THE WHITE STURGEON - A CASE FOR REGULATION

by

Vick Applegate
1970-?

ABSTRACT- Does Montana need to set fishing regulations on the white sturgeon? Canada and all other states (except Montana) which have white sturgeon populations regulate the size of catches of the fish. Montana currently has no fishing regulations governing the fish. Increasing fishing pressure and the high percetage of immature fish caught by fishermen points towards the need for regulations. The potential loss of the sturgeons' habitat quality through envirnmental degradation from the Libby Dam project also point towards the need for study. The old standard of 36 inches minimum length limit set by other states does not take full advantage of the growth characteristics of the fish. A length limit of greater than 40 inches should be the first regulatory step.

The white sturgeon (Acipenser transmontanus) is the largest freshwater fish in North America. Its range extends from Alaska to California. A short section of the Kootenai River below Kootenai Falls provides the only white sturgeon population in Montana. An increasing interest in sport fishing for the fish is creating the need for the Montana Fish and Game Department to set fishing regulations on this unique species of fish.

The sturgeon is a prehistoric fish whose fossil forms date back as many as 200 million years ago(2). The white sturgeon is a river fish somewhat anadromous to wandering in nature. The wandering nature has probably contributed to the species' survival over the long time period(3).

The sturgeon's skin is rough and it has five rows of cartilage plates on its back, sides, and underside. The only internal structure is a cartilage spinal column. A hard snout supports four sensitive barbels for locating food. Behind these barbels is a toothless, sucker-type mouth which can be raised or lowered as the fish consumes food. The mouth operates much like a vacuum cleaner as the fish picks up almost anything edible from the bottom of rivers. The elongated snout, single dorsal fin, and tail with a longer upper lobe than lower gives this fish a very shark-like appearance.

Early fishing for sturgeon was on a commercial basis. So many were taken that California closed all fishing for the fish at the turn of the century and did not reopen it until the mid 50's. Canada, Idaho, Oregon, and Washington began to limit the number and size of the fish that could be taken because of the great depletion of the species. Montana cur-

rently lists the white sturgeon as a non-game fish being the only state having the fish with no regulations on them. The other states imposed their limits to protect the species by relating the limits to the growth characteristics of the fish.

Sturgeon begin their life by hatching from eggs which are probably laid in May or June. The eggs hatch in one or two weeks depending on the water temperature(2). The half-inch larvae first feeds from a yolk and then consumes microscopic food. Growth is rapid, and after the first year the fish reaches approximately eight inches in length. Growth continues to be rapid until the fish are about four years old. Then they began to grow at a much slower and uniform rate of about 2.1 to 2.6 inches per year(4).

Studies by the California Fish and Game Department(6) show that the fish reach 40 inches in eight years, 50 inches in 13 years, and 94 inches in their 30th year. This means the 14 to 16 footers caught by early commercial fishermen were about 60 to 75 years old(2).

Sturgeon reach maturity at greatly varing ages. Most authorities list 11 to 18 years as an average maturing age range, although younger mature fish have been found on occasion(9). After the initial maturing age is reached the fish will spawn at intervals from every four to nine years. Increase in the size of the fish also greatly increases the number of eggs laid, and as much as 20 percent of a female's weight may be eggs(2).

Regulating Fish and Game Departments (other than Montana) have all set 36 inches as the minimum legal length of sturgeon which can be kept by fishermen. This is to pro-

tect the younger fish in their rapid growth period. It possibly might insure that they had reached maturity before they were removed from the fishery(6). However, the more recent information gathered by Larkin(4) on the varying spawning ages of the fish tend to disprove this last reason for the 36 inch limit.

A few departments also have a 72-inch limit. Fish over 72 inches in length in these states also have to be returned to the river. This protects the older mature spawners that lay a great number of eggs, insuring the perpetuation of the species.

Three Fish and Game Departments regulate fishing in the Kootenai River. Canada and Idaho both regulate their sturgeon populations on the Kootenai. Canadian regulations state: " sturgeon shall be at least 36 inches in length and only one sturgeon may be taken or had in possession in any year"(1). Idaho regulations state: " one fish per day or in possession but not more than two fish per calendar year. Minimum total length shall be 36 inches; maximum total length limit shall be 72 inches"(5). Montana currently has no regulations governing limits or numbers of fish that can be kept. Set line fishing for the fish is legal in all three jurisdictions.

The first step to establish some regulations has been started now in Montana with the passage of Senate Bill 230. This bill ammends section 26-201 R.C.M. 1947 to provide for the species to be listed as a game fish. Now the regulating department can set regulations on the fish. The next questions is what regulations are needed.

I have caught sturgeon from the Kootenai River in Montana and have kept catch data records since June 1968. (Fig.1) I recorded a total of 30 fish caught with five kept and 25 released. The fish released ranged in length from 19 inches to 72 inches. I also tagged nine of the fish released, but to date no recatches have been made.

Sixty-six percent of the fish caught over this period were under the 36-inch limit set by the other Fish and Game Departments. This tends to indicate that the majority of fish taken by fishermen of this area may be the smaller fish. Reports from other fishermen of the area also indicate this.

Should the minimum length limit be set at 36 inches? Yes in part, however even a higher length limit should be considered. Figure two shows the weight-per-length relationship derived from my recorded catch data. This curve closely corresponds to other studies by the Californai Fish and Game Department. (The only difference is that the weights I have recorded are slightly less per length.) This may be characteristic of the Kootenai River fish or may also be attributed to the limited number of fish that I have sampled.

The curve (Fig.2) shows a very rapid increase in the weight-per-length ratio after the fish attain a length above 40 to 45 inches. Pycha(6) states that the 43 inch fish average 12 to 20 pounds, and the 53 inch fish average 35 to 50 pounds. My data is closely the same, with the 43 inch fish weighing 14 pounds, and the 53 inch fish weighing 32 pounds. Figure two shows the change in weight at the yellow arrow.

STURGEON CATCH DATA

(JUNE 6, 1968 - JULY 15, 1970)

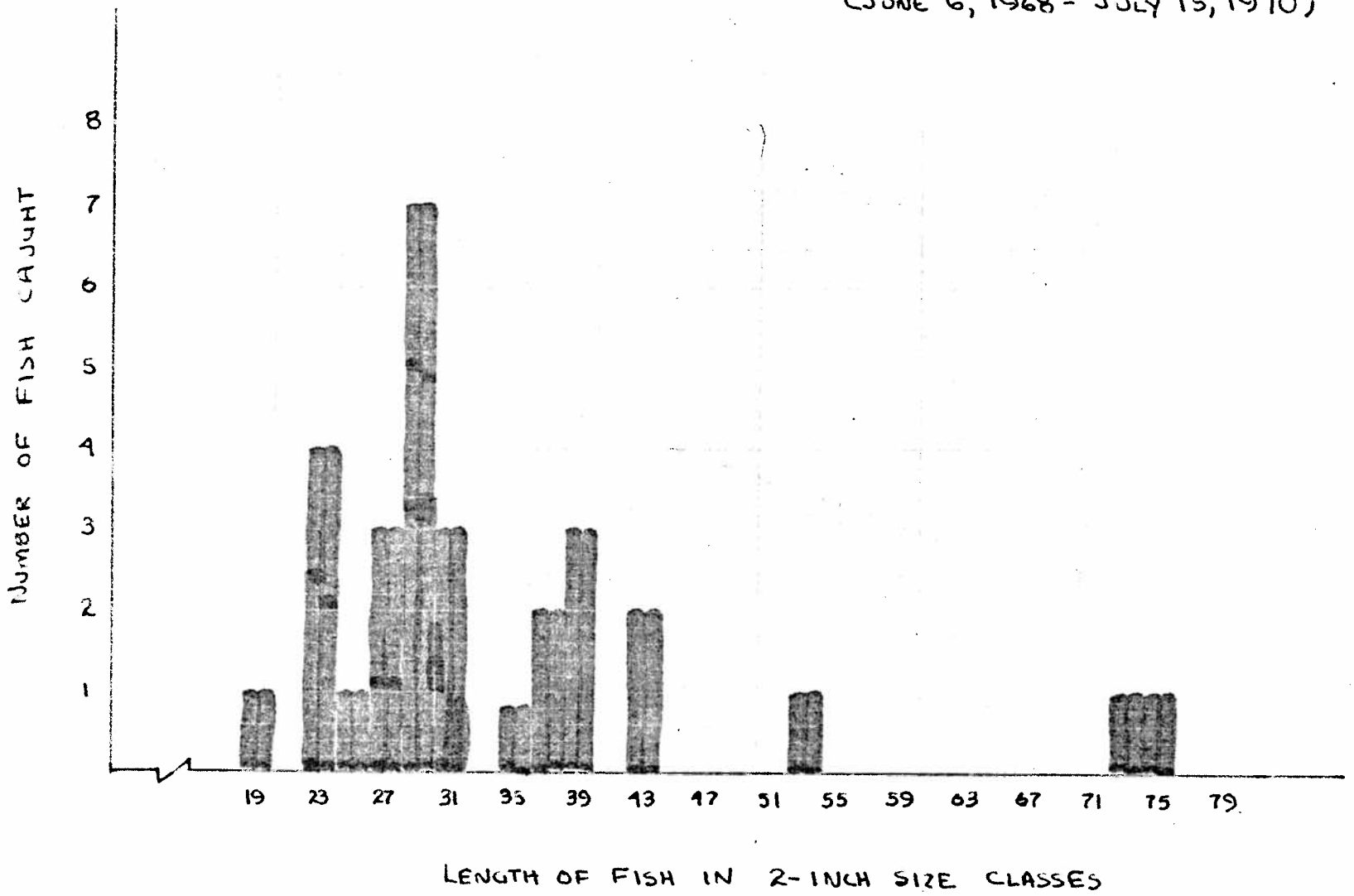

FIGURE 1

STURGEON WEIGHT DATA

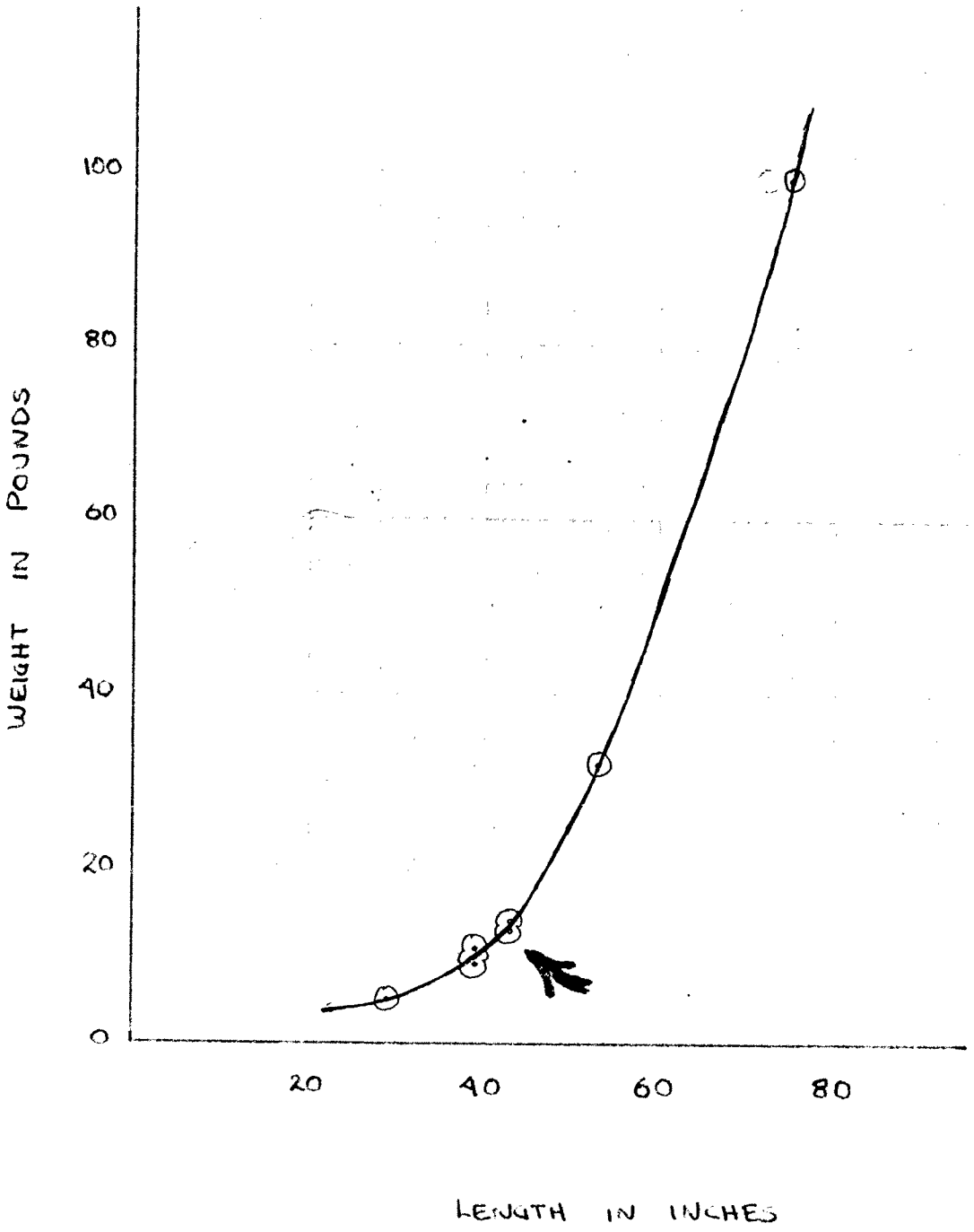

FIGURE 2

Increased growth of 10 to 17 inches, then, can really increase the weight return for the fisherman. The increase in size provides a greater sporting fish and greater meat volume. Allowing the fish to attain a larger size before being caught would also increase the chance that the fish would reach maturity.

I feel from these considerations that Montana should set a minimum length limit above the old standard of 36 inches. I would also recommend the length be set at around 45 inches by all involved agencies in order to take full advantage in weight addition and maturing potential. This will require information and cooperation exchange with all involved agencies.

Montana should also take the initiative to curb set line fishing for the white sturgeon. Set line fishing is really no sport, and the sturgeon is the most powerful sport fish in Montana. Just ask Herb Stout of Libby. He caught a 100-pound sturgeon from Montana waters in 1968. This fish caught on sporting tackle is probably a record for the state. Using light spinning tackle with 25-pound test line, Herb fought the fish for about one hour before landing it. Rewarding? Tremendously!

A complete story can not be stated with only the foregoing information. Much more information must be aquired on the fish. Further study can be the only way to obtain such needed information as population size, and the effects man is having on the sturgeons' habitat through construction of hydroelectric dams.

Hydroelectric dams have greatly reduced the habitat for the white sturgeon- so much so that sturgeon caught in the Snake River of Idaho can not be taken from the water and must be released immediately(5). These dams make lakes of needed river habitat. The rise and fall of the water level below a dam can be just as destructive as the loss of river habitat, and can leave eggs and food supplies high and dry. The Kootenai River sturgeon is now locked behind the upper dams on the Columbia River and the fish must rely solely on the habitat quality on the short section of the Kootenai for their existence.

The giant Libby Dam now under construction may have a great influence on the habitat for the white sturgeon. The fish do not live now in the water that will soon be back-water from the dam, but they do live below the construction site of the dam. A regulating dam below the main dam will control the flow of water from the main dam. This is to prevent surges of several feet of water from going uncontrolled downstream.. This may not correct all of the problem however. Colonel Howard Sargent of the Army Corps of Engineers recently stated in a Western News article(8) that the maximum fluctuation below the regulating dam would not be greater than one foot per hour in summer and two feet per hour in the winter. This however may still be enough fluctuation to upset smaller organisms that may be linked to the sturgeons' food chain. Change in water temperature is also a grave consideration.

Regulations are needed now to help protect the white sturgeon of Montana. The first step needed is to set a minimum length limit at least corresponding to the other Fish and Game Departments. Basic information on population size and structure, along with the life habits, must be obtained through study and cooperation with the other regulating Fish and Game Departments. The future of the white sturgeon may depend on the actions of man. Let us hope he uses wisdom to study and determine how man can use the water resource without losing the white sturgeon.

LITERATURE CITED

1. Andrusak, Harvey. 1971. Sturgeon fishing- Kootenai River Region. February 3.

2. Edson, Marshall. 1956. The sturgeon story. (Idaho Fish and Game reprint) Boise, Idaho.

3. Idaho Wildlife Review. 1951. 3:7

4. Larkin, P.A. and S.N. Semakula. 1969. Journal of the Fisheries Research Board of Canada. 25(12)2589-2602.

5. Morache, Martel, Supervisor Conservation Education. Idaho Fish and Game Department. (personal communication)

6. Pycha, Richard L. Progress report on the White sturgeon. California Fish and Game. 42(1)23-39

7. Seymour, Gearge. 1968. Sturgeon. Outdoor California. March- April. (Washington Fish and Game reprint)

8. Verdon, Paul. 1971. Public approves rereg dam. The Western News. 70(45)20. Libby, Montana.

9. Wendler, H.O. 1959. Review of the Columbia River White Sturgeon. (copy through the Washington Fish and Game Department) Sept. 19.