfish. The chance to catch larger fish in the form of bowfin and bass is available for anglers using larger lures and baits.

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