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A BRIEF STUDY OF THE LEVISA FORK AND
RUSSELL FORK OF THE BIG SANDY RIVER

by

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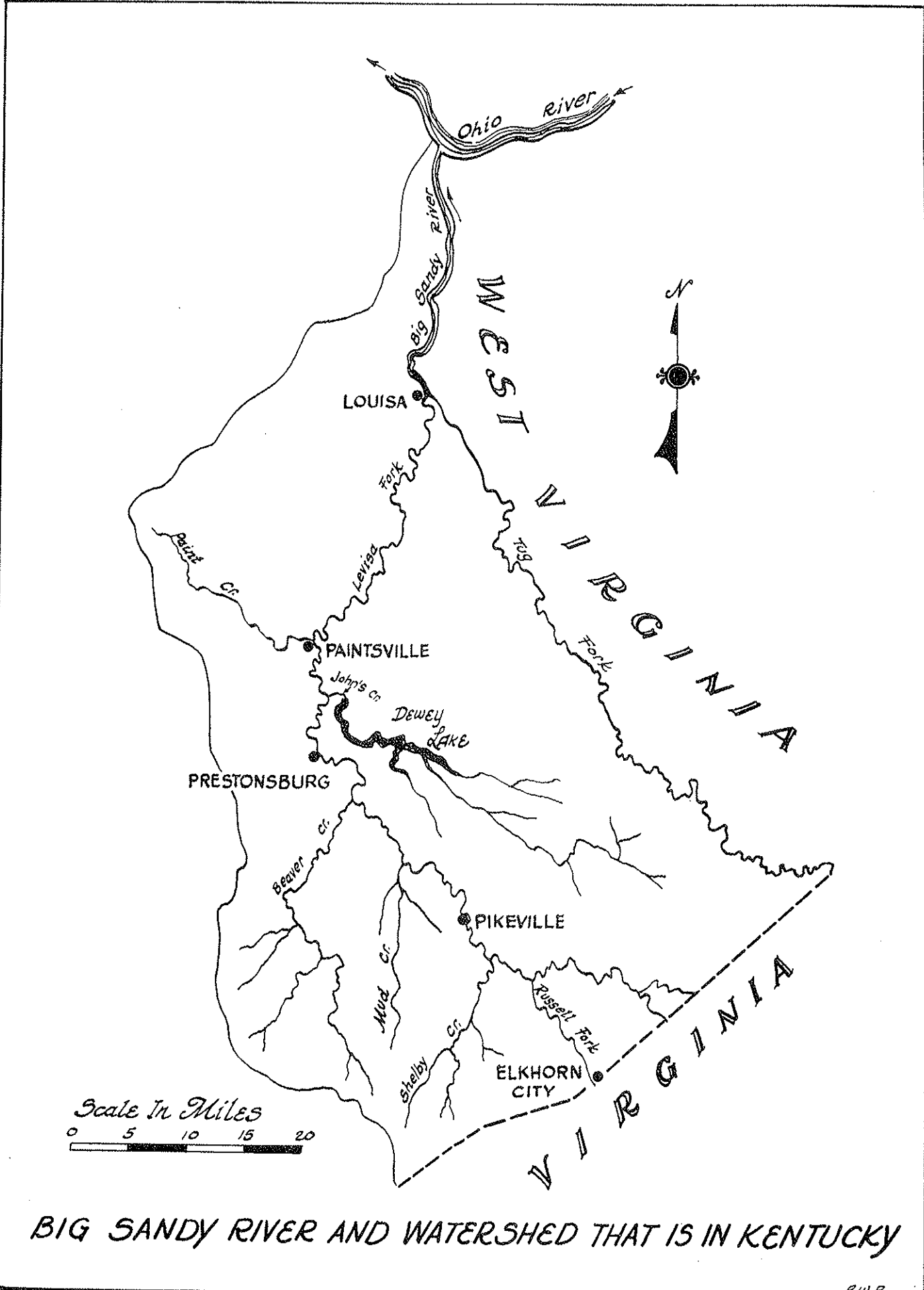
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INTRODUCTION

The Levisa Fork of the Big Sandy River arises in Buchanan County, Virginia, and flows northwestward through Pike County, Floyd County, Johnson County and into Lawrence County, Kentucky, where the direction of flow becomes northward. The confluence of the Levisa Fork and Tug Fork at Louisa, Kentucky, forms the Big Sandy River which flows into the Ohio River at Catlettsburg, Kentucky. The Big Sandy River drains parts of Kentucky, West Virginia and Virginia. The basin covers an area of 4,281 square miles, of which 2,280 square miles are in Kentucky.

Levisa Fork was chosen for study because of its importance as a fishing stream. Numerous centers of population are located along this stream. According to the 1952 edition of the Rand McNally Reference Map, populations of the major centers were; Paintsville in Johnson County with a population of 4309, Prestonsburg in Floyd County with 3585 population, Pikeville in Pike County with 5154 population, and Elkhorn City, located on Russell Fork in Pike County, with 1349 population.

The major tributaries of the Levisa Fork are: Paint Creek arising in Morgan and Magoffin Counties, Kentucky and entering Levisa Fork at Paintsville; John's Creek, on which Dewey Lake was formed, arises in Pike County and enters Levisa Fork near Prestonsburg; Beaver Creek begins in Knott County, Kentucky and enters Levisa Fork near Martin, Kentucky; Mud Creek is located entirely in Floyd County; Shelby Creek is located in Pike County; Russell Fork, which is reported on in this study, starts in Virginia and flows northwestward to its confluence with Levisa Fork at Millard, Kentucky.



BIG SANDY RIVER AND WATERSHED THAT IS IN KENTUCKY

The principal industry of this area is coal mining. There are numerous natural gas wells and in the mountainous upper areas, which are forested, there is a small lumber industry. Cultivated crops are grown along the bottoms and rolling hills of the lower areas of the stream.

PHYSICAL AND CHEMICAL CHARACTERISTICS

Levisa Fork has a watershed of 2,143 sq. mi. above Paintsville, 1,237 sq. mi. above Pikeville and 386 sq. mi. above Fishtrap, Kentucky. The latter is located upstream from Millard, Kentucky. These three sites are referred to because they were used in a report by the Agricultural and Industrial Development Board of Kentucky (1955) and a bulletin by the U. S. Geological Survey (1956) which supplied the above information and general chemistry of the stream.

The section of the stream that was used in this study was Levisa Fork from Prestonsburg, Kentucky, to the Virginia border, a distance of 73.5 miles and Russell Fork from Millard, Kentucky, to Virginia, a distance of 16.8 miles.

Table I gives the general morphometry of the stream.

Lamar, Krieger and Collier (1955) reported that between October, 1949 and March, 1953, at Paintsville, the pH ranged from 6.3 to 8.3. The average dissolved solids was 143 ppm and the maximum was 367 ppm. Hardness ranged between 40 ppm and 155 ppm with an average of 72 ppm. There was an average sulfate of about 60 ppm with a minimum of 30 ppm and a maximum of 135 ppm. The specific conductance ranged from 79.9 micromhos to a high of 768 micromhos, averaging 231. Water temperature ranged from the freezing point to 89° Fahrenheit.

The average water discharge for Levisa Fork at Paintsville for 24 years, 1929-53 was 2,287 cfs. The average for 1952 was 3,183 cfs.

Table I. Brief Physiography Of The Big Sandy River

Location	Elevation ft. above sea level	Distance Mi.	Gradient ft./mi.	Approximate Avg. Width - Ft.
Prestonsburg	607.0			100
		31.5	0.92	90
Pikeville	336.0			85
		12.5	1.58	80
Millard	655.7			70
		29.5	6.42	
Va. Line	845.0		10.90	60
*Millard	655.7			70
		13.5	7.73	
*Elkhorn City	760.0			50
		3.3	18.18	
*Va. Line	820.0		18.80	40

* indicates locations on Russell Fork

Table I gives the elevation above sea level and approximate width of the stream for each listed location. Shown also is the distance between locations and the gradient between locations and at the Virginia line.

Between October 22, 1952 and April 8, 1955 the daily suspended-sediment load ranged between 1 ton and 34,800 tons. The maximum daily mean concentration, 960 ppm, occurred on December 12, 1952. The average particle-size distribution (American Geophysical Union Classification) analyzed from 9 samples was 4% sand, 46% silt and 50% clay.

Clark (1937) reported that sewage, oil, mine water, sawdust and silt were the principal pollutants of Russell and Levisa Forks. He also stated that the lumber industry had removed most of the virgin timber from the watershed.

PROCEDURE

In order to expedite field work a cursory visual survey of the stream was made on April 25, 1956 with the aid of conservation officers from Floyd and Pike Counties. Five study sites were selected. In October when the studies reported herein were made, the following conditions prevailed:

Area A. Levisa Fork 4 miles upstream from Prestonsburg in Floyd County.

Width - - - - 100 feet
Depth - - - - 2 to 8 feet, average 5 feet
Bottom - - - Silt, sand, gravel and some large boulders
Bank - - - - Hardwood trees, mostly willows
Water - - - - Dark color from coal, oil on surface
Temperature - 65.2° Fahrenheit

Area B. Levisa Fork 5 miles upstream from Allen in Floyd Co.

Width - - - - 90 feet
Depth - - - - 1 to 3 feet, average 2 feet
Bottom - - - Sandy, gravel to boulders
Bank - - - - Hardwood trees, mostly willows
Water - - - - Surface covered with oil
Temperature - 65.2° Fahrenheit

Area C. Confluence of Russell Fork and Levisa Fork in Pike Co.

Width - - - - 70 feet
Depth - - - - 1 to 6 feet, average 3 feet
Bottom - - - gravel to boulders
Bank - - - - Hardwood trees
Water - - - - Clear
Temperature - 63.5° Fahrenheit

Area D. Levisa Fork 1 mile downstream from Virginia in Pike Co.

Width - - - - 60 feet
Depth - - - - 1 to 5 feet, average 2.5 feet
Bottom - - - Boulders, some gravel
Bank - - - - Hardwood trees and large boulders
Water - - - - Black from coal washing operations
Temperature - 64.4° Fahrenheit

Area E. Russell Fork at "east end bridge" of Elkhorn City in Pike Co.

Width - - - - 70 feet
Depth - - - - 1 to 10 feet, average 5 feet
Bottom - - - Boulders
Bank - - - - Hardwood trees and large boulders
Water - - - - Clear
Temperature - 60.5° Fahrenheit

On April 25, 1956 when the sites were selected the stream flow was greater than in October and pollution was much more pronounced. Levisa Fork and Russell Fork were black throughout the extent of the study area. Residue from coal washing operations was escaping into Levisa Fork from 7 mines in Kentucky; 3 of these mines were polluting the Russell Fork. An unknown number of mines were polluting both streams in Virginia.

On October 23, 24 and 25, 1956, an electric shocker was employed to make fish collections.

The first day of seining Areas A and B were sampled by a field crew of seven who were able to adequately recover most of the shocked fish. On the second day Areas C and D were seined without one member of the crew who had returned to Frankfort. It is believed that the project leader was able to capture representatives of all species that were shocked. The remaining men were able to capture representatives of the larger fish only. Area E was worked on the third day after two other members of the crew had returned to Frankfort taking part of the equipment which included a boat and motor. This area was very hard to work because of the deep water and small crew; however, after about three hours it was decided that the sampling was adequate.

On January 10, 11 and 12, 1957, the stream was visited a third time to observe the pollution in mid-winter. There was enough rain prior to this visit to raise the stream level to about 10 feet above the October level.

On January 10 Levisa Fork was dark with coal, and oil was noticeable on the surface between Prestonsburg and Pikeville. However, no source of the oil pollution could be located.

On January 11, one mine in Kentucky was polluting Levisa Fork with black water from a coal washer. The same was true of 3 mines in Virginia and 2 of the 3

were also piling slack into the stream. The water was black above the 3 mines which indicated that one or more other mines were polluting further upstream in Virginia.

The water was black in Russell Fork on January 11 as it entered Kentucky from Virginia. Three mines in Kentucky were polluting Russell Fork with black water from coal washers. The polluted water from Russell Fork was adding to the pollution in Levisa Fork.

An owner and operator of a sand dredge was contacted in Floyd County on January 12, 1956. He was dredging Levisa Fork to a depth of 12 feet and he reported that about 1/3 of the bottom to this depth was usable sand. The other 2/3 was composed of about 50% coal and 50% rock and debris. The upper 4 feet of the stream bottom was said to be mostly coal.

SPECIES HARVESTED

Table II lists the fish that were captured during this study. Fish in families Petromyzontidae, Cyprinidae and Percidae were identified or the identification was verified by Dr. W. M. Clay of the University of Louisville. Two fish were identified as Notropis, but the specific names were undetermined because of the small sizes of the specimens.

Clark (1937) made an extensive study of Levisa Fork and Russell Fork. Species that were collected in this study but were not listed as being collected in the 1937 study are; northern brook lamprey, American brook lamprey, mountain madtom, shorthead redhorse, spotted chub, river chub, spotfin shiner, Kentucky bass, white crappie, gilt darter and sculpin.

The species listed by Clark as occurring in Levisa Fork and Russell Fork in 1937 that were not taken in this study are listed in Table III.

Table II. A List of Species Taken by Electric Seining from Levisa Fork and Russell Fork of Big Sandy River on October 23, 24 and 25, 1956.

Northern Brook Lamprey	<u>Ichthyomyzon fossor</u> Reighard and Cummins
American Brook Lamprey	<u>Lampetra lamottei</u> (LeSueur)
Longnose Gar	<u>Lepisosteus osseus</u> Rafinesque
Channel Catfish	<u>Ictalurus punctatus</u> (Rafinesque)
Mountain Madtom	<u>Noturus eleutherus</u> (Jordan)
Quillback	<u>Carpiodes cyprinus</u> (LeSueur)
White Sucker	<u>Catostomus commersonnii</u> (Lacepede)
Hog Sucker	<u>Hypentelium nigricans</u> (LeSueur)
Shorthead Redhorse	<u>Moxostoma breviceps</u> (Cope)
Black Redhorse	<u>Moxostoma duquensnii</u> (LeSueur)
Golden Redhorse	<u>Moxostoma erythrurum</u> (Rafinesque)
Gizzard Shad	<u>Dorosoma cepedianum</u> (LeSueur)
Brook Silverside	<u>Labidesthes sicculus</u> (Cope)
Stoneroller	<u>Campostoma anomalum</u> (Rafinesque)
Silverjaw Minnow	<u>Ericymba buccata</u> (Cope)
Speckled Chub (Dace)	<u>Hybopsis aestivalis</u> (Girard)
Bigeyed Chub	<u>Hybopsis amblops</u> (Rafinesque)
Spotted Chub	<u>Hybopsis dissimilis</u> (Kirtland)
River Chub	<u>Nocomis micropogon</u> (Cope)
---	<u>Notropis sp.</u>
Emerald Shiner	<u>Notropis atherinoides</u> Rafinesque
Common Shiner	<u>Notropis cornutus</u> (Rafinesque)
Sand Shiner	<u>Notropis deliciosus</u> (Girard)
Silver Shiner	<u>Notropis photogenis</u> (Cope)
Rosyface Shiner	<u>Notropis rubellus</u> (Agassiz)
Spotfin Shiner	<u>Notropis spilopterus</u> (Cope)
Mimic Shiner	<u>Notropis volucellus</u> (Cope)
Steelcolored Shiner	<u>Notropis whipplei</u> (Girard)
Bluntnose	<u>Pimephales notatus</u> (Rafinesque)
Rock Bass	<u>Ambloplites rupestris</u> (Rafinesque)
Bluegill	<u>Lepomis macrochirus</u> Rafinesque
Longear Sunfish	<u>Lepomis megalotis</u> (Rafinesque)
Smallmouth Bass	<u>Micropterus dolomieu</u> Lacepedes
Kentucky Bass	<u>Micropterus punctulatus</u> (Rafinesque)
Largemouth Bass	<u>Micropterus salmoides</u> (Lacepede)
White Crappie	<u>Pomoxis annularis</u> Rafinesque
Sand Darter	<u>Ammocrypta pellucida</u> (Baird)
Greenside Darter	<u>Etheostoma blennioides</u> (Rafinesque)
Variiegated Darter	<u>Etheostoma variatum</u> Kirtland
Banded Darter	<u>Etheostoma zonale</u> (Cope)
Log Perch	<u>Percina caprodes</u> (Rafinesque)
Gilt Darter	<u>Percina evides</u> (Jordan and Copeland)
Blackside Darter	<u>Percina maculatus</u> (Girard)
---	<u>Percina oxyrhyncha</u> Hubbs and Raney
Freshwater Sculpin	<u>Cottus bairdii</u> Girard

Table III. A List of Species Collected in 1937 and Not Collected in 1956

Goldeye	<u>Amphiodon alosoides</u>
Bigmouth buffalo	<u>Megastomatobus cyprinella</u> (Valenciennes)
Smallmouth buffalo	<u>Ictiobus bubalus</u> (Rafinesque)
Silver redhorse	<u>Moxostoma anisurum</u> (Rafinesque)
River Chub	<u>Nocomis micropogon</u> (Cope)
Streamlined chub	<u>Erimystax watauga</u> (Jordan and Evermann)
Mountain blacknose dace	<u>Rhinichthys atratulus obtusus</u> Agassiz
Northern creek chub	<u>Semotilus atromaculatus</u> (Mitchell)
Rosyside dace	<u>Clinostomus vandoisulus</u> (Valenciennes)
Southern redbelly dace	<u>Chrosomus erythrogaster</u> Rafinesque
Northern black bullhead	<u>Ameiurus melas melas</u> (Rafinesque)
Mud-cat	<u>Pilodictis olivaris</u> (Rafinesque)
American eel	<u>Anguilla bostoniensis</u> (LeSueur)
Yellow pikeperch	<u>Stizostedion vitreum vitreum</u> (Mitchell)
Northern Johnny darter	<u>Boleosoma nigrum nigrum</u> (Rafinesque)
Northern rainbow darter	<u>Poecilichthys caeruleus caeruleus</u> (Stoner)
Banded fantail	<u>Catomatus f. flabellaris</u> (Rafinesque)

The above nomenclature was used by Clark (1937).

CATCH COMPOSITION

Five hundred and eighty-three fish were taken in the five study areas. The exact weight is not known because many of the small fish were preserved in formaldehyde for later identification without being weighed. Seventy-eight and six tenths pounds of fish were weighed in the field (Table 4) and the weight of the preserved specimens was estimated. The total weight was estimated to be 81 pounds.

Area A, averaging a depth of 5 feet, was too deep for efficient electric seining. The stream was carrying a heavy load of coal dust and the surface was covered with oil which caused an additional problem of fish recovery. All species that were observed were recovered except the longnose gar which were not immobilized by the seine. However, they were affected to the extent that a great number were seen at the surface by all members of the crew.

Table IV. Total Catch by Area

Species	Area A		Area B		Area C		Area D		Area E		Total		Average Wt.
	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	
Northern Brook Lamprey			1	tr.							1	tr.	
American Brook Lamprey					1						1	tr.	
Longnose Gar													
Channel Catfish	1	0.1	26	6.2					2	1.3	29	7.6	0.26
Mountain Madtom			1	tr.							1	tr.	
Quillback	2	0.5	1	0.4	3	1.0	1	0.1	2	1.6	9	3.6	0.40
White Sucker									5	2.1	5	2.1	0.42
Hog Sucker	6	0.4	9	0.7	6	0.8	35	3.0	1	tr.	57	4.9	0.09
Shorthead Redhorse	7	1.0	49	8.8	10	2.0			1	0.5	67	12.3	0.18
Black Redhorse	2	0.2	20	3.7	11	4.1	26	5.5			59	13.5	0.23
Golden Redhorse	6	0.4	4	1.5	1	tr.	2	0.2	3	1.2	16	3.3	0.21
Gizzard Shad					4	2.3			22	18.4	26	20.7	0.79
Brook Silverside					1	tr.	1	tr.			2	tr.	
Stoneroller	1	tr.			3	0.1	6	0.1			10	0.2	0.02
Silverjaw minnow			13		3		4				20		
Speckled Chub			51								51		
Bigeyed Chub			1								1		
Spotted Chub	5	tr.	10		4						19		
River Chub							16	1.4			16	1.4	0.09
Notropis sp.			2								2		
Emerald Shiner			2								2		
Common Shiner			2								2		
Sand Shiner					8		4				12		
Silver Shiner					4				2		6		
Rosyface Shiner					10		8		9		27		
Spotfin Shiner	12		2		2						16		
Mimic Shiner			16								16		
Steelcolored Shiner			3		3		24				30		
Bluntnose			5		12		1				18		
Rock Bass									1	0.3	1	0.3	0.30
Bluegill									1	0.2	1	0.2	0.20
Longear Sunfish			1	0.1	1	0.1					2	0.2	0.10
Smallmouth Bass	2	2.2	4	1.0			4	0.6	2	0.2	12	4.0	0.33
Kentucky Bass			1	0.7	1	0.2	5	2.0	4	1.0	11	3.9	0.35
Largemouth Bass							2	0.1			2	0.1	0.05
White Crappie									1	0.3	1	0.3	0.30
Sand Darter			6								6		
N. Greenside Darter			3						1		4		
Variegated Darter			2								2		
Banded Darter					2		1				3		
Log Perch			4		2						6		
Gilt Darter			7								7		
Blackside Darter			1						1		2		
Percina oxyrhyncha									1		1		
Freshwater Sculpin			1								1		
Totals:	44	4.8	248	23.1	92	10.6	140	13.0	59	27.1	583	78.6	

Area B had an average depth of 2 feet and even though oil was present on the surface, water was clear and recovery was much better. There were 248 fish taken in Area B and a total of 29 and possibly 30 species were identified. Twenty-six of the 29 channel catfish that were taken in this study were captured in this area.

Area C was located at the confluence of Russell and Levisa Forks and the productivity of the area was good even though only 92 fish were captured. About 1/4 acre of water was shocked compared to over 1/2 acre in the other areas and a great number of the immobilized fish floated into deep water before they could be captured.

Area D was shallow enough for efficient seining; however, the water was black with coal residue from a washer. A road which crossed the stream in the study site formed a partial barrier with the result that large numbers of fish were concentrated in the area. Seining was accomplished by leaving the generator on the road and seining an area as large as was possible, using a 50-foot extension cord between the seine and its power supply. About 1/4 acre was seined on each side of the road. Forty-nine of the 140 fish that were captured in this area were taken above the road. Below the road the water was flowing so swiftly that a small percentage of the shocked small fish were captured before they were carried downstream and recovered from the shock.

Area E was located on Russell Fork at Elkhorn City. This pool, where walleye fishing is reported to be good during the early spring, was approximately 1.5 acres in size and averaged 5 feet in depth. As only one boat and motor was available and the stream bottom extremely rough, recovery of shocked fishes in this area was thought to be relatively poor.

In the deeper water a part of the harvest was accomplished by having the seine in operation and stationary across the pool, recovering the fish from the

boat when they moved into the field and were shocked. Each time the boat was moved rapidly on either side of the seine a few fish were recovered. Most of the 22 gizzard shad, which weighed 18 pounds, were collected in this manner.

The white crappie and largemouth bass, captured in Area E, were probably stocked by the Department of Fish and Wildlife Resources. During the past several years the Department has had an extensive stream stocking program. Clark (1937) stated that both largemouth and smallmouth bass were stocked in the Levisa and Russell Forks by the Division of Fish and Game as early as 1936.

Only one rock bass was captured, probably due to their particular reactions to the shocker. James Charles, who has used the electric shocker in a number of streams, states that many times when rock bass were shocked he has observed them immobilized under obstructions such as rocks and logs.*

Table V gives the combined study data. The fish are grouped according to the classification; game fish, pan fish, food fish and forage-trash fish. The minnows and darters are grouped together and the weight is estimated. This procedure is considered desirable considering that some of the specimens had been weighed and there were available weight records for many of the other species.

Only 27 game fish were captured but they comprised 10.56% of the total weight of the fish taken. If the deeper water could have been seined effectively it is believed that the percentage of both number and weight would have been higher.

Three pan fish were taken and none were observed immobilized that were not captured.

Food fish made up 39.99% of the total number and 53.69% of the total weight of the fish taken. Channel catfish, considered a desirable species by Kentucky fishermen, comprised 9.35% of the total weight, the 29 that were taken having an

* Oral communication

Table V. Summary of Five Population Samplings - Levisa Fork and Russell Fork

Species	Number		Weight*		Average Weight
	No.	%	Wt.*	%	
Game Fish					
Smallmouth Bass	12	2.06	4.0	4.91	0.33
Kentucky Bass	11	1.89	3.9	4.79	0.35
Largemouth Bass	2	0.34	0.1	0.12	0.05
White Crappie	1	0.17	0.3	0.37	0.30
Rock Bass	1	0.17	0.3	0.37	0.30
Total	27	4.63	8.6	10.56	0.32
Pan Fish					
Bluegill	1	0.17	0.2	0.25	0.20
Longear Sunfish	2	0.34	0.2	0.25	0.10
Total	3	0.51	0.4	0.50	0.13
Food Fish					
Channel Catfish	29	4.97	7.6	9.35	0.26
White Sucker	5	0.86	2.1	2.58	0.42
Hog Sucker	57	9.78	4.9	6.02	0.09
Shorthead Redhorse	67	11.49	12.3	15.11	0.18
Black Redhorse	59	10.12	13.5	16.58	0.23
Golden Redhorse	16	2.75	3.3	4.05	0.21
Total	233	39.99	43.7	53.69	0.19
Forage - Trash					
Lampreys	2	0.34	tr.	---	tr.
Mountain Madtom	1	0.17	tr.	---	tr.
Brook Silverside	2	0.34	tr.	---	tr.
Minnows	248	42.54	4.0**	4.91	0.01
Darters	31	5.32	0.4**	0.49	0.01
Freshwater Sculpin	1	0.17	tr.	---	tr.
Longnose Gar	seen	---	---	---	---
Quillback	9	1.54	3.6	4.42	0.40
Gizzard Shad	26	4.46	20.7	25.43	0.79
Total	320	54.88	28.7	35.25	0.09
Grand Total	583	100.01	81.4	100.00	0.14

*All weights are in pounds and decimal fractions of pounds.

**Estimated weight.

average weight of 0.26 pounds. The other 204 fish in this group were suckers and are desirable table fish in this section of Kentucky.

The greatest number of fish were grouped under the heading, forage-trash. Fish in this group comprised 35.25% of the total weight and included 26 gizzard shad that had an average weight of 0.79 pounds. All gizzard shad that were captured were large and considered to be in an advanced age group.

SUMMARY AND CONCLUSIONS

The Levisa Fork of the Big Sandy River is very important to Kentucky fishermen as it is located in an area of limited fishing water.

Coal mining is the major industry in the Levisa Fork watershed and produces serious pollution problems. Pollution was less pronounced on October 23, 24 and 25, 1956 than it was on two other occasions when the stream was visited. However, on October 23 and 24 study Areas A and D were polluted with coal to the extent that fish recovery was hampered.

The general water analysis, according to Lamar, Krieger and Collier (1955) for the period of time between October, 1949, and March, 1953, was; pH from 6.3 to 6.8, average dissolved solids 143 ppm, average hardness 72 ppm, average sulfate 60 ppm, average specific conductance 231 micromhos, and the temperature range was from the freezing point to 89° Fahrenheit.

The average water discharge for 24 years was 2,287 cfs and the daily suspended-sediment load ranged from 1 to 34,800 tons. The average particle size distribution (American Geophysical Union Classification) was 4% sand, 46% silt and 50% clay.

Fish collections were made with an electric shocker. It was believed that all fish that entered the shocked area were immobilized except the longnose gars.

Five hundred and fifty-three fish, weighing approximately 81.4 pounds and representing 44 species were taken from 5 study areas during 3 days of electro-seining.

One largemouth bass and 1 white crappie were captured in Russell Fork at Elkhorn City. They may have been present as a result of the stream stocking program by the Department of Fish and Wildlife Resources.

The greatest number of specimens were forage-trash species; however, the food fish species produced the greatest weight. It is believed that had it been possible to seine the deeper water effectively, game species would have made up a greater percentage of total number and weight.

Walleye, Stizostedion vitreum (Mitchell), is common in the late winter and early spring creels from Levisa Fork, and especially Russell Fork, but were not captured in these studies.

This study indicates that the Levisa Fork and Russell Fork of the Big Sandy River are supporting desirable fish populations. In addition to the unsampled walleye population, there are indications that smallmouth bass, Kentucky bass, channel catfish, and possibly rock bass are present in sufficient numbers to furnish a moderate sport fishery.

Coal mine pollution is a most serious problem in the Levisa and Russell Forks of the Big Sandy River. It is believed that the fish populations could be greatly benefited if it were possible to drastically reduce, in some way, the amount of acid mine water and coal washer waste in these streams.

The writer wishes to thank Dr. W. M. Clay, of the University of Louisville, and Bernard T. Carter, Chief Biologist of Kentucky's Division of Fisheries, for their aid in making the identifications of many of the fish in orders Petromyzontidae, Cyprinidae and Percidae. Thanks must also be extended to the men who helped with the electro-seining.

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