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**INVENTORY AND CLASSIFICATION OF STREAMS
IN THE LITTLE SANDY RIVER, TYGARTS CREEK
AND KINNICONICK CREEK**

Department of Fish and Wildlife Resources

Arnold L. Mitchell, Commissioner

INVENTORY AND CLASSIFICATION OF STREAMS
IN THE LITTLE SANDY RIVER,
TYGART'S CREEK AND KINNICONICK CREEK DRAINAGES

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ABSTRACT

Streams in the Little Sandy River, Tygart's Creek and Kinniconick Creeks have been listed and classified on the basis of stream order. Some physical, chemical, and biological characteristics of the streams are described as well as the general characteristics of the fishery.

These three drainages include a total of 1,259 square miles. Of this, a total of 318 linear miles have been determined capable of supporting a stream fishery. Six streams (227 miles) are considered to be of outstanding quality.

A total of 59 species representing 15 families have been identified from the Little Sandy River, Tygart's Creek, and Kinniconick Creek Drainages. The fantail darter was the most frequently collected species in these drainages. The most frequently collected game species has been the spotted bass with the longear sunfish being the most frequently collected pan fish.

INTRODUCTION

The increased competition for water usage in Kentucky has created a growing concern for the future of streams and stream fishing. Each year Kentucky loses many miles of stream which are of significant value to the fishery resource due to pollution, impoundments, and the withdrawal of excessive amounts of water for agricultural use at critical times of the year.

The objectives of this study were to provide a checklist of the streams which are of fishery importance and to determine the existing physical, chemical, and biological characteristics of the more important streams.

The information obtained from this survey will constitute the background of reference material required for effective management of fish populations in the various streams of the Little Sandy River, Tygart's Creek, and Kinniconick Creek drainages. In addition, these data will contribute to the protection of the existing habitat as the competition for water usage intensifies.

DESCRIPTION OF DRAINAGES

Little Sandy River

The Little Sandy River basin lies in Boyd, Carter, Elliott, Greenup, Lawrence, and Rowan Counties. Its watershed, roughly rectangular in shape, drains approximately 720 square miles which is made up of mainly hilly and mountainous terrain.

In the headwater section of the basin, the topography is generally rugged with no flat or undulating land present in either the uplands or the bottoms. The lower sections of the basin become less rugged with more bottom land available for agricultural practices. Elevations range from 479 feet above sea level at the mouth on the Ohio River to 1,300 feet above sea level in the headwater region near Sandy Hook, Kentucky.

The Little Sandy River is 84 miles in length with the stream channel varying in width from 25 feet in the headwaters, to over 200 feet at the mouth. The river is characterized by numerous long pools, especially in the lower section. Little Fork and East Fork are the main tributaries to the Little Sandy.

Tygart's Creek

Tygart's Creek, which is approximately 110 miles in length, rises in southwestern Carter County and flows northeasterly to join the Ohio River near South Shore, Kentucky. This roughly rectangular basin drains approximately 339 square miles. General elevations range from 472 feet above sea level at the confluence with the Ohio River, to 1,300 feet above sea level at the headwaters near Olive Hill, Kentucky.

Large pools do exist along this stream, with the banks for the most part fairly well wooded. The average width of the stream channel ranges from 30 feet in the upper reaches, to over 200 feet near the mouth. The main tributary to Tygart's Creek is Buffalo Creek.

Kinniconick Creek

Kinniconick Creek rises in southcentral Lewis County and joins the Ohio

River near Garrison, Kentucky. This stream is approximately 44 miles in length and drains roughly 200 square miles. The gradient of Kinniconick is fairly moderate as the stream flows through narrow steep valleys with practically no bottom lands in the drainage.

This stream, even today, is well shaded and much of the pristine beauty remains. Kinniconick is characterized by excellent pools containing much vegetation in the more shallow areas. These pools are in some areas from fifteen to twenty feet deep. This stream, for its size, is probably second to none in Kentucky in its quality as a fishing stream. The main tributaries to Kinniconick are Indian Creek and Laurel Creek.

PROCEDURES

A list of the streams of fishery importance in the Little Sandy River, Tygart's Creek, and Kinniconick Creek drainages was compiled by interviewing each conservation officer in the drainages and by reviewing files of the Kentucky Division of Fisheries. These streams were then classified on the basis of stream order by working from U.S. Geological Survey topographic maps, which were scaled 1:24,000. The stream order method of classification is based on branching (Horton, R.E., 1945). The headwater streams are classified as Order I and the union of two such streams forms an Order II stream. Whenever two streams of equal order join they form a stream of the next highest order.

Project personnel inspected the streams which were considered to be of fishery importance and selected sampling areas on the basis of stream order, access, and anticipated changes in habitat. An effort was made to locate one sampling area within each designated order of the more important fishing streams. The streams of lesser importance were sampled one time, usually within the section designated as their highest order. Some streams of minor importance were not sampled, but were described and included in the listing.

Chemical Characteristics

The following chemical characteristics were determined at each sampling area: dissolved oxygen was determined by the Modified Winkler method; total alkalinity was determined by using brom cresol green - methyl red as an indicator and titrating with 0.02N sulfuric acid; the hydrogen-ion concentration was determined using a portable electric meter.

Physical Characteristics

The following physical characteristics were determined at each study area: stream transparency or turbidity was measured in inches with a secchi disk; the surface water temperature and air temperature was determined with a pocket-type alcohol thermometer; stream velocity was determined by floating a partially submerged object through a 100-foot section of stream three times and taking an average of the times the float required to traverse this distance in feet per second; the characteristic bottom type of each study area was recorded; and volume of flow was determined from the formula:

$$V = wdfc$$

where V = volume of flow
 w = the average width
 d = the average depth
 f = the velocity in feet per second
 c = co-efficient of roughness (0.9 smooth bottom; 0.8 rough bottom).

Biological Characteristics

The following biological characteristics were recorded at each sampling area: the fish population composition; the dominant forms of aquatic vegetation; the macrobenthos was recorded merely by inspecting the riffles and listing the dominant forms observed.

The fish population composition of most sampling areas was determined by using emulsifiable rotenone. When chemicals were used for sampling, small-mesh nets were stretched across the width of the stream at each end of

the sampling area. Rotenone (0.5%) was applied to the sampling areas at a concentration of 1.0 ppm. Potassium permanganate was used to oxidize the rotenone and eliminate downstream fish kills. This was accomplished by applying an amount of permanganate equal to twice the strength of rotenone to the stream immediately below the lower block net and by distributing the same amount of permanganate through the sampling area upon completion of the study. Fishes were recovered with dip nets and the easily-identified species were then grouped as fingerling, intermediate, or harvestable and weighed on the site. Small fishes, as well as questionable larger specimens, were preserved in 10 percent formalin and subsequently identified in the laboratory.

Most fish population samples were considered qualitative due to the small size of the sampling areas. When quantitative samples were obtained, the standing crop was computed on a per-acre basis.

Previous stream studies conducted by the Kentucky Division of Fisheries were used where applicable.

FINDINGS

Stream Order

In previous inventory studies conducted on other drainages, Order III and Order IV streams were found to have some sport fishery significance. In the Little Sandy River, Tygart's Creek and Kinniconick Creek drainages, it was found that many of the streams of the Orders III and IV dried up in dry periods and did not add significantly to the sport fishery of these drainages. This is not to say that these streams are unimportant, but merely that they do not support sport fishery populations year round and consequently do not add a great deal to the available sport fishing of this area.

Order IV streams of fishery significance are Big Sinking Creek, Middle Fork Little Sandy River and Big Caney Creek. These are all located in the Little Sandy River drainage and range in length up to 10 miles. Order V streams range

up to 40 miles in length and are the major tributaries to the main streams in these three drainages. Some of the more important Order V streams are East Fork Little Sandy River, Little Fork Little Sandy River, and Laurel Fork of Kinniconick Creek. The main streams, Little Sandy River, Tygart's Creek, and Kinniconick Creek, are all classified Order VI and are considered the most important streams in so far as the sport fishery is concerned.

Distribution of Fishing Streams by County

These three drainages encompass all or portions of six counties and include approximately 318 miles of stream capable of providing a sport fishery (Table 1). Six streams (227 miles) are considered to be of outstanding quality on the basis of fishing potential, water quality and/or uniqueness (Table 2).

Table 1. Linear miles of fishing streams by county.

County	Miles
Boyd	24.3
Carter	114.0
Elliott	33.4
Greenup	94.5
Lawrence	5.3
Lewis	47.0
TOTAL	318.5

Table 2. The highest quality streams in the drainages:

Stream	Miles	County(ies)
Laurel Fork	4	Lewis
Kinniconick Creek	35	Lewis
Tygart's Creek	85	Carter-Greenup
Little Sandy River	62	Carter-Greenup
Caney Creek	8	Elliott
East Fork Little Sandy	41	Boyd-Greenup

Pollution

The primary form of stream pollution in the Little Sandy River, Tygart's Creek and Kinniconick Creek is oil well pollution. This is either in the form of oil from well sites, or breaks in the pipe lines, or salt water which is often associated with oil fields and is run off as waste material from the wells. Another source of pollution is from sewage from the communities located in the drainages. Neither of these sources of pollution has seriously degraded any of the streams in these drainages, but both are considered chronic and occur intermittently.

Other minor forms of pollution which occur in these drainages are siltation from agricultural practices and siltation and waste products from logging and saw-mill operations. Both of these types of pollution are negligible and are considered insignificant.

Access

Throughout these three drainages, roads generally follow the stream courses and thereby provide good access at points where they come in close proximity. Numerous road crossings also provide access points in all these drainages. A number of low water bridges on Kinniconick Creek provide excellent access for both bank and float fishing possibilities. Tygart's Creek has the least accessibility of the three drainages because the stream meanders some distance from the roadways in many cases. Access for the bank fisherman is fairly good along the Little Sandy River, but launching points for the float fisherman are limited.

Launching facilities along both the Little Sandy River and Tygart's Creek could enhance the fishing on both of these drainages. These three drainages are still very remote throughout much of their course and any facility construction should be undertaken to insure that the pristine beauty is not degraded.

Fish Populations

A total of 59 species representing 15 families has been identified from the Little Sandy River, Tygart's Creek and Kinniconick Creek drainages (Table 3). Thirty-seven of these species were collected as a result of studies conducted for this project, the other 22 species were collected during recent studies conducted by project F-31 personnel and F-35 personnel (Brewer, 1969 and Carter, 1970).

The fantail darter was the most frequently collected species occurring in 92% of the samples, while the common shiner was the most abundant species numerically. Fifteen other species occurred in 50% or more of the studies. These were spotted bass (75%), rock bass (67%), longear sunfish (75%), hogsucker (75%), white sucker (50%), stoneroller (83%), silverjaw minnow (58%), emerald shiner (58%), bluntnose minnow (67%), creek chub (83%), brindled madtom (50%), green-side darter (58%), rainbow darter (67%), johnny darter (50%), blackside darter (58%). The most frequently recorded game species was the spotted bass and it occurred in 75% of the studies. The longear sunfish was the most frequently recorded (75%) pan fish species. Only one specimen of each of the following species was recorded: white crappie, rainbow trout, channel catfish, carp, blacknose dace, and trout-perch. The American brook lamprey was taken in only one study (Table 4).

Table 3.

CHECK-LIST OF FISHES COLLECTED FROM

LITTLE SANDY RIVER, TYGART'S CREEK, AND KINNICONICK CREEK

PETROMYZONTIDAE - lampreys

2 *Lampetra lamottei* (Lesueur) American brook lamprey

LEPISOSTEIDAE - gars

1 *Lepisosteus osseus* (Linnaeus) Longnose gar

CLUPEIDAE - herrings

1, 2, 3 *Dorosoma cepedianum* (Lesueur) Gizzard shad

SALMONIDAE - trouts

1, 2, 3 *Salmo gairdneri* Richardson Rainbow trout

ESOCIDAE - pikes

1, 2 *Esox americanus vermiculatus* Lesueur Grass pickerel

1 *Esox masquinongy ohioensis* Kirtland Ohio muskellunge

CYPRINIDAE - minnows and carp

1, 2, 3 *Campostoma anomalum* (Rafinesque) Stoneroller

3 *Chrosomus erythrogaster* (Rafinesque) Southern redbelly dace

1, 2 *Cyprinus carpio* Linnaeus Carp

1, 2, 3 *Ericymba buccata* Cope Silverjaw minnow

1 *Hybopsis amblops* (Rafinesque) Bigeye chub

1, 2 *Hybopsis micropogon* (Cope) River chub

1, 2, 3 *Notropis ardens* (Cope) Rosefin shiner

1 *Notropis ariommus* (Cope) Popeye shiner

2 *Notropis atherinoides* Rafinesque Emerald shiner

1 *Notropis boops* Gilbert Bigeye shiner

1, 2, 3 *Notropis cornutus* (Mitchill) Common shiner

CYPRINIDAE - minnows and carp (continued)

1, 3	<i>Notropis photogenis</i> (Cope)	Silver shiner
1, 3	<i>Notropis rubellus</i> (Agassiz)	Rosyface shiner
3	<i>Notropis volucellus</i> (Cope)	Mimic shiner
1, 2, 3	<i>Pimephales notatus</i> (Rafinesque)	Bluntnose minnow
2	<i>Rhinichthys atratulus</i> (Hermann)	Blacknose dace
1, 2, 3	<i>Semotilus atromaculatus</i> (Mitchill)	Creek chub

CATOSTOMIDAE - suckers and buffaloes

2, 3	<i>Catostomus commersoni</i> (Lacépède)	White sucker
1, 2, 3	<i>Hypentelium nigricans</i> (Lesueur)	Northern hog sucker
1	<i>Ictiobus bubalus</i> (Rafinesque)	Smallmouth buffalo
1, 2	<i>Minytrema melanops</i> (Rafinesque)	Spotted sucker
1	<i>Moxostoma carinatum</i> (Cope)	River redhorse
1, 2	<i>Moxostoma erythrurum</i> (Rafinesque)	Golden redhorse

ICTALURIDAE - freshwater catfishes

1, 2	<i>Ictalurus natalis</i> (Lesueur)	Yellow bullhead
1, 2	<i>Ictalurus punctatus</i> (Rafinesque)	Channel catfish
1	<i>Noturus flavus</i> Rafinesque	Stonecat
1, 2, 3	<i>Noturus miurus</i> Jordan	Brindled madtom
1	<i>Pylodictis olivaris</i> (Rafinesque)	Flathead catfish

ANGUILLIDAE - freshwater eel

1	<i>Anguilla rostrata</i> (Lesueur)	American eel
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PERCOPSIDAE - trout-perch

1, 2, 3	<i>Percopsis omiscomaycus</i> (Walbaum)	Trout-perch
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CENTRARCHIDAE - sunfishes

1, 2, 3	<i>Ambloplites rupestris</i> (Rafinesque)	Rock bass
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CENTRARCHIDAE - sunfishes (continued)

1	<i>Chaenobryttus gulosus</i> (Cuvier)	Warmouth
1, 2, 3	<i>Lepomis cyanellus</i> Rafinesque	Green sunfish
1, 2, 3	<i>Lepomis macrochirus</i> Rafinesque	Bluegill
1, 2, 3	<i>Lepomis megalotis</i> (Rafinesque)	Longear sunfish
1	<i>Lepomis</i> sp. x sp.	Hybrid sunfish
1, 2, 3	<i>Micropterus dolomieu</i> Lacépède	Smallmouth bass
1, 2, 3	<i>Micropterus punctalatus</i> (Rafinesque)	Spotted bass
1	<i>Micropterus salmoides</i> (Lacépède)	Largemouth bass
1, 2	<i>Pomoxis annularis</i> Rafinesque	White crappie

PERCIDAE - perches

2	<i>Ammocrypta pellucida</i> (Baird)	Eastern sand darter
1, 2, 3	<i>Etheostoma blennioides</i> Rafinesque	Greenside darter
1, 2, 3	<i>Etheostoma caeruleum</i> Storer	Rainbow darter
1, 2, 3	<i>Etheostoma flabellare</i> Rafinesque	Fantail darter
1, 2, 3	<i>Etheostoma nigrum</i> Rafinesque	Johnny darter
1, 2, 3	<i>Etheostoma variatum</i> Kirtland	Variegate darter
1, 2, 3	<i>Percina caprodes</i> (Rafinesque)	Logperch
1	<i>Percina macrocephala</i> (Cope)	Longhead darter
1, 2, 3	<i>Percina maculata</i> (Girard)	Blackside darter
1	<i>Percina sciera</i> (Swain)	Dusky darter

SCIAENIDAE - drum

1	<i>Aplodinotus grunniens</i> Rafinesque	Freshwater drum
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COTTIDAE - sculpins

2, 3	<i>Cottus carolinae</i> (Gill)	Banded sculpin
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ATHERINIDAE - silverside

1	<i>Labidesthes sicculus</i> (Cope)	Brook silverside
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- 1 - Collected during studies conducted by F-31 Musky Studies project personnel
 2 - Collected during studies conducted by F-35 Stream inventory Project personnel
 3 - Collected during studies conducted by F-35 Wild River project personnel

Table 4. Total number of each species of fish collected in Little Sandy River, Tygart's Creek and Kinniconick Creek drainages in 1972

Species	Total No. of fish taken	No. of Studies species taken	% of Studies species taken
Grass pickerel	12	4	33
Smallmouth bass	65	5	42
Spotted bass	38	9	75
White crappie	1	1	8
Rainbow trout	1	1	8
Channel catfish	1	1	8
Rock bass	52	8	67
Bluegill	14	4	33
Green sunfish	12	2	17
Longear sunfish	177	9	75
Hog sucker	198	9	75
Golden redhorse	63	4	33
White sucker	92	6	50
Spotted sucker	4	2	17
Carp	1	1	8
Yellow bullhead	5	3	25
American brook lamprey	17	1	8
Gizzard shad	4	2	17
Stoneroller	900	10	83
River chub	19	4	33
Silverjaw minnow	138	7	58
Rosefin shiner	44	2	17
Emerald shiner	131	7	58
Common shiner	1134	10	83
Bluntnose minnow	417	8	67
Blacknose dace	1	1	8
Creek chub	242	10	83
Brindled madtom	88	6	50
Trout-perch	1	1	8
Eastern sand darter	8	2	17
Greenside darter	92	7	58
Rainbow darter	134	8	67
Fantail darter	488	11	92
Johnny darter	98	6	50
Variegated darter	55	4	33
Logperch	53	5	42
Blackside darter	44	7	58
Banded sculpin	19	5	42
TOTALS	4863	12	

Trout Streams

Four streams in these drainages are now being stocked with trout. In the Little Sandy River drainage, the Kentucky Department of Fish and Wildlife Resources stocks the tailwaters of Grayson Reservoir with 7,000 trout per year. The U. S. Forest Service stocks 3,000 sub-adult trout per year in Caney Creek. Shultz Creek, in the Tygart's Creek drainage, is stocked with 5,000 adult trout per year by Kentucky. Kinniconick Creek is stocked by the Department of Fish and Wildlife Resources with 3,000 trout per year. Other streams in these drainages are not now being stocked because of inaccessibility, unfavorable water temperatures and/or limited flow.

Musky Waters

All three streams do support significant musky populations. The portions of the streams that support musky are as follows: Little Sandy River--from Mile 60 to mouth, Tygart's Creek--from Mile 75 to mouth, and Kinniconick Creek from Mile 38 to mouth. Studies conducted on these streams indicated that approximately 1.8 pounds per acre of musky exist in these streams (Brewer, 1969). Brewer also found that the musky did not spawn successfully every year and that gaps in year classes were evident. These streams will eventually be stocked with musky to attempt to fill in these missing classes.

Stream Alterations

One major reservoir is located in these three drainages, this being Grayson Reservoir on the Little Sandy River near Grayson, Kentucky. Grayson Reservoir has a drainage area of 196 square miles and a storage capacity of 119,000 acre-feet. This reservoir was built by the U. S. Army Corps of Engineers for flood control, water quality, and recreation. Also in the Little Sandy River drainage is Greenbo Lake located on Clay Lick Creek in Greenup County. This

lake was built for recreational purposes and is owned by the Commonwealth of Kentucky. Greenbo Lake has a drainage area of 5.45 square miles and a volume of 2,600 acre-feet. One proposed reservoir, Kehoe, which will be located on the main stem of Tygart's Creek, will be of a size and have a location which will affect the stream fisheries of this area. This reservoir will have a drainage area of 127 square miles and a storage capacity of 79,000 acre-feet. Two other small reservoirs exist in the Tygart's Creek Drainage area; Olive Hill Reservoir which is a water-supply reservoir, and Smokey Valley Lake which is owned by the Commonwealth, for recreational purposes. These two are located on small tributary streams and do not significantly affect the stream fisheries of the area.

Other stream alterations located in these drainages include a 1.3-mile channel improvement on Little Sinking Creek near Grahn, Kentucky which has been completed, and a snagging and clearing project of Little Fork near Hitchens which has also been completed. These projects are located in the Little Sandy River Drainage. On Tygart's Creek Drainage, one channel improvement project of 1.7-miles in length has been completed on Tygart's Creek near Olive Hill, Kentucky.

RECOMMENDATIONS

The streams in the Little Sandy River, Tygart's Creek, and Kinniconick Creek drainages are of good quality and should be protected and maintained in at least their present conditions.

ACKNOWLEDGMENTS

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A P P E N D I X

The findings at each sampling location and a general description of the streams of fishery importance not sampled are found in the appendix. Here the streams are arranged in order of tributary progression, upstream sequence. Thus, the first tributary stream listed in Little Sandy River drainage is the East Fork Little Sandy River, the furthest downstream tributary of fishery importance in the drainage. When more than one sampling area was established on a given stream, the findings from each of these areas were described in upstream sequence before the order of tributary progression was resumed.

Stream length in miles designates the approximate length of that stream from its mouth upstream to the point where it becomes an Order II stream as shown on a topography map. The stream order classification for each stream is given as well as the length and surface acres of the sample area. The terms qualitative and quantitative are arbitrary terms which refer to the size and success of the fish population sample. The three columns of numerals in the fish fauna list designate the total number of each species collected in each of the size groups--fingerling, intermediate, and harvestable.

An index to the streams listed in the inventory is provided in the rear of the text. The abbreviation N.D. appearing in the study area data sections of the studies means that that parameter was not determined.

LITTLE SANDY RIVER
Order VI
Stream Length - 62.1 miles

The Little Sandy River originates in southern Elliott county and flows northeast to join the Ohio River near Greenup, Kentucky. With the impounding of Grayson Reservoir, much of the pressure on this stream has been reduced. Good populations are inhabiting much of this stream, but a good deal of the pressure is being directed at trout which are stocked below Grayson Reservoir. Pollution is minor, made up mainly of sewage, agricultural, and oil, none of which significantly affect the stream. Access is fairly good along the entire course, at bridge crossings, and along highways which follow its course.

EAST FORK LITTLE SANDY RIVER (Boyd-Greenup Counties)
Order V
Stream Length - 40.8 miles

The East Fork of the Little Sandy River rises in northern Lawrence County and flows generally north to join the Little Sandy River near Argillite, Kentucky. Although this stream supports good game and pan fish populations, pressure is limited to catfish and suckers. Access is fair at bridge crossings; pollution is negligible.

Study Area Data

Date - 6-26-72
Location - 0.25 miles above Clay's
Jack Fork
Acreage - 0.21

Method - Chemicals
Lgth. of sample area - 360 ft.
Qualitative

Physical and Chemical

D.O. - 2.8 ppm
pH - 6.4
Total alk. - 132 ppm
Temperature - 71°F.
Avg. width - 26 ft.
Avg. depth - 1.5 ft.
Velocity - 0.0 ft./sec.
Secchi disk - 6 in.
Bottom type - Boulders-rubble
Fish shelter - Boulders-logs-brush
Shade - 75%

Fish Food

Decapoda

Aquatic Vegetation

None

Fish Fauna

Spotted bass	0-0-1
Grass pickerel	2-2-0
Rock bass	0-1-0
Bluegill	3-8-0
White crappie	0-1-0
Longear sunfish	2-19-3
Green sunfish	0-5-0
Carp	0-0-1
Hog sucker	0-2-0
White sucker	4-19-0
Golden redhorse	0-9-2
Spotted sucker	0-3-0
Yellow bullhead	3-0-0
Gizzard shad	0-0-1
Bluntnose minnow	82-0-0
Creek chub	9-2-0
Common shiner	72-16-0
Rosefin shiner	19-0-0
Blackside darter	11-0-0
Fantail darter	22-0-0
Johnny darter	10-0-0
American brook lamprey	17-0-0

LITTLE FORK LITTLE SANDY RIVER (Carter-Elliott Counties)
 Order V
 Stream Length - 22.5 miles

The Little Fork of the Little Sandy River originates in northeastern Elliott County and flows north into Carter County to join the Little Sandy River approximately 2 miles south of Grayson, Kentucky. This stream receives very light pressure even though the stream supports a good population of sunfish and rock bass. The spring sucker run attracts most of the pressure on this stream. Pollution is limited to siltation from agricultural practices and sewage from small communities located in the drainage. Access is good along Kentucky Highway No. 1 with bank fishing being the best method.

Study Area Data

Date - 8-23-72
 Location - 773 Hwy. and R.R. bridges
 at Hitchens
 Acreage - 0.14

Method - Chemicals
 Lgth. of sample area - 150 ft.
 Qualitative

Physical and Chemical

D.O. - 7.6 ppm
 pH - 6.6
 Total alk. - 53 ppm
 Temperature - 73°F.
 Avg. width - 40 ft.
 Avg. depth - 1.5 ft.
 Velocity - 0.2 ft./sec.
 Volume - 5.8 cfs
 Secchi disk - 20 in.
 Bottom type - Boulders-rubble-sand
 Fish shelter - Boulders-logs-brush
 Shade - 75%

Fish Food

Ephemeroptera

Aquatic Vegetation

Justica sp.

Fish Fauna

Spotted bass	3-0-0
Grass pickerel	0-6-0
Rock bass	0-1-0
Bluegill	0-1-0
Longear sunfish	4-13-0
Green sunfish	4-3-0
Spotted sucker	0-1-0
Golden redhorse	1-2-0
White sucker	0-2-0
Hog sucker	0-9-0
Common shiner	28-15-0
Emerald shiner	1-0-0
Silverjaw minnow	1-0-0
Bluntnose minnow	15-0-0
Stoneroller	2-0-0
River chub	0-1-0
Brindled madtom	1-0-0
Johnny darter	18-0-0
Blackside darter	7-0-0
Fantail darter	5-0-0
Greenside darter	4-0-0
Eastern sand darter	6-0-0

LITTLE FORK LITTLE SANDY RIVER (Carter-Elliott Counties)

Study Area Data

Date - 7-27-72
 Location - 4 miles below Willard, Ky.

Method - Chemicals
 Lgth. of sample area - 100 ft.
 Qualitative

Physical and Chemical

D.O. - 9.0 ppm
pH - 6.3
Total alk. - 47 ppm
Temperature - 73°F.
Avg. width - 25 ft.
Avg. depth - 0.5 ft.
Velocity - N.D.
Volume - N.D.
Secchi disk - Clear to bottom
Bottom type - Gravel
Fish shelter - Ledges-logs-brush
Shade - 75%

Fish Food

Decapoda-Ephemeroptera-Diptera

Aquatic Vegetation

Justica sp.

Fish Fauna

Spotted bass	1-0-0
Rock bass	2-0-0
Longear sunfish	0-1-1
Hog sucker	1-2-0
Creek chub	2-0-0
Common shiner	9-2-0
Bluntnose minnow	14-0-0
Stoneroller	34-2-0
Blackside darter	2-0-0
Fantail darter	64-0-0
Greenside darter	15-18-0
Variegate darter	12-11-0

LITTLE FORK LITTLE SANDY RIVER (Carter-Elliott Counties)

Study Area Data

Date - 8-2-72
Location - Mouth of Hamilton Branch

Method - Chemicals
Lgth. of sample area - 300 ft.
Qualitative

Physical and Chemical

D.O. - 7.8 ppm
pH - 6.8
Total alk. - 30 ppm
Temperature - 71°F.
Avg. width - 10 ft.
Avg. depth - 1 ft.
Velocity - N.D.
Volume - N.D.
Secchi disk - Clear to bottom
Bottom type - Gravel-sand-silt
Fish shelter - Undercut banks-brush
Shade - 30%

Fish Food

Decapoda-Ephemeroptera

Aquatic Vegetation

None

Fish Fauna

Spotted bass	3-0-0
Rock bass	0-3-0
Longear sunfish	2-13-0
White sucker	8-0-0
Hog sucker	14-3-0
Stoneroller	11-2-0
Creek chub	17-5-0
Bluntnose minnow	56-0-0
Common shiner	122-21-0
Silverjaw minnow	38-0-0
Greenside darter	5-0-0
Blackside darter	13-0-0
Johnny darter	19-0-0
Fantail darter	33-0-0

BIG SINKING CREEK (Carter-Elliott Counties)
 Order IV
 Stream Length - 9.8 miles

Big Sinking Creek rises in northwestern Elliott County and runs east into Carter County to join the Little Sandy River approximately one-half mile below Grayson Reservoir. Access to this stream is limited; and although some trout do move into the lower sections of this stream, pressure is considered light.

Study Area Data

Date - 8-22-72
 Location - 1 mile above mouth
 Method - Chemicals
 Lgth. of sample area - 600 ft.
 Qualitative

Physical and Chemical

D.O. - 7.6 ppm
 pH - 6.7
 Total alk. - 88 ppm
 Temperature - 72°F.
 Avg. width - 10 ft.
 Avg. depth - 1 ft.
 Velocity - N.D.
 Volume - N.D.
 Secchi disk - Clear to bottom
 Fish shelter - Boulders-logs-brush
 Shade - 80%

Fish Food

Ephemeroptera-Amphipoda-Decapoda-
 Tricoptera

Aquatic Vegetation

None

Fish Fauna

Spotted bass	0-7-1
Rainbow trout	0-0-1
Rock bass	0-1-1
Bluegill	0-1-0
Longear sunfish	0-14-2
Channel catfish	0-1-0
Golden redhorse	3-4-0
White sucker	4-1-0
Hog sucker	11-22-0
Creek chub	40-0-0
Silverjaw minnow	42-0-0
Bluntnose minnow	65-1-0
Stoneroller	0-3-0
Common shiner	39-22-0
Emerald shiner	30-0-0
Blacknose dace	1-0-0
Brindled madtom	14-1-0
Logperch	0-3-0
Variegate darter	0-1-0
Greenside darter	16-0-0
Fantail darter	19-0-0
Blackside darter	3-0-0
Johnny darter	25-0-0
Eastern sand darter	2-0-0
Rainbow darter	5-0-0
Banded sculpin	5-0-0

BIG CANEY CREEK (Rowan-Elliott Counties)
 Order IV
 Stream Length - 8.0 miles

Big Caney Creek rises in eastern Rowan County and flows east into Elliott County. This stream flows into Grayson Reservoir near Green, Kentucky. Trout are being stocked into this stream on a put-and-take basis. Water temperatures generally are too cold to support a very significant warm-water fishery, although rock bass and smallmouth bass are caught in the lower section (Carter, 1970).

TYGART'S CREEK (Greenup-Carter Counties)
 Order VI
 Stream Length - 85.1 miles

Tygart's Creek originates in southwestern Carter County and flows north to join the Ohio River at South Shore, Kentucky. This stream has a fair reputation as a musky stream and much of the pressure is concentrated on this species, although the stream does support good populations of bass and pan fish. This stream does receive pollution in the form of oil which comes from wells located in the upper sections of this drainage, and sewage mainly coming from the city of Olive Hill, Kentucky. Both forms of pollution do get quite serious at times but apparently neither has seriously degraded the stream. Access is limited mainly to bridge crossings throughout the course of the drainage. This stream can be floated all the way from the Interstate 64 crossing to the mouth, but access points are limited and even these in most cases are rugged.

Study Area Data

Date - 7-19-72
 Location - Mouth of Leatherwood Branch
 Acreage - 0.50

Method - Chemicals
 Lgth. of sample area - 570 ft.
 Qualitative

Physical and Chemical

D.O. - 6.2 ppm
 pH - 6.8
 Total alk. - 87 ppm
 Temperature - 74°F.
 Avg. width - 40.4 ft.
 Avg. depth - 1.0 ft.
 Velocity - 1.1 ft./sec.
 Volume - 35.5 cfs
 Secchi disk - 12 in.
 Bottom type - Rubble-gravel
 Fish shelter - Undercut banks-brush
 Shade - 75%

Fish Food

Ephemeroptera-Decapoda

Aquatic Vegetation

None

Fish Fauna

Smallmouth bass	0-1-1
Spotted bass	1-4-0
Rock bass	0-12-6
Bluegill	1-0-0
Longear sunfish	5-38-0
Hog sucker	34-39-0
Golden redhorse	3-33-6
Yellow bullhead	0-1-0
Gizzard shad	0-0-3
Bluntnose minnow	27-0-0
Stoneroller	182-81-0
Creek chub	36-0-0
River chub	2-2-0
Common shiner	133-49-0
Emerald shiner	26-5-0
Logperch	12-28-0
Variegate darter	28-0-0
Rainbow darter	23-0-0
Blackside darter	6-0-0
Fantail darter	8-0-0
Greenside darter	2-0-0
Brindled madtom	32-15-1
Trout-perch	1-0-0
Banded sculpin	2-0-0

TYGART'S CREEK (Carter-Greenup Counties)

Study Area Data

Date - 7-20-72
 Location - Below Globe, Kentucky

Method - Chemicals
 Lgth. of sample area - 300 ft.
 Qualitative

Physical and Chemical

D.O. - 7.4 ppm
 pH - 6.9
 Total alk. - 73 ppm
 Temperature - 80°F.
 Avg. width - 25 ft.
 Avg. depth - 1.5 ft.
 Velocity - N.D.
 Volume - N.D.
 Secchi disk - Clear to bottom
 Bottom type - Rubble-gravel-silt
 Fish shelter - Undercut banks-logs-brush
 Shade - 80%

Fish Food

Decapoda-Tricoptera-Ephemeroptera-
 Coleoptera

Aquatic Vegetation

Justica sp.

Fish Fauna

Spotted bass	7-5-0
Grass pickerel	1-0-0
Longear sunfish	3-20-0
White sucker	12-13-0
Hog sucker	7-7-0
Yellow bullhead	1-0-0
Brindled madtom	0-1-0
Bluntnose minnow	136-0-0
Stoneroller	80-24-0
Creek chub	32-19-2
Common shiner	113-37-0
Silverjaw minnow	20-0-0
Emerald shiner	8-0-0
Logperch	0-8-0
Blackside darter	2-0-0
Greenside darter	11-4-0
Fantail darter	42-0-0
Rainbow darter	17-0-0
Johnny darter	2-0-0

 BUFFALO CREEK (Carter-Greenup Counties)

Order V

Stream Length - 11.4 miles

Buffalo Creek originates in western Carter County and flows northeast to join Tygart's Creek at Kehoe, Kentucky. This stream supports good populations of sunfish. The fishing pressure on this stream is considered light with access being mainly along Kentucky Hwy. 2.

Study Area Data

Date - 7-20-72

Location - 0.5 miles below Zonnes Branch

Method - Chemicals

Lgth. of sample area - 300 ft.

Qualitative

Physical and Chemical

D.O. - 6.4 ppm
 pH - 6.9
 Total alk. - 146 ppm
 Temperature - 80°F.
 Avg. width - 25 ft.
 Avg. depth - 0.5 ft.
 Velocity - N.D.
 Volume - N.D.
 Secchi disk - 6 in.
 Bottom type - Rubble-gravel
 Fish shelter - Undercut banks-brush
 Shade - 40%

Fish Fauna

Smallmouth bass	3-0-0
Spotted bass	3-0-0
Rock bass	3-8-0
Longear sunfish	8-22-2
Hog sucker	35-0-0
White sucker	29-0-0
Stoneroller	99-4-0
Common shiner	252-16-0
Bluntnose minnow	21-0-0
Silverjaw minnow	13-0-0
Creek chub	33-1-0
River chub	2-0-0
Emerald shiner	9-0-0

Physical and Chemical (cont.)Fish Food

Decapoda

Aquatic Vegetation*Justica* sp.Fish Fauna (cont.)

Brindled madtom	22-0-0
Logperch	0-1-0
Fantail darter	52-0-0
Rainbow darter	43-0-0
Greenside darter	15-2-0
Variegated darter	0-3-0
Johnny darter	24-0-0

KINNICONICK CREEK (Lewis County)

Order VI

Stream Length - 35.2 miles

Kinniconick Creek rises in western Lewis County and flows northeast to join the Ohio River near Garrison, Kentucky. Kinniconick Creek has probably the best reputation as a musky stream in the state of Kentucky. This stream receives heavy pressure, most of which is concentrated on the musky, although smallmouth bass fishing is also considered good. Access is good along highways 559 and 1306. This stream provides good float fishing with accessibility at low water bridges along its course. Pollution is limited with the main sources being saw mill operations and limited agricultural practices. Many studies have been conducted on this stream by project F-31 personnel (Brewer, 1969).

Study Area Data

Date - 7-13-72

Location - 1 mile above jct. Hwys. 1149
and 1360

Method - Chemicals

Lgth. of sample area - 350 ft.
QualitativePhysical and Chemical

D.O. - 8.0 ppm

pH - 7.0

Total alk. - 21 ppm

Temperature - 68°F.

Avg. width - 35 ft.

Avg. depth - 3 ft.

Velocity - N.D.

Volume - N.D.

Secchi disk - 12 in.

Bottom type - Boulders-rubble-gravel

Fish shelter - Boulders-logs-brush

Shade - 75%

Fish Fauna

Emerald shiner 44-0-0

Rainbow darter 7-0-0

Fish Food

Ephemeroptera-Decapoda-Mollusca

Aquatic Vegetation*Justica* sp.

LAUREL FORK (Lewis County)
Order V
Stream Length - 4.5 miles

Laurel Fork originates in southeastern Lewis County and runs north to join Kinniconick Creek below Camp Dix, Kentucky. Only the lower section below Grassy Fork is suitable for sustaining sport fishing populations. Even in this section, due to accessibility problems and the proximity to Kinniconick, the pressure is very light.

Study Area Data

Date - 7-18-72
Location - 1 mile below mouth of
Grassy Fork

Method - Chemicals
Lgth. of sample area - 210 ft.
Qualitative

Physical and Chemical

D.O. - 6.4 ppm
pH - 6.9
Total alk. - 25 ppm
Temperature - N.D.
Avg. width - 15 ft.
Avg. depth - 6 in.
Velocity - N.D.
Volume - N.D.
Secchi disk - Clear
Bottom type - Rubble-gravel
Fish shelter - Brush
Shade - 40%

Fish Food

Ephemeroptera-Tricoptera

Aquatic Vegetation

Algae

Fish Fauna

Smallmouth bass	2-2-0
Spotted bass	1-1-0
Grass pickerel	1-0-0
Rock bass	1-10-3
Longear sunfish	0-5-0
Hog sucker	6-6-0
Stoneroller	42-24-0
Common shiner	76-64-0
Creek chub	8-4-0
Emerald shiner	8-0-0
River chub	7-5-0
Logperch	0-1-0
Rainbow darter	22-0-0
Fantail darter	34-0-0
Banded sculpin	8-0-0

INDIAN CREEK (Lewis County)
Order V
Stream Length - 7.3 miles

Indian Creek originates in southern Lewis County and flows north to join Kinniconick Creek near Stricklett, Kentucky. This stream has some holes that hold harvestable smallmouth bass, but for the most part is too shallow to provide substantial sport fishery populations. Access is good along Hwy. 377. Pollution is limited to agricultural practices.

Study Area Data

Date - 7-13-72
Location - 1 mile above mouth

Method - Chemicals
Lgth. of sample area - 260 ft.

Physical and Chemical

D.O. - 2.0 ppm
pH - 7.1
Total alk. - 19 ppm
Temperature - 73°F.
Avg. width - 30 ft.
Avg. depth - 1.0 ft.
Velocity - N.D.
Volume - N.D.
Secchi disk - Clear to bottom
Bottom type - Boulders-gravel-sand
Fish shelter - Boulders-brush
Shade - 35%

Fish Fauna

Smallmouth bass	1-0-0
Stoneroller	33-12-0
Creek chub	2-6-0
Common shiner	45-13-0
Silverjaw minnow	3-0-0
Rosefin shiner	25-0-0
Brindled madtom	1-0-0
Rainbow darter	10-0-0
Fantail darter	40-0-0
Banded sculpin	3-0-0

Fish Food

Decapoda-Ephemeroptera

Aquatic Vegetation

None

INDIAN CREEK (Lewis County)

Study Area Data

Date - 7-13-72
Location - Thacker's Chapel

Method - Chemicals
Lgth. of sample area - 425 ft.
Qualitative

Physical and Chemical

D.O. - 8.8 ppm
pH - 7.2
Total alk. - 19 ppm
Temperature - 66°F.
Avg. width - 15 ft.
Avg. depth - 6 in.
Velocity - N.D.
Volume - N.D.
Secchi disk - Clear to bottom
Bottom type - Bedrock-boulders-gravel
Fish shelter - Boulders-ledges
Shade - 45%

Fish Fauna

Smallmouth bass	46-8-1
Stoneroller	232-33-0
Creek chub	22-2-0
Silverjaw minnow	21-0-0
Rainbow darter	7-0-0
Fantail darter	167-2-0
Banded sculpin	1-0-0

Fish Food

Decapoda-Ephemeroptera-Tricoptera-Coleoptera

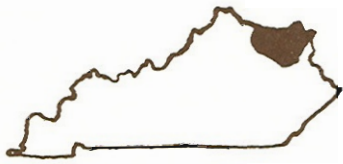
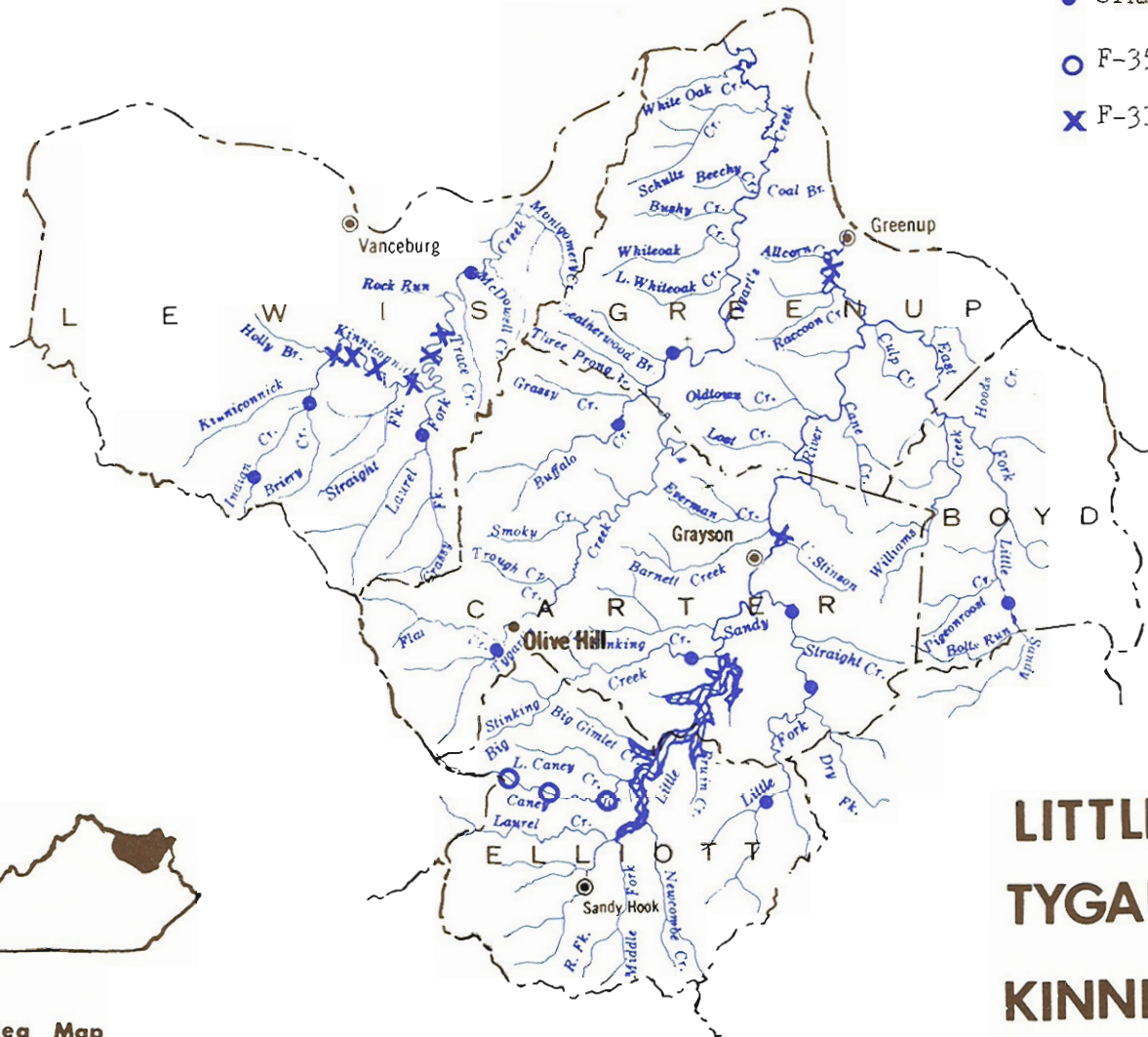
Aquatic Vegetation

None

I N D E X T O A P P E N D I X

<u>Stream</u>	<u>County</u>	<u>Miles</u>	<u>Order</u>	<u>Page</u>
Big Caney Creek	Rowan-Elliott	8.0	IV	20-21
Big Sinking Creek	Carter-Elliott	9.8	IV	20
Buffalo Creek	Carter-Greenup	11.4	V	22-23
East Fork Little Sandy River	Boyd-Greenup	40.8	V	17
Indian Creek	Lewis	7.3	V	24-25
Kinniconick Creek	Lewis	35.2	VI	23
Laurel Fork	Lewis	4.5	V	24
Little Fork Little Sandy River	Carter-Elliott	22.5	V	18-19
Little Sandy River	Elliott-Carter-Greenup	62.1	VI	17
Tygarts Creek	Carter-Greenup	85.1	VI	21-22

- STREAM STUDIES 1971-1972
- F-35 WILD RIVERS STUDIES 1970
- ✕ F-31 STUDIES 1967-1971



Area Map

LITTLE SANDY RIVER, TYGARTS CREEK AND KINNICONICK CREEK DRAINAGES