ANNUAL ENVIRONMENTAL MONITORING REPORT

ARKANSAS NUCLEAR ONE

UNITS 1 & 2

DOCKET NOS. 50-313 & 368

LICENSE NOS. DPR-51 & NPF-6

TABLE OF CONTENTS

DARDANELLE RESERVOIR FISHERIES SURVEY
PROJECT NO. 873

PROGRESS REPORT NO. 14

BUFORD TATUM

Student Assistants

Michael Kepesky
Gary Riordan
Donald Clover
Ronald Duvall

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

ROTENONE

PHYSICAL WATER QUALITY

AGE AND GROWTH

A SUMMARY OF THE DARDANELLE RESERVOIR FISHERY SURVEY

FOR JANUARY 1 THROUGH DECEMBER 31, 1981

Review of the data generated by this program indicates that the operation of Arkansas Nuclear One is not having a significant impact on the fishery of Dardanelle Reservoir.

The survey characterizes the fish population in the reservoir by use of the following sampling gear and methods:

A. Rotenone

B. Meter Net

C. Mid-water Trawl

D. Shoreline Seine

E. Trap Net

F. Gill Net

G. Trammel Net

H. Physical Water Quality

I. Age and Growth

Four sample stations are used. Backwater Area A is located upstream of possible plant influence and is used as the control station. The other three stations, Intake Area B, Discharge Area C and Channel Area D are located in areas where potential plant impact would be expected to occur.

A general characterization of the fishery in the reservoir is that it is highly variable. However, there does not appear to be a major shift in species diversity or relative density over the eight-year sample period, 1974 through 1981.

Since many fish species move into the shallows at night, an effective method of fish population estimation has been the use of rotenone in a representative section of these areas. This part of the fishery survey is conducted under the supervision of the Arkansas Game and Fish Commission on a yearly basis, usually in September. Two areas are sampled, the Backwater (control) and the Discharge.

There appears to be a general increase in the 1981 fish population over 1980. The data for the eight-year sample period shows the number and weight of fish per acre to be varied. The lowest population was found to be in 1975 with 1755 in number per acre and 290 pounds per acre. The highest population occurred the next year, 1976, with 9414 in number and 741 pounds. The eight-year average number and weight per acre is 5846 number and 572 pounds. In 1981, there were 6029 number per acre and 605 pounds per acre.

Examination of the commercial/sport and forage fish species in the reservoir reveals the Gizzard Shad, Dorosoma cepedianum (LeSueur) and Threadfin Shad, Dorosoma petenense (Gunther) to be the most plentiful species. They are followed in number by the Sunfish species, commonly

referred to as bream, Freshwater Drum, Aplodinotus grunniens (Rafinesque) and Channel Catfish, Ictalurus punctatus (Rafinesque). The other species occur in much lessor numbers.

The general yearly reservoir fish population trends, represented by number per acre, obtained from the rotenone survey data (Figure 1), indicate a similar trend between the Backwater and Discharge until 1978 at which time they become diametrically opposed to each other. The primary difference is a fluctuation in the Shad population, especially the Gizzard Shad. Also, the bream species, Largemouth Bass, Micropterus salmoides (Lacepede) and Drum contributed to the increase in total fish in the Discharge in 1978. The general fish population trend throughout the sample areas indicates yearly fluctuations due to natural variation.

Some species of fish seem to prefer one area more than another. Largemouth Bass, bream and Channel Catfish occur in greater numbers in the Discharge, while Threadfin Shad, Blue Catfish, Ictalurus furcatus (LeSueur), Flathead Catfish, Pylodictis olivaris (Rafinesque), White Bass, Roccus chrysops (Rafinesque), Striped Bass, Roccus saxatilis (Walbaum) and White Crappie, Pomoxis annularis (Rafinesque) occur in greater numbers in the Backwater. The other species do not appear to prefer any one area over the other.

Utilization of meter net, mid-water trawl and shoreline seine sampling gear aids in the detection of fish spawning activity and

survival of the larval fish. A review of the data reveals that the gear is selective for the Shad species, White Bass, Bluegill Sunfish, Lepomis macrochirus (Rafinesque) and White Crappie. Spawning activity is impossible to detect for the other species.

Clupeidae usually spawn early in May through June in all areas including the Discharge. This is true whether the Discharge water temperature is slightly elevated due to plant operation or if the plant is off-line during the spawning season. Only occassional small peaks are observed in July, August and September. The average water temperature at the beginning of spawning ranged from 20°C to 22°C between the four sample areas.

Meter net data indicates a decrease in fish spawned in 1976 (Figure 2). However, mid-water trawl (Figure 3) and shoreline seine data (Figure 4) provide evidence to the contrary. In fact, there was a dramatic increase in the larval fish population, primarily due to Clupeidae. Rotenone data also indicates a large increase in adult fish numbers, namely Clupeidae.

White Bass spawn is more difficult to detect due to the very small numbers in the samples. Spawning probably occurs in early April but has been observed as late as mid-June. The average water temperature during spawning ranges from 14 to 21°C.

No larval White Bass were detected in the 1979 through 1980 meter net samples. Other sample gear did detect a few individuals, but there appears to be a general decrease in the White Bass population in the past several years. However, this does not appear to be an abnormal occurrance in the reservoir and is probably a natural trend (Figure 23).

The Crappie species appear to spawn in mid-April through May in an average water temperature range of 19 to 24°C. Occasional small peaks are observed in June, July and August.

The bream species usually spawn at a later date. Spawning begins late in May and continues into August with an average water temperature range of 24 to 28°C.

At no time in the eight-year sample period has any species been observed to spawn in March. Therefore, beginning sampling in March proves to be of no value.

The Backwater usually yields the greatest number of spawned fish and consists primarily of the Clupeidae species. On two occasions, 1976 and 1980, the Channel was obsered to yield an unusually large population of larval Clupeidae (Figures 2 and 4).

Mid-water trawl data is used to estimate the survival of the larval fish. It should be noted, however, that this method is not without

discrepancies (Table 1). There have been instances where there are nearly as many larval fish caught in the mid-water trawl as in the meter net or there were more fish in the mid-water trawl samples. This occurrance is notable in 1976, 1977 and 1981 for all four sample areas. Generally, no more than 5 to 10% of the larval fish reach maturity in any of the areas. The Discharge area does seem to have the highest survival percentage from 1975 through 1981. Operation of Arkansas Nuclear One may be exerting a beneficial influence in this respect.

Trap nets usually yield fewer fish per sample effort. The data indicates trends different from the gill and trammel net data (Figures 5 through 7). The Backwater and Channel yield fewer fish and are observed to follow a trend consistent with each other over the eight sample years. The Intake and Discharge are highly variable. Very large numbers of Threadfin Shad and White Crappie account for the peaks observed in 1975 and 1977 data and Threadfin Shad and bream account for the peak in 1981 data (Figure 5).

Gill and trammel nets indicate yearly variability and somewhat different fish population trends between the two types of sampling gear. However, species diversity and density are consistent between the two.

The major difference between the three types of sampling gear is the species selectivity they exhibit. The trap net selects most heavily for Threadfin Shad and bream. This is most likely due to the smaller bar mesh size of the trap net. Gill and trammel nets select most heavily for Gizzard Shad, the catfish species, the bass species and Freshwater Drum.

All three types of sampling gear select heavily for the crappie species.

Physical water quality measurements are taken each sample day in all four areas. Since there is no sampling in December and January, the data for these months is missing.

Lake levels are controlled by nature and the Corps of Engineers. 1981 data indicates a variation in lake level of one half foot. Other years exhibit more variation, usually depending on the amount of rainfall. The lowest water levels occur in the summer months and the highest water levels occur in the winter months.

Average water temperatures, calculated from 20% and 80% depth data, range from 10°C to 32°C. Operation of Arkansas Nuclear One elevates the Discharge water temperature slightly. In 1981, the temperature ranged from .5°C to 4.5°C higher than the reservoir temperature. The highest temperature differential is observed in the spring and fall. Discharge temperatures are maintained at a lower level in the summer months to minimize the impact on dissolved oxygen concentrations. Examination of the dissolved oxygen concentration data reveals that only rarely does the Discharge have the lowest dissolved oxygen. In fact, the Channel and Backwater are observed to have the lowest concentrations. The Backwater is also observed to have the highest amount of turbidity and the Intake the least.

Age and growth data for 1981 for various sport and commerical fish species is presented in Figures 8 through 21. Each species is separated into (1) each of the four sample areas, when present, and (2) all age and growth data for the species is combined to estimate the reservoir age and growth trend for the species.

The age and growth trend of each species is observed to vary from year to year. In 1981, the Backwater had younger Blue Catfish, four year olds, than it did in 1980, eight year old fish. The Intake, Discharge and Channel all had younger Flathead Catfish in 1981 than 1980, with the 1981 age of one year old compared to two to five years old. No Largemouth Bass or White Bass were caught in the Channel in 1981 and only one (1) one year old Largemouth Bass was caught in the Intake. White Crappie were not caught in the Discharge in 1981 while there were several in 1980.

First year fastest growth for Blue Catfish was similar in all four sample areas. Channel Catfish, Flathead Catfish, Freshwater Drum and White Crappie exhibited the fastest first-year growth in the Backwater, Largemouth Bass the fastest in the Discharge and White Bass the fastest in the Intake.

Gizzard and Threadfin Shad are known to be excellent forage fish for a large number of predator fish species. This is true for Gizzard Shad until they reach approximately 5 inches (130 mm). The species grows

rapidly and can become fairly large in size. Potential overcrowding could result if a substantial number of individuals become too large for major predation. Introduction of Threadfin Shad is designed to not only provide additional forage but also exert a suppressing influence on Gizzard Shad populations through species competition. Reservoir data reveals this to be true. When Threadfin Shad appear in large numbers, the Gizzard Shad population usually decreases. The converse is also true (Figure 22).

The success of the Threadfin Shad population appears to affect the number and condition of predator fish species as well (Figures 23 through 28). The bass species increase or decrease consistant with the rise and fall of the Threadfin Shad population. This appears to be generally true for the crappie and catfish species. However, it should be noted that the weights of some of the catfish species actually increased while their number decreased corresponding to the decrease in Threadfin Shad numbers. It appears that Threadfin Shad compete with the catfish, primarily Channel Catfish, and adversely affect the catfish's condition (Figures 27 and 28).

Striped Bass appear to be influenced, probably indirectly, by the Threadfin Shad population success, in this case failure. The observed decrease in White Bass population in 1980 and 1981 may be responsible for the slight increase in Striped Bass number and the significant increase in their weight (Figures 23 and 24).

A general declining trend is observed for the crappie species, especially Black Crappie (Figures 25 and 26). White Crappie exhibits several peaks in population. However, each peak is smaller than the previous one and if the trend continues, the population is declining. A possible contributary cause for the decline in the areas sampled may be the sampling efforts of the fishery survey on the crappie species. Use of 1981 gill, trammel and trap net and rotenone data were used to calculate the impact of the sampling effort on the adult fish in the reservoir. The crappie species are the most heavily impacted (Table 2).

Consideration should be given to reducing the sampling effort in the fishery survey.

TABLE 1   PERCENT SURVIVAL OF SPAWNED FISH BY TOTAL CATCH EFFORT BY STATION FOR 1974 THROUGH 1981

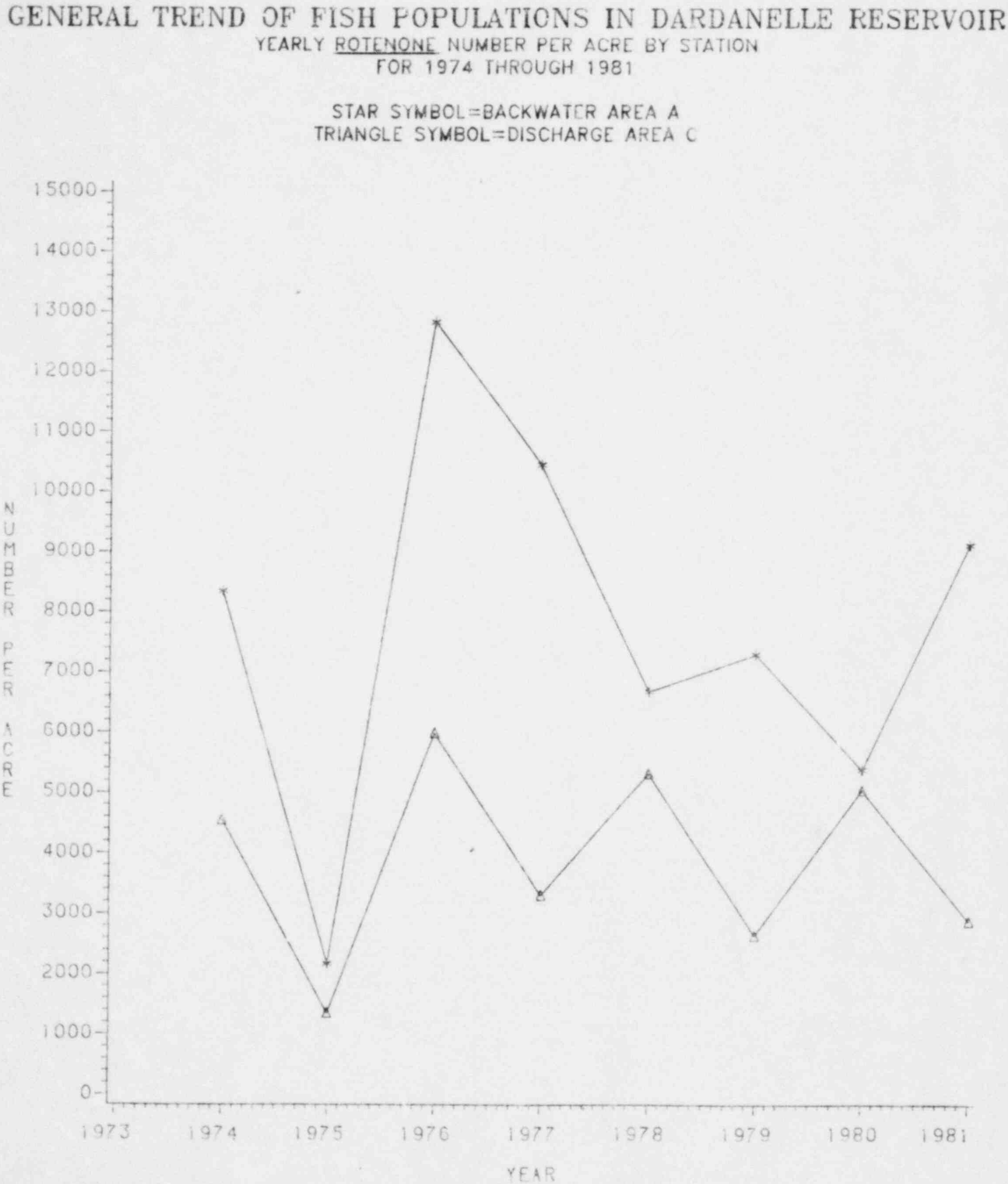
NOTE:PERCENTAGES GREATER THAN 100% ARE CAUSED BY A LARGER NUMBER OF FISH IN THE MID-WATER TRAWL THAN IN THE METER NET

YEAR	DISCHARGE AREA C	INTAKE AREA B	BACKWATER AREA A	CHANNEL AREA D	AVERAGE FOR THE YEAR
1974	1.1	2.9	2.1	3.4	2.3
1975	4.6	3.8	0.8	2.8	3.0
1976	140.2	88.9	122.4	115.3	116.7
1977	83.0	12.5	51.1	12.8	39.9
1978	18.3	15.0	1.3	6.4	10.3
1979	3.5	2.0	1.5	2.4	2.4
1980	7.8	4.3	3.1	0.7	4.0
1981	134.0	157.9	63.6	10.3	92.9

TABLE 2 FISHERY SURVEY IMPACT ON SELECT RESERVOIR FISH POPULATIONS FOR 1981, DETERMINED BY TOTAL CATCH EFFORT FROM ROTENONE, TRAP NET, TRAMMEL NET AND GILL NET DATA

SPECIES	CALCULATED PERCENT IMPACT ON RESERVOIR POPULATION
GIZZARD SHAD	0.031
THREADFIN SHAD	0.031
CHANNEL CATFISH	0.034
BLUE CATFISH	0.095
FLATHEAD CATFISH	0.108
WHITE BASS	0.087
STRIPED BASS	0.119
BLUEGILL SUNFISH	0.031
WHITE CRAPPIE	0.396
BLACK CRAPPIE	1.426
LARGEMOUTH BASS	0.032
FRESHWATER DRUM	0.032
LONGEAR SUNFISH	0.030

FIGURE 1



GENERAL TREND OF FISH POPULATIONS IN DARDANELLE RESERVOIR
YEARLY ROTENONE NUMBER PER ACRE BY STATION
FOR 1974 THROUGH 1981
STAR SYMBOL=BACKWATER AREA A
TRIANGLE SYMBOL=DISCHARGE AREA C
NUMBER PER ACRE
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1973
1974
1975
1976
1977
1978
1979
1980
1981
YEAR

FIGURE 2

GENERAL TREND OF FISH POPULATIONS IN DARDANELLE RESERVOIR

YEARLY METER NET TOTAL NUMBERS BY STATION
FOR 1974 THROUGH 1981

STAR SYMBOL=BACKWATER AREA A
SQUARE SYMBOL=INTAKE AREA B
DIAMOND SYMBOL=CHANNEL AREA D
TRIANGLE SYMBOL=DISCHARGE AREA C

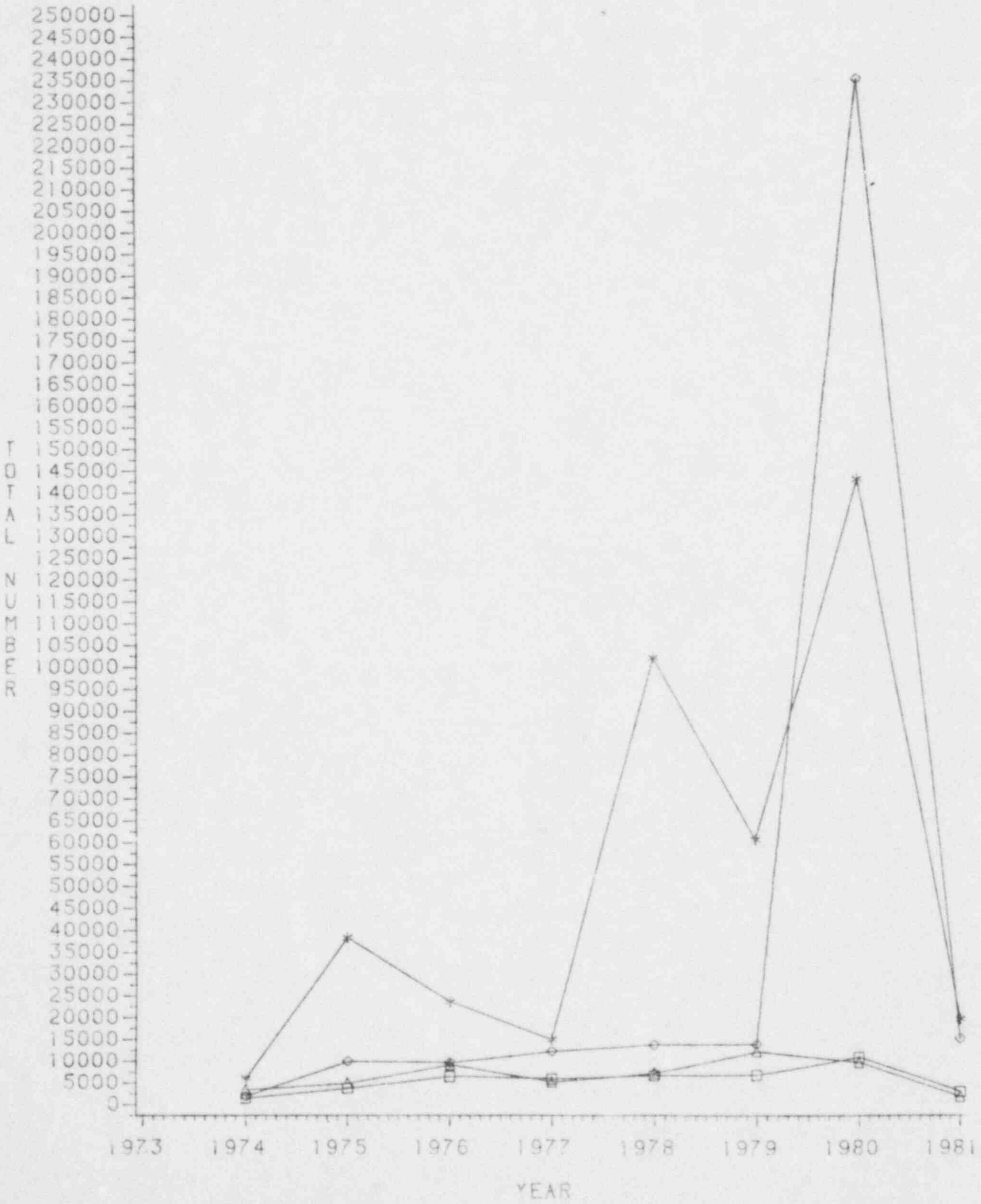


FIGURE 3

GENERAL TREND OF FISH POPULATIONS IN DARDANELLE RESERVOIR

YEARLY MID WATER TRAWL TOTAL NUMBERS BY STATION
FOR 1974 THROUGH 1981

STAR SYMBOL=BACKWATER AREA A
SQUARE SYMBOL=INTAKE AREA B
DIAMOND SYMBOL=CHANNEL AREA D
TRIANGLE SYMBOL=DISCHARGE AREA C

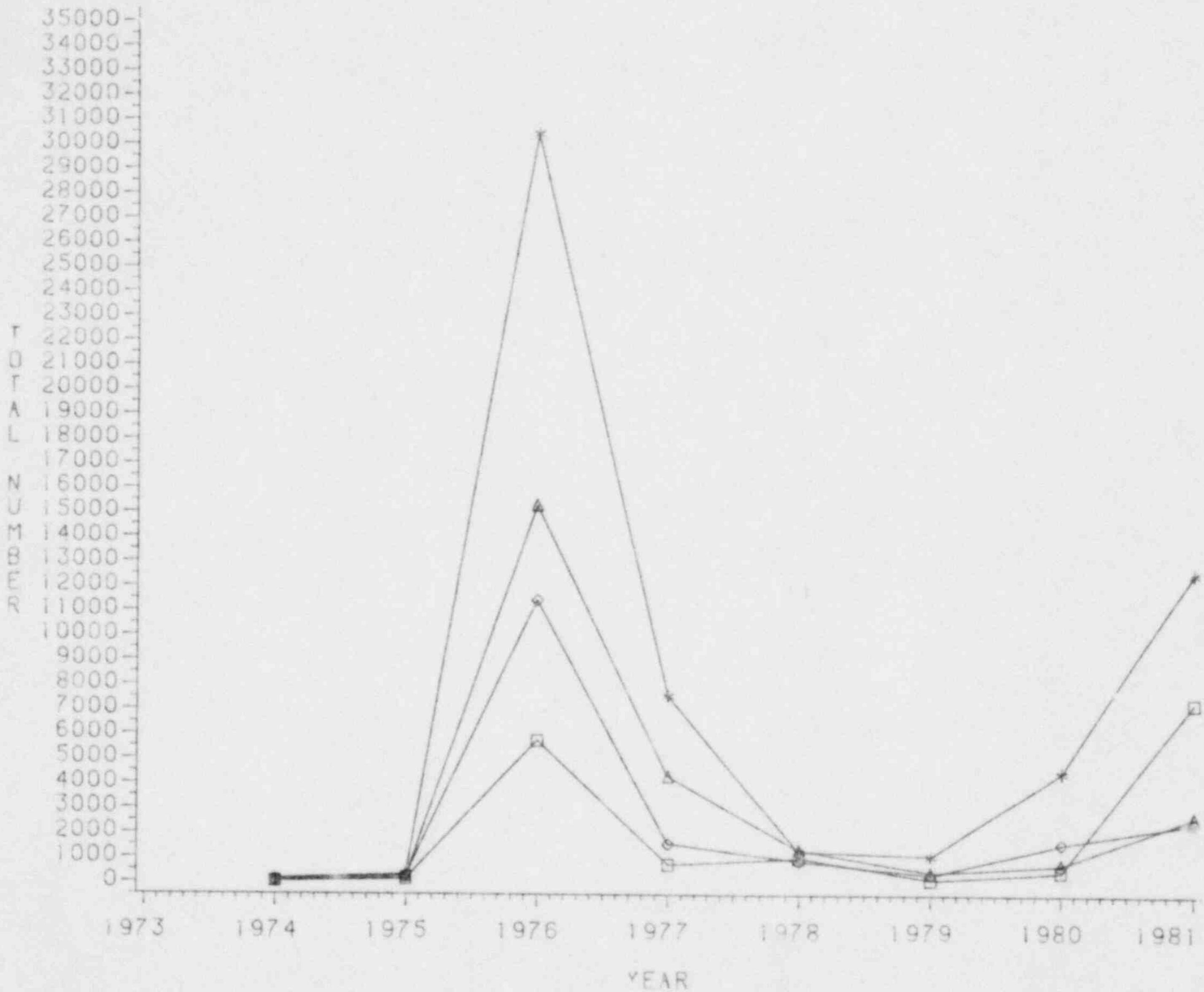


FIGURE 4

GENERAL TREND OF FISH POPULATIONS IN DARDANELLE RESERVOIR

YEARLY SHORELINE SEINE TOTAL NUMBERS BY STATION
FOR 1974 THROUGH 1981

STAR SYMBOL=BACKWATER AREA A
SQUARE SYMBOL=INTAKE AREA B
DIAMOND SYMBOL=CHANNEL AREA D
TRIANGLE SYMBOL=DISCHARGE AREA C

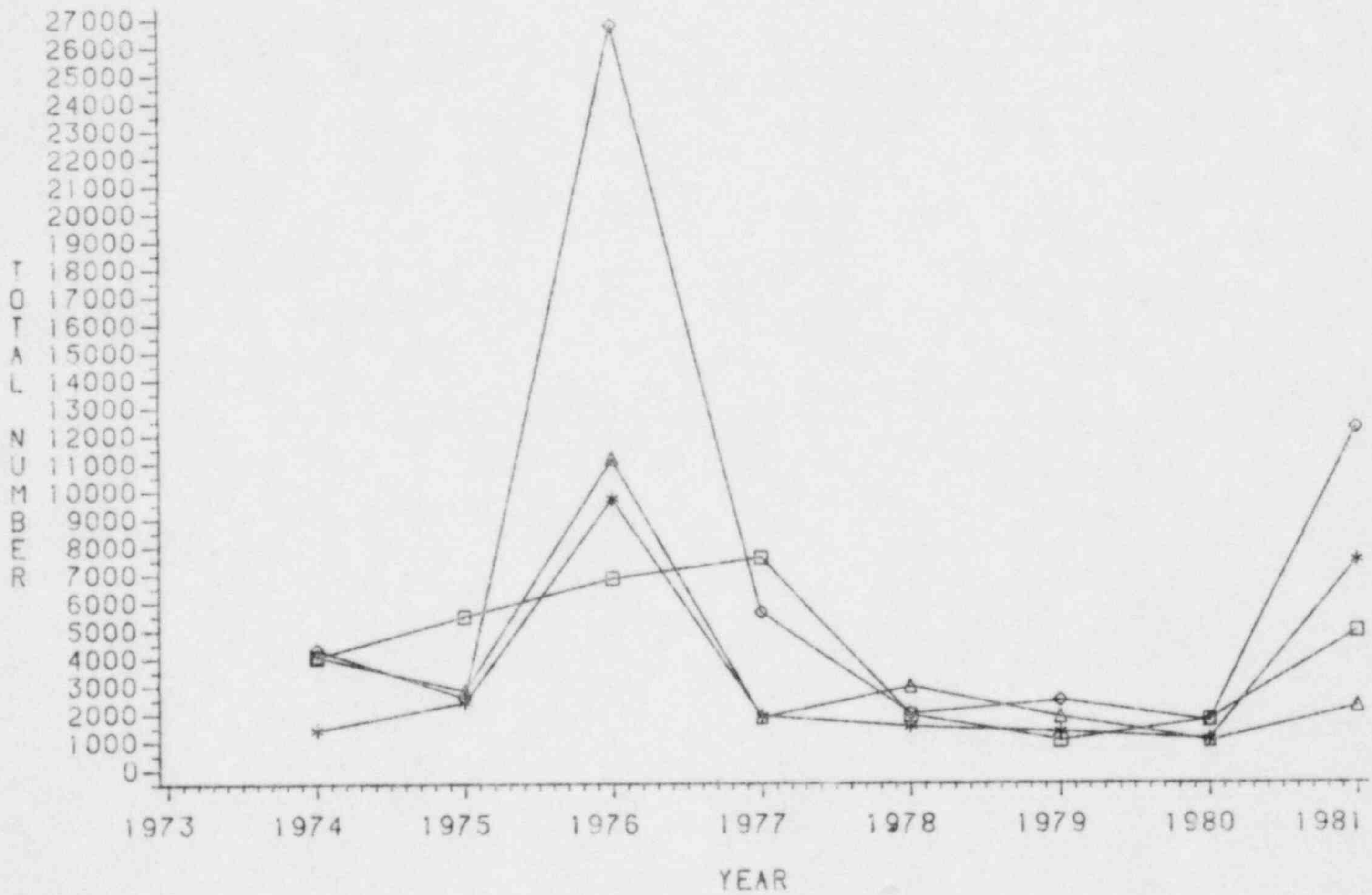


FIGURE 5

GENERAL TREND OF FISH POPULATIONS IN DARDANELLE RESERVOIR

YEARLY TRAP NET TOTAL NUMBERS BY STATION
FOR 1974 THROUGH 1981

STAR SYMBOL=BACKWATER AREA A
SQUARE SYMBOL=INTAKE AREA B
DIAMOND SYMBOL=CHANNEL AREA D
TRIANGLE SYMBOL=DISCHARGE AREA C

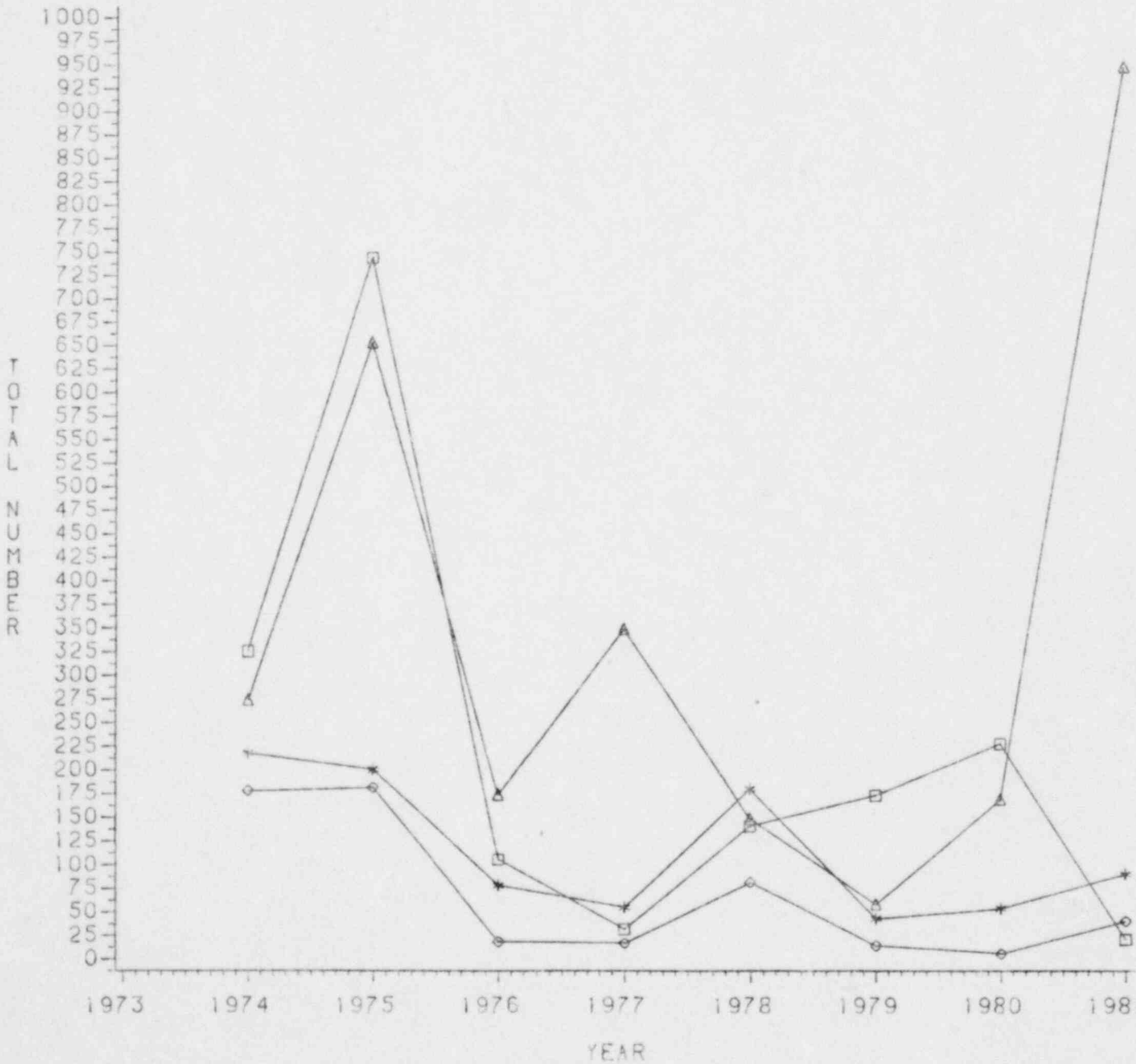


FIGURE 6

GENERAL TREND OF FISH POPULATIONS IN DARDANELLE RESERVOIR

YEARLY GILL NET TOTAL NUMBERS BY STATION
FOR 1974 THROUGH 1981

STAR SYMBOL=BACKWATER AREA A
SQUARE SYMBOL=INTAKE AREA B
DIAMOND SYMBOL=CHANNEL AREA D
TRIANGLE SYMBOL=DISCHARGE AREA C

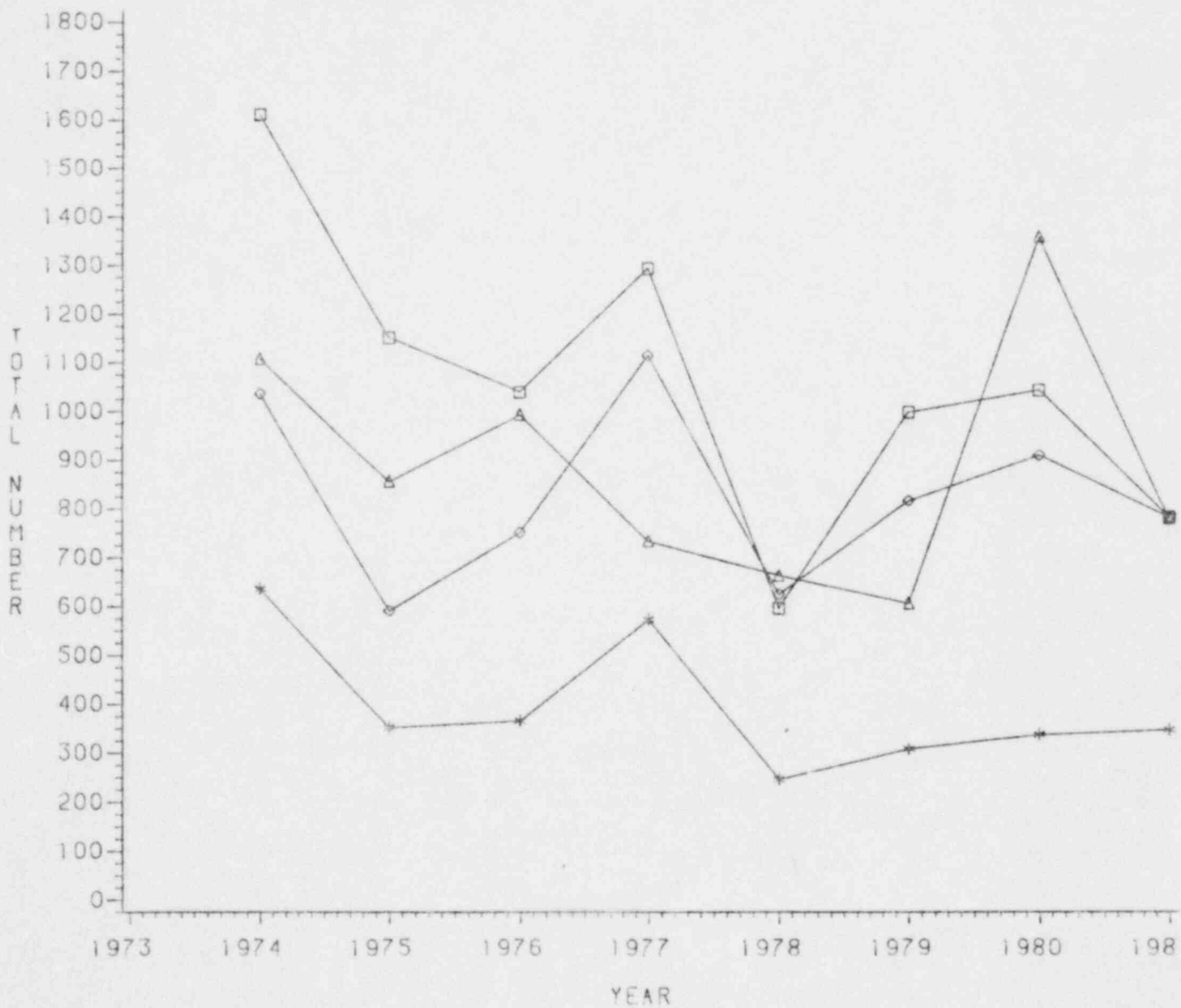


FIGURE 7

GENERAL TREND OF FISH POPULATIONS IN DARDANELLE RESERVOIR

YEARLY TRAMMEL NET TOTAL NUMBERS BY STATION
FOR 1974 THROUGH 1981

STAR SYMBOL=BACKWATER AREA A
SQUARE SYMBOL=INTAKE AREA B
DIAMOND SYMBOL=CHANNEL AREA D
TRIANGLE SYMBOL=DISCHARGE AREA C

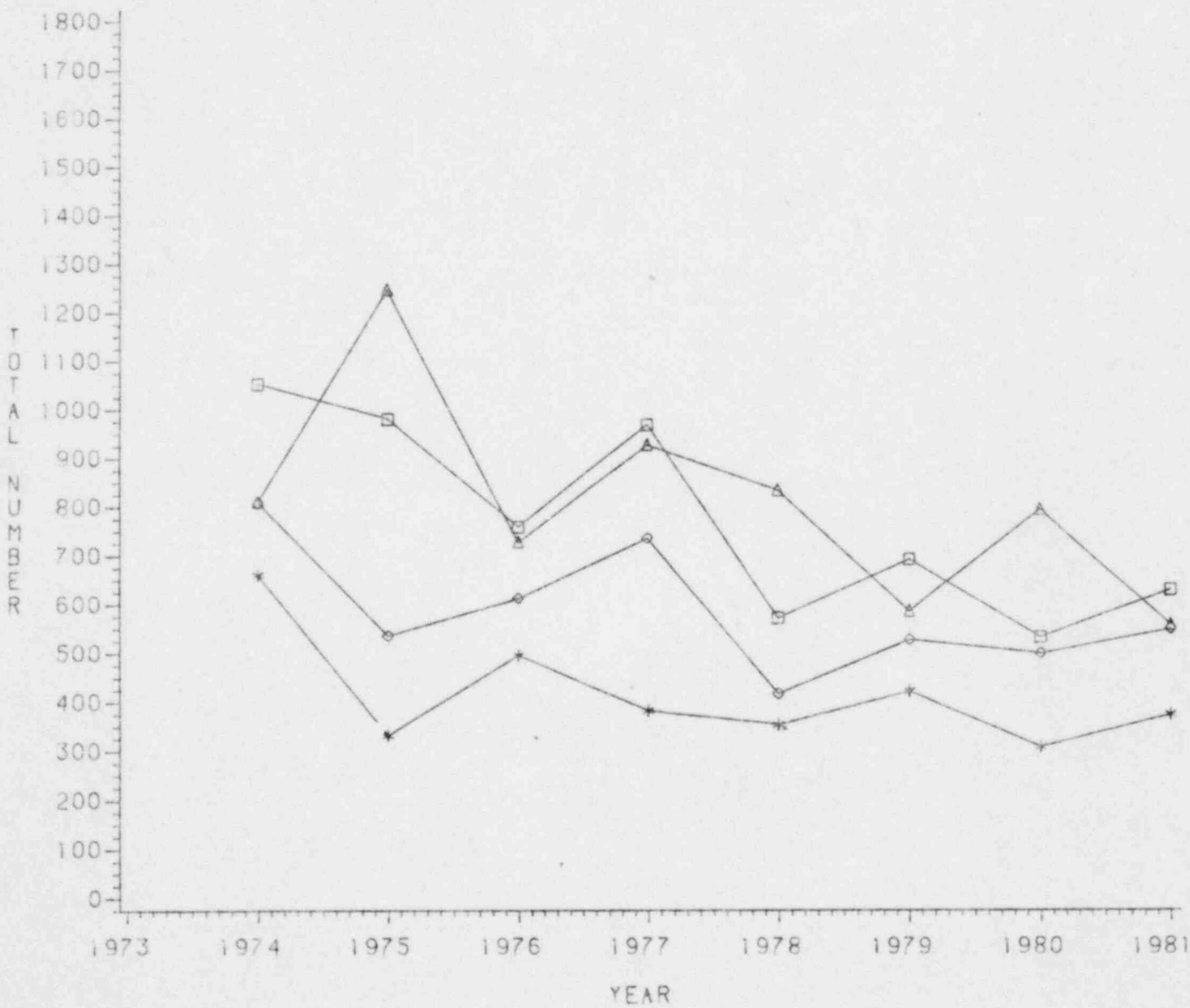
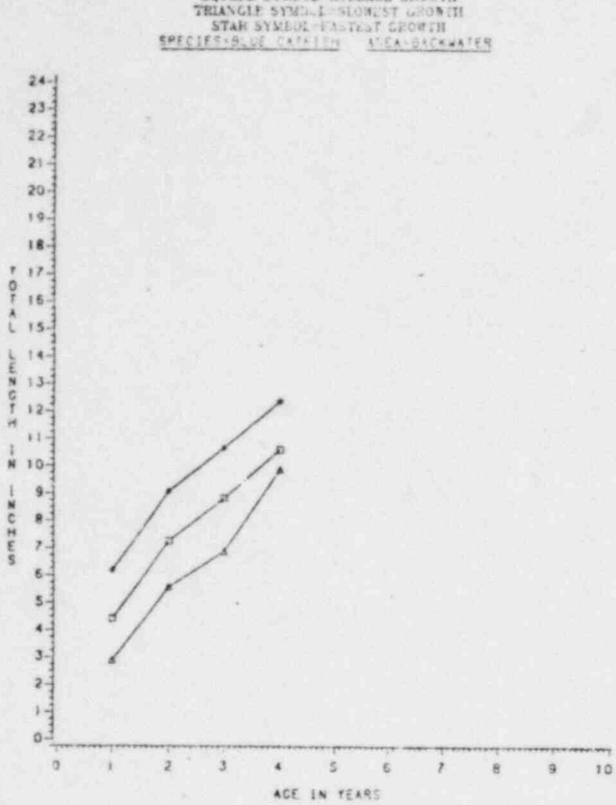
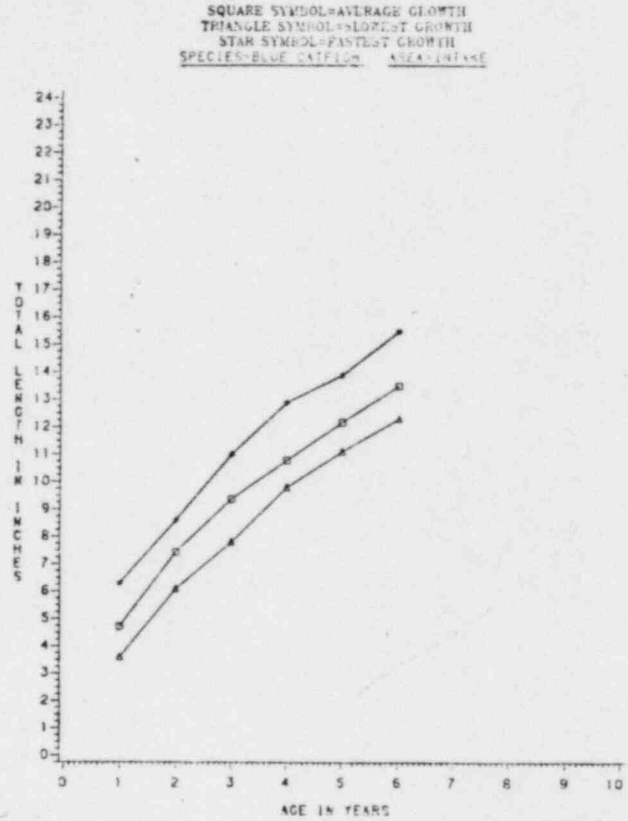


FIGURE 8

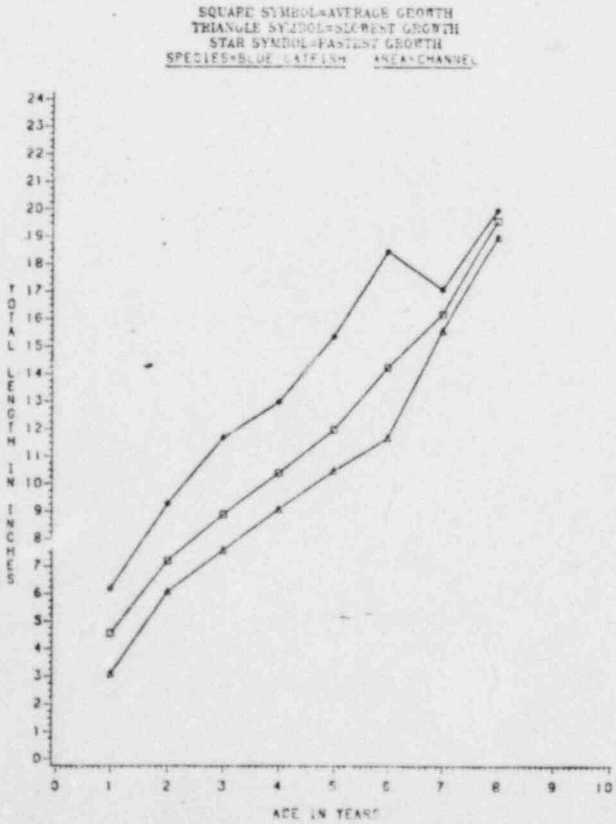
CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

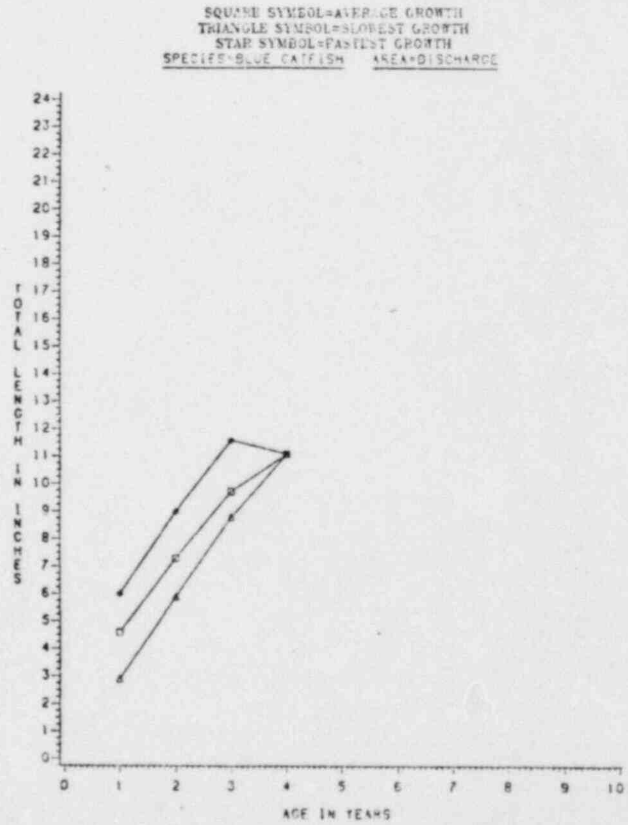


FIGURE 9

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH FOR THE DARDANELLE RESERVOIR FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=BLUE CATFISH

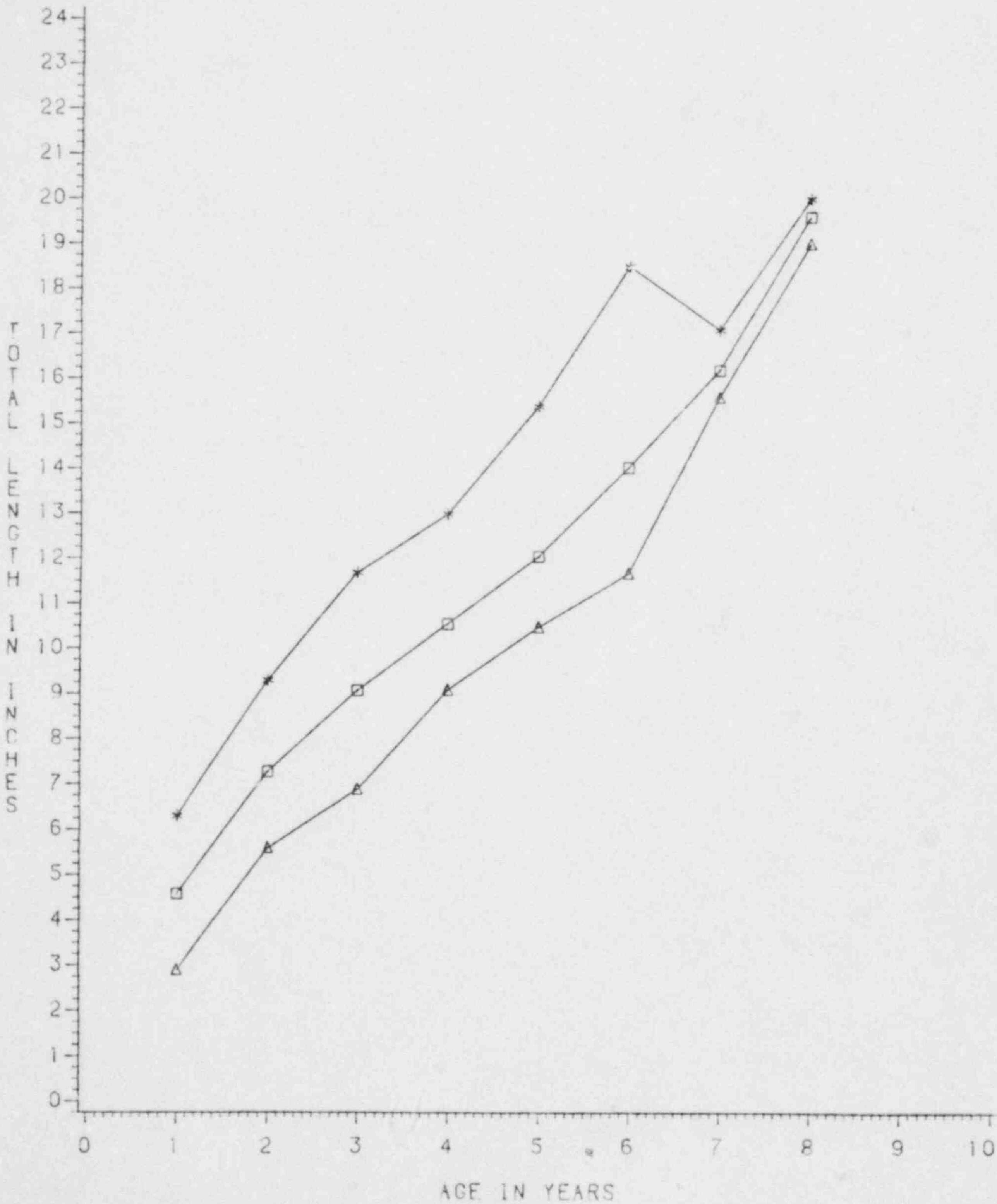
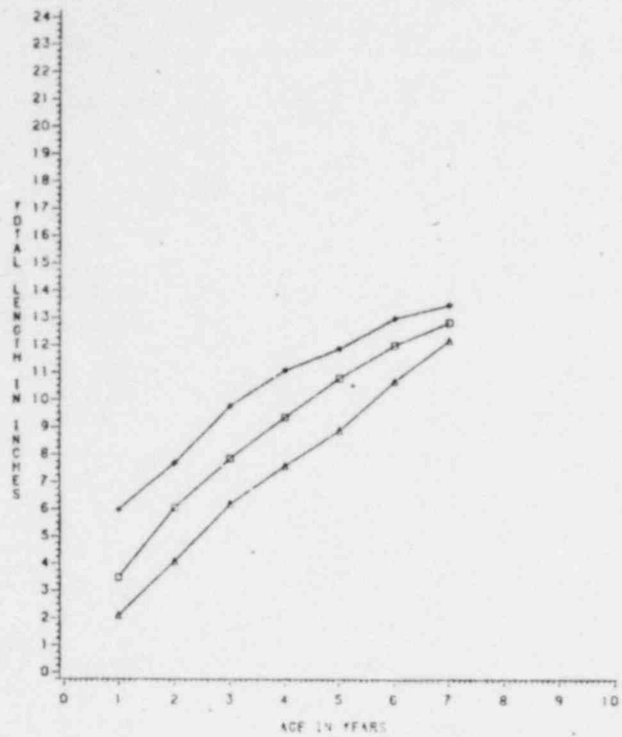


FIGURE 10

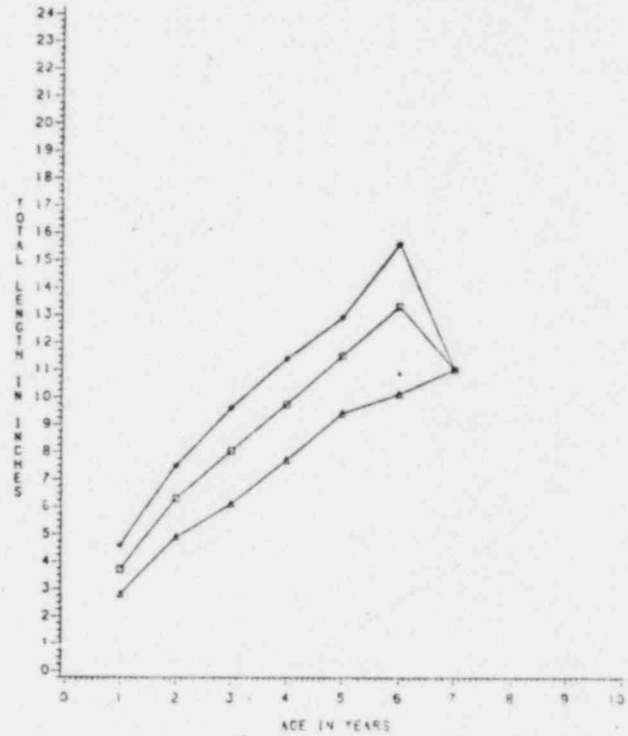
CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=CHANNEL CATFISH AREA=BACKWATER



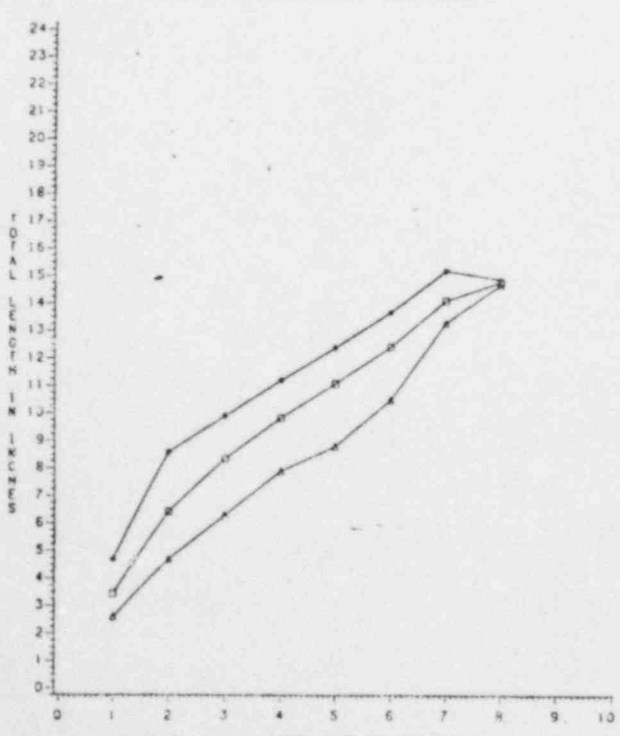
CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=CHANNEL CATFISH AREA=INTAKE



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=CHANNEL CATFISH AREA=CHANNEL



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=CHANNEL CATFISH AREA=DISCHARGE

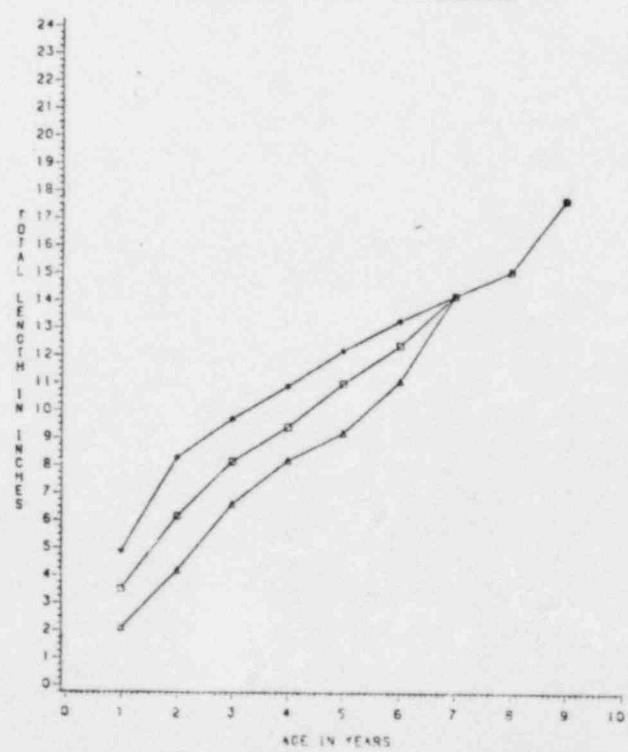


FIGURE 11

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH FOR THE DARDANELLE RESERVOIR FOR 1981

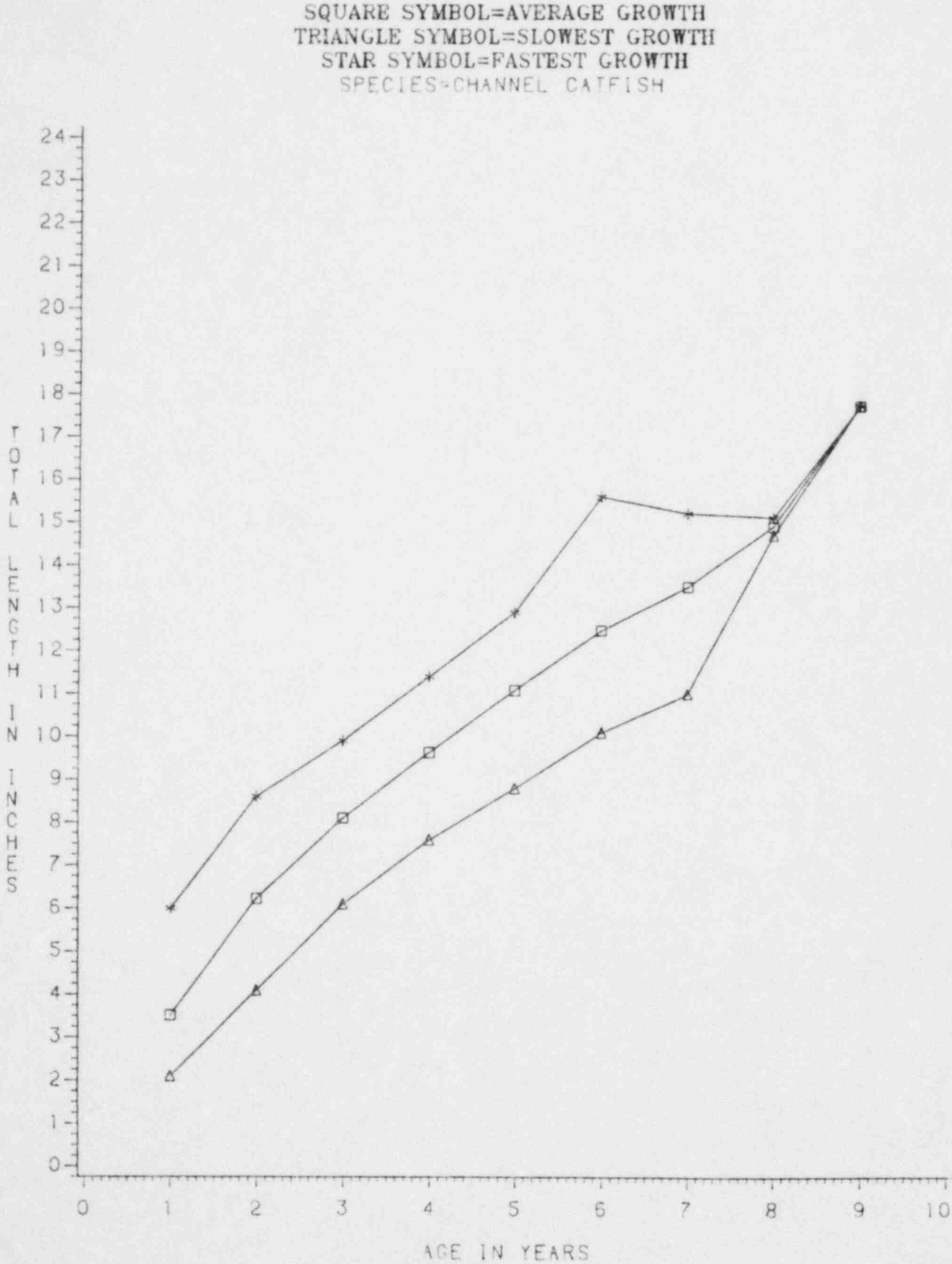
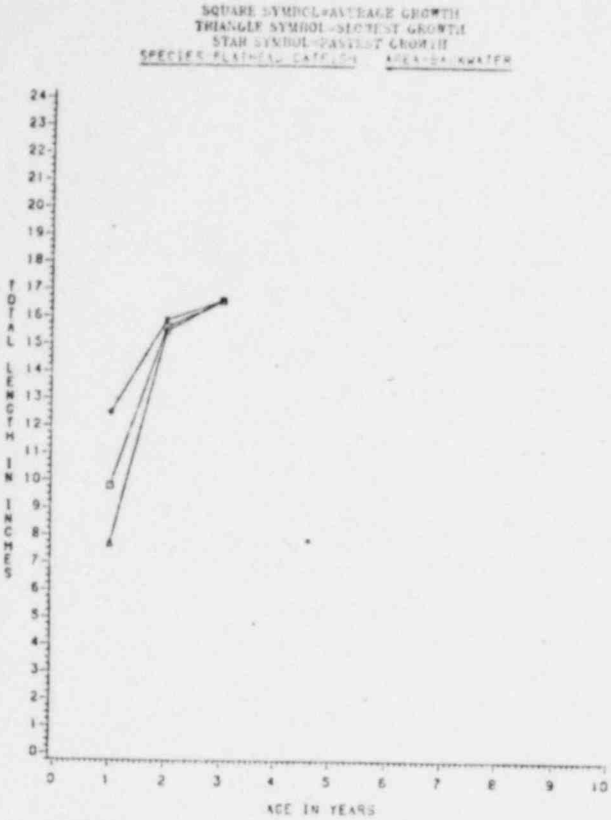


FIGURE 12

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

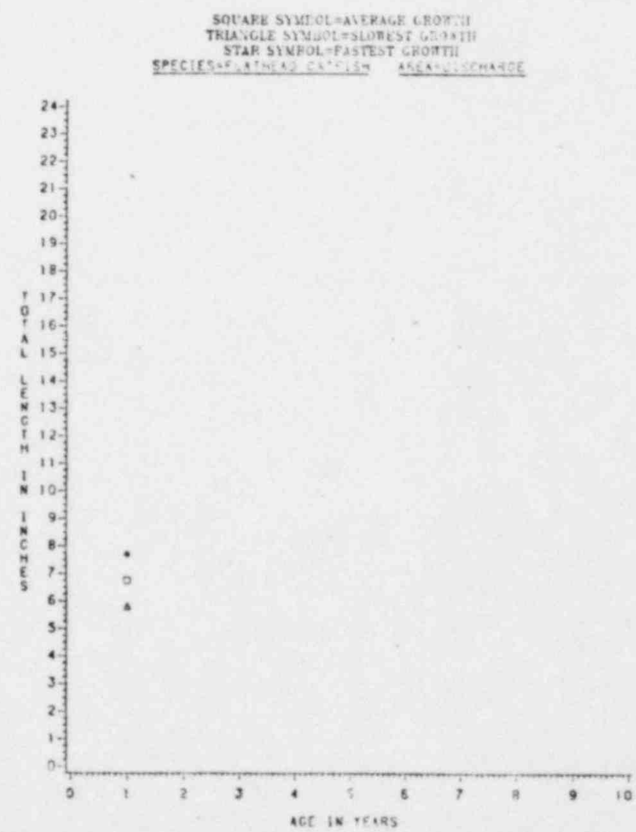


FIGURE 13

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH FOR THE DARDANELLE RESERVOIR FOR 1981

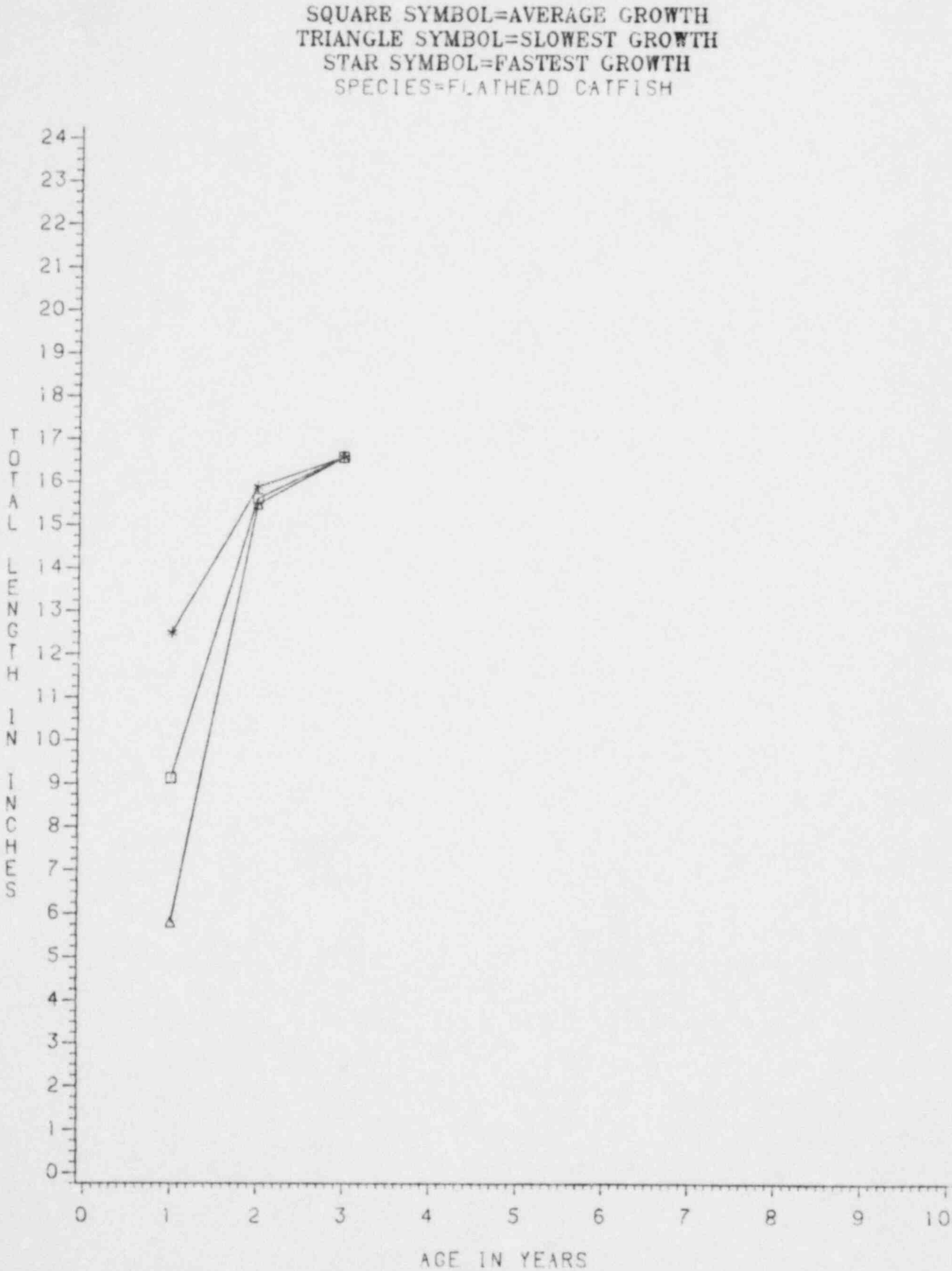
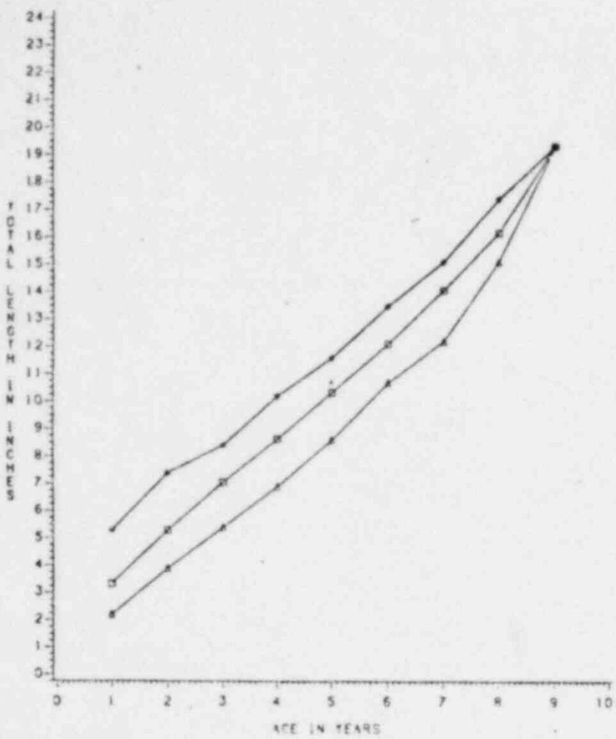


FIGURE 14

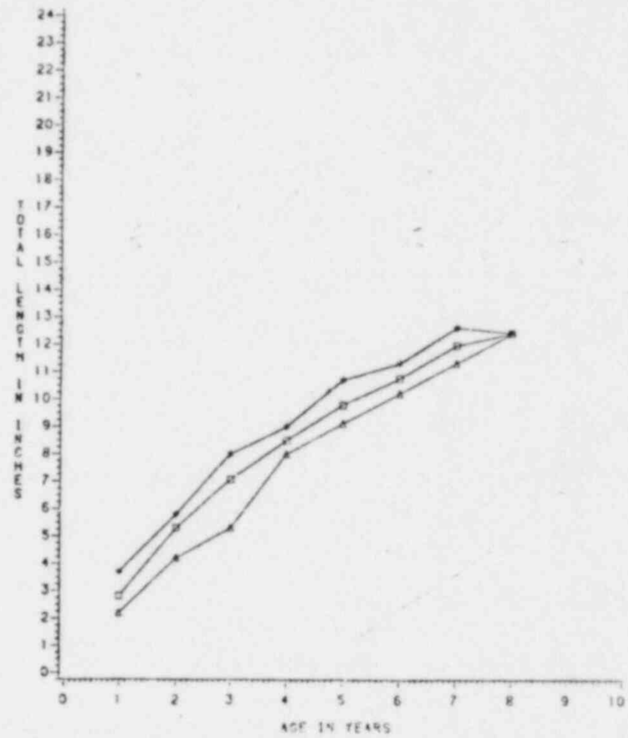
CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=DRUM AREA=BACKWATER



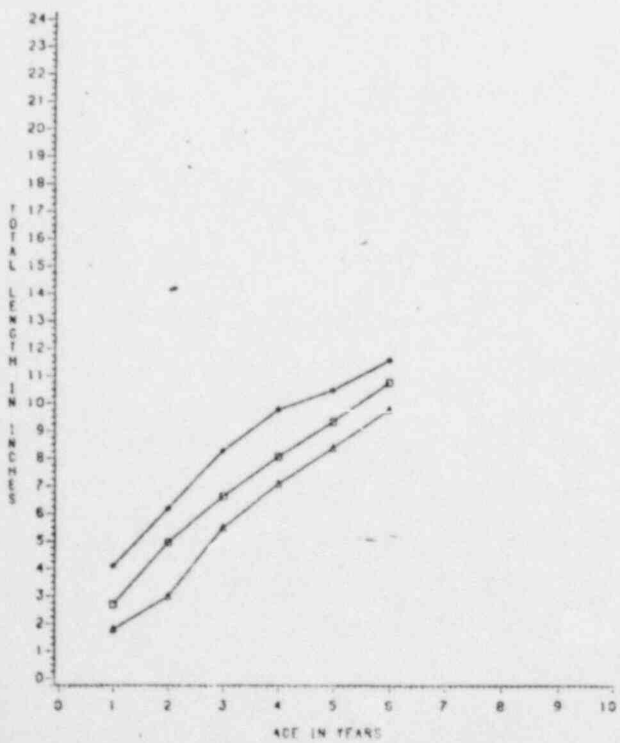
CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=DRUM AREA=INTAKE



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=DRUM AREA=CHANNEL



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=DRUM AREA=DISCHARGE

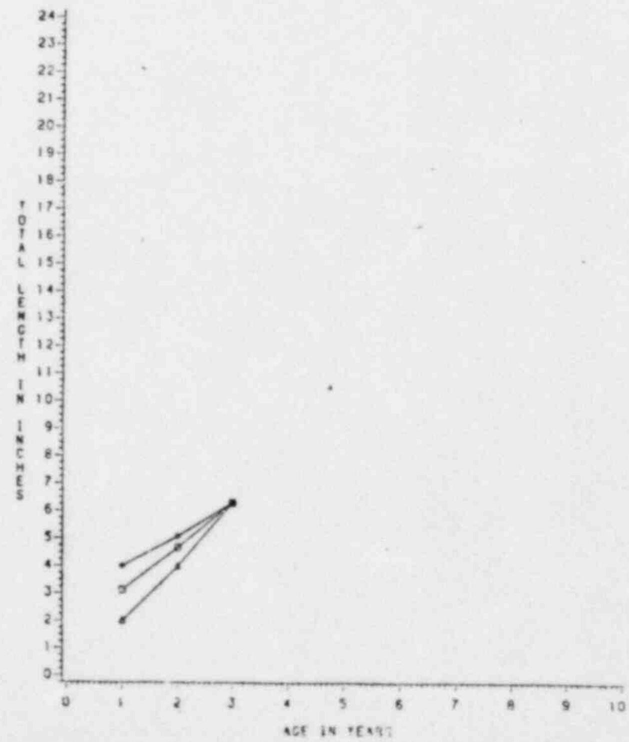


FIGURE 15

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH FOR THE DARDANELLE RESERVOIR FOR 1981

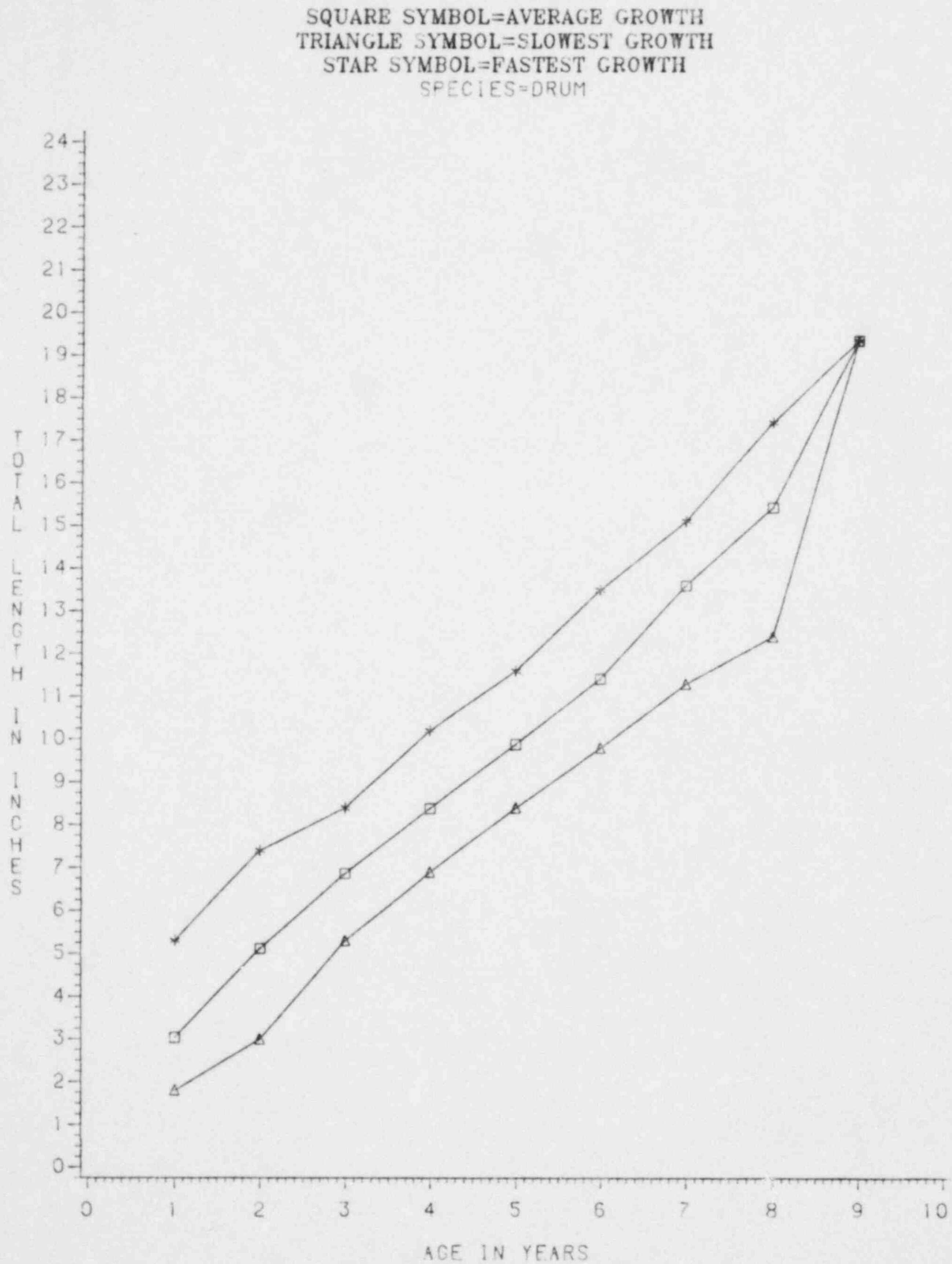


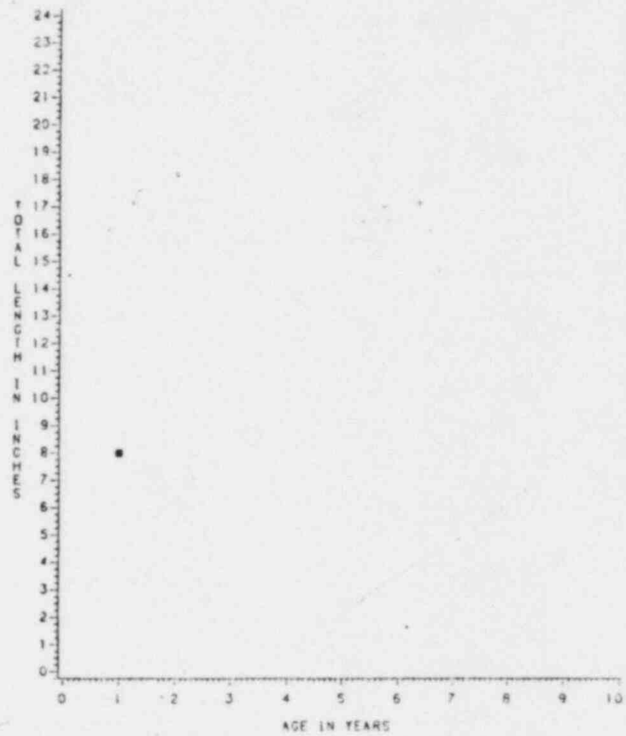
FIGURE 16

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=LARGEMOUTH BASS   AREA=BACKWATER

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=LARGEMOUTH BASS   AREA=INTAKE



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=LARGEMOUTH BASS   AREA=DISCHARGE

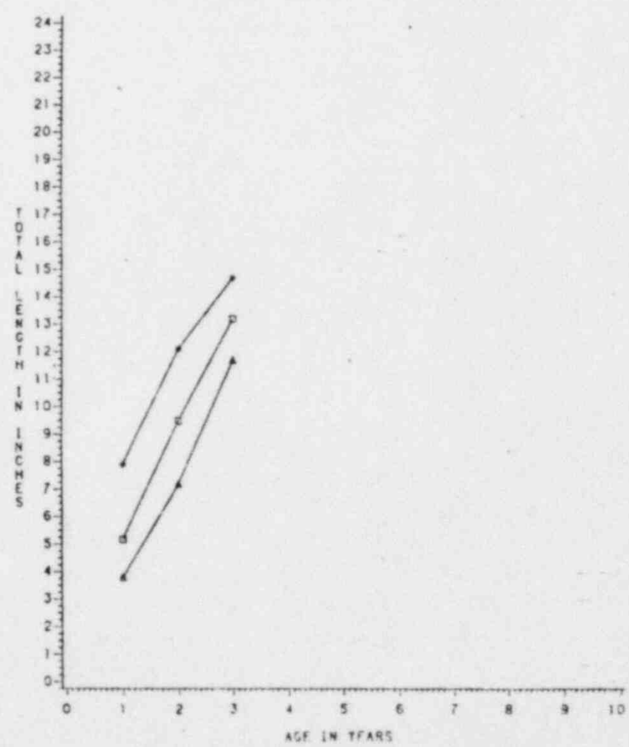


FIGURE 17

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH FOR THE DARDANELLE RESERVOIR FOR 1981

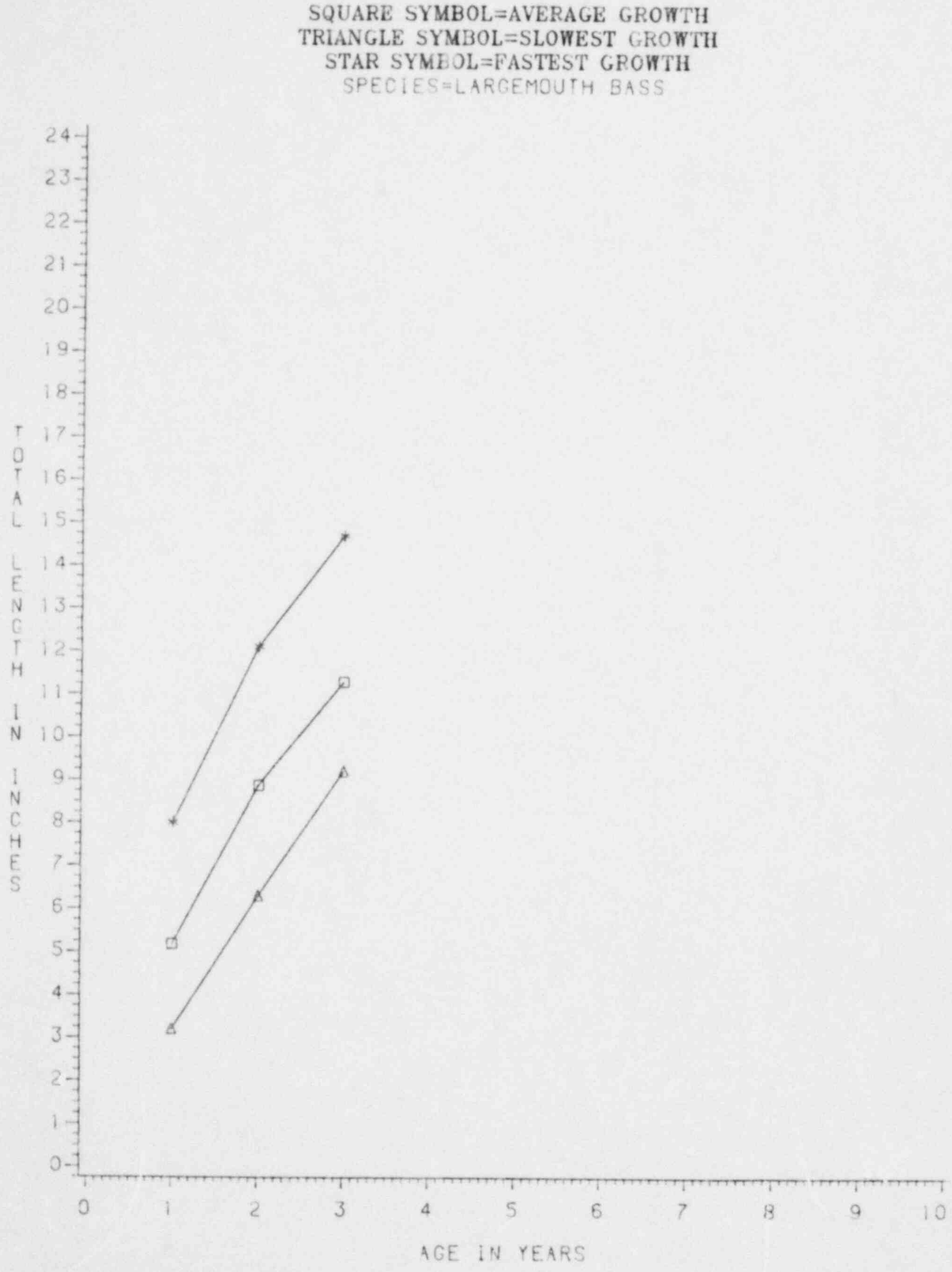


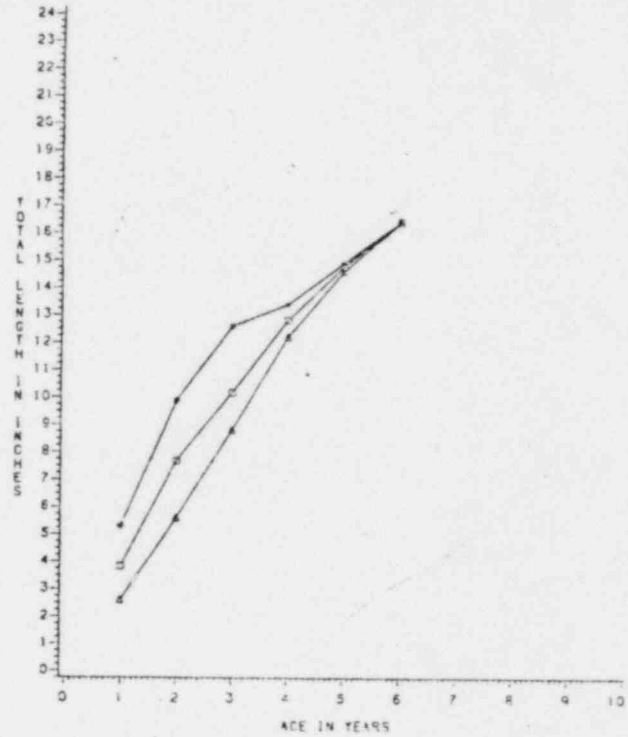
FIGURE 18

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=WHITE BASS   AREA=BACKWATER

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=WHITE BASS   AREA=INTAKE



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=WHITE BASS   AREA=DISCHARGE

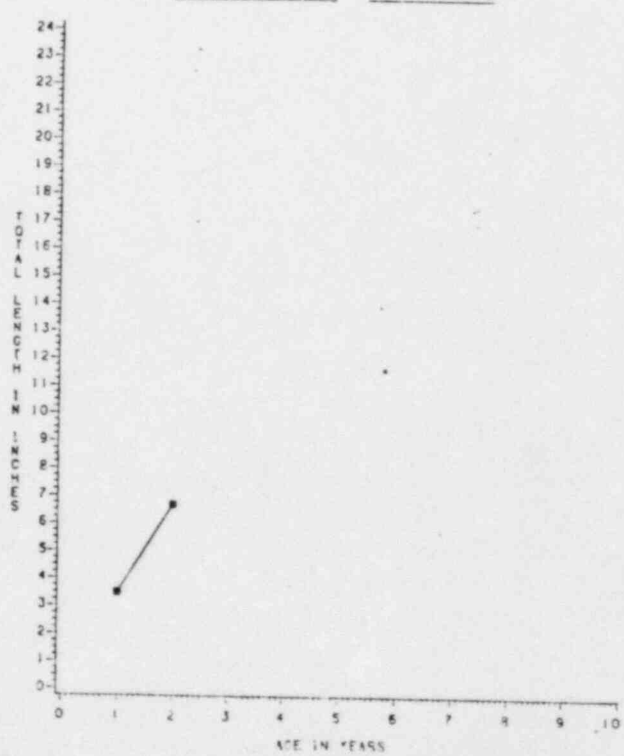


FIGURE 19

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH FOR THE DARDANELLE RESERVOIR FOR 1981

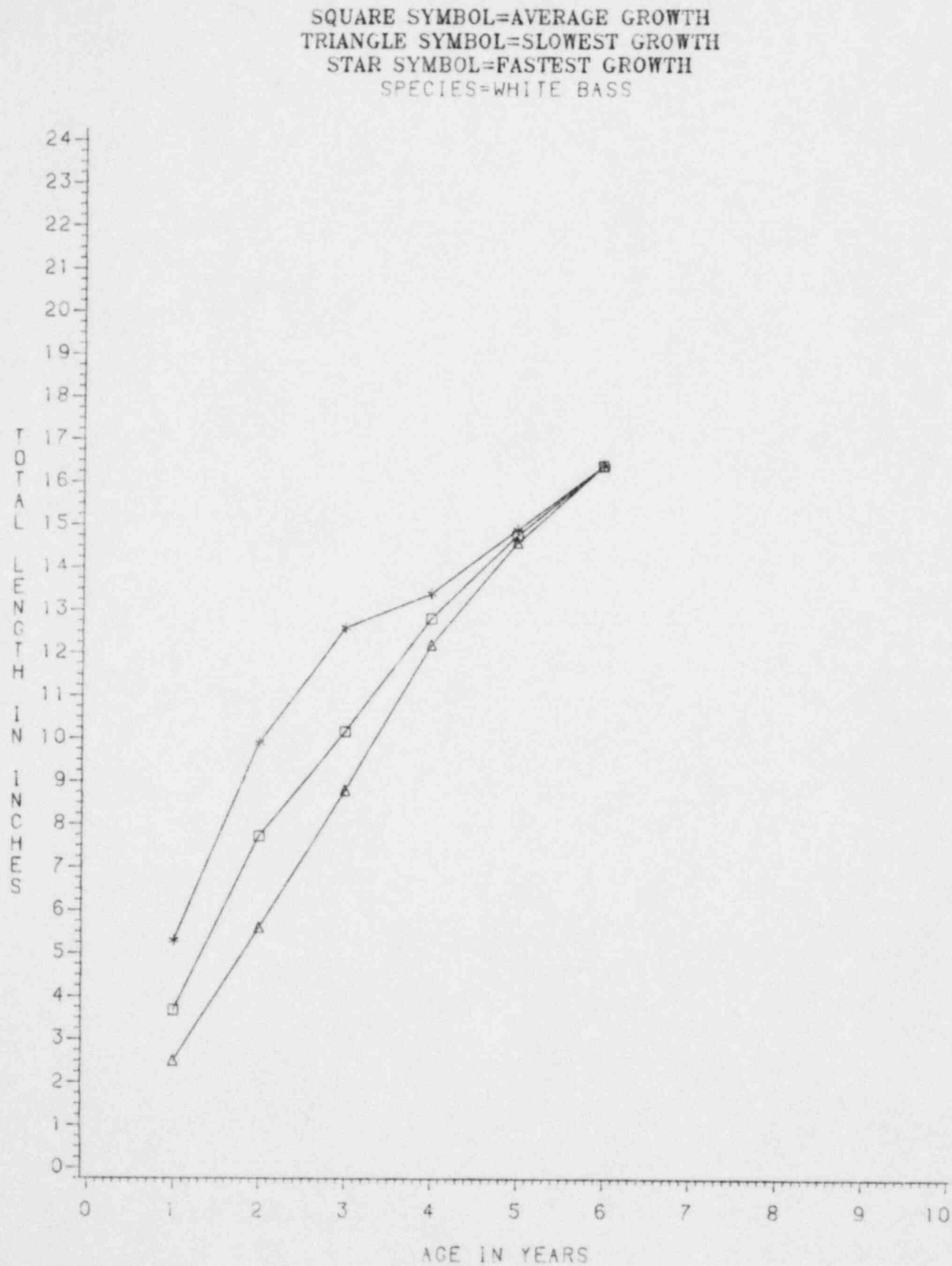
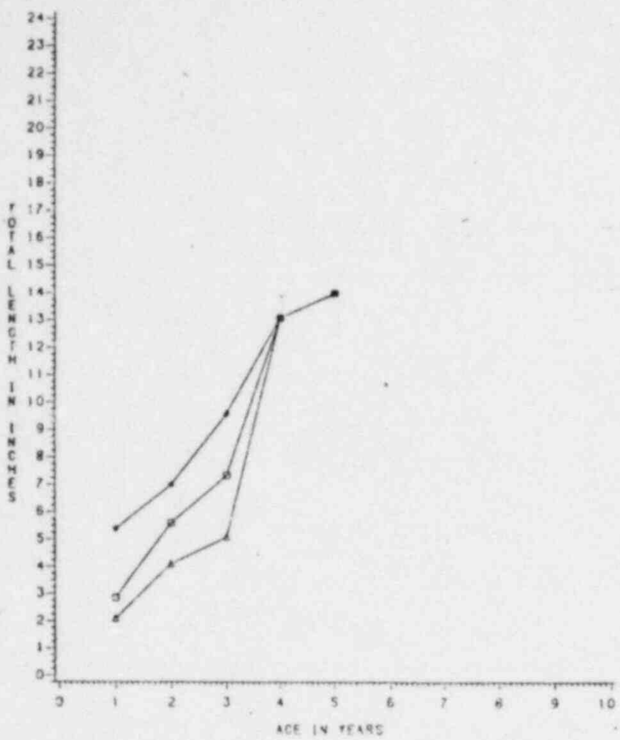


FIGURE 20

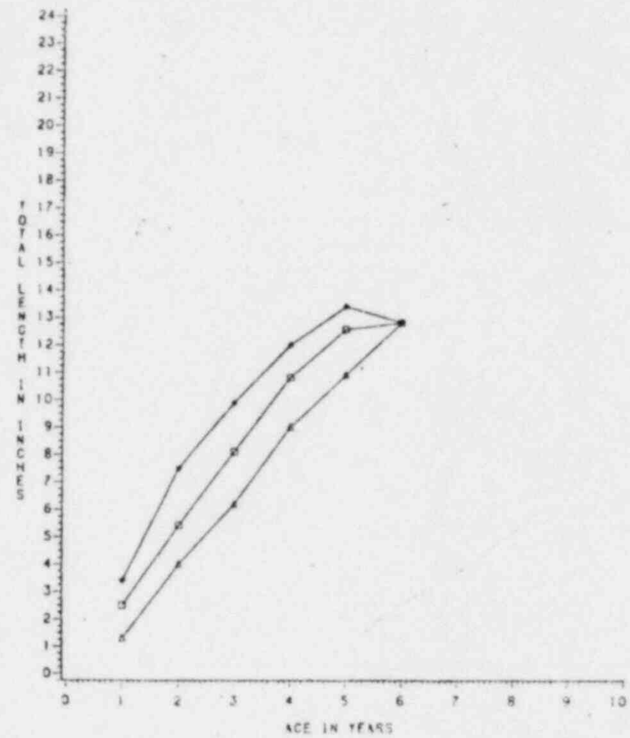
CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=WHITE CRAPPIE   AREA=BACKWATER



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=WHITE CRAPPIE   AREA=INTAKE



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SQUARE SYMBOL=AVERAGE GROWTH
TRIANGLE SYMBOL=SLOWEST GROWTH
STAR SYMBOL=FASTEST GROWTH
SPECIES=WHITE CRAPPIE   AREA=CHANNEL

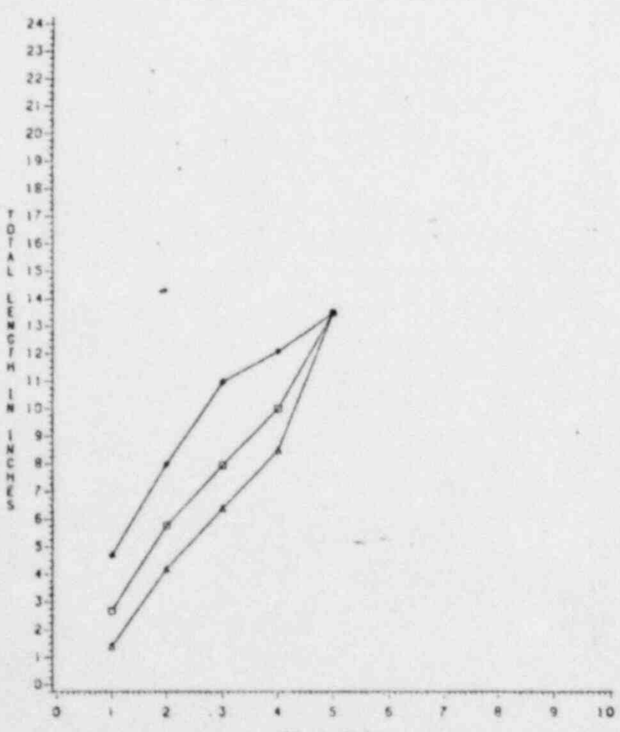


FIGURE 21

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH FOR THE DARDANELLE RESERVOIR FOR 1981

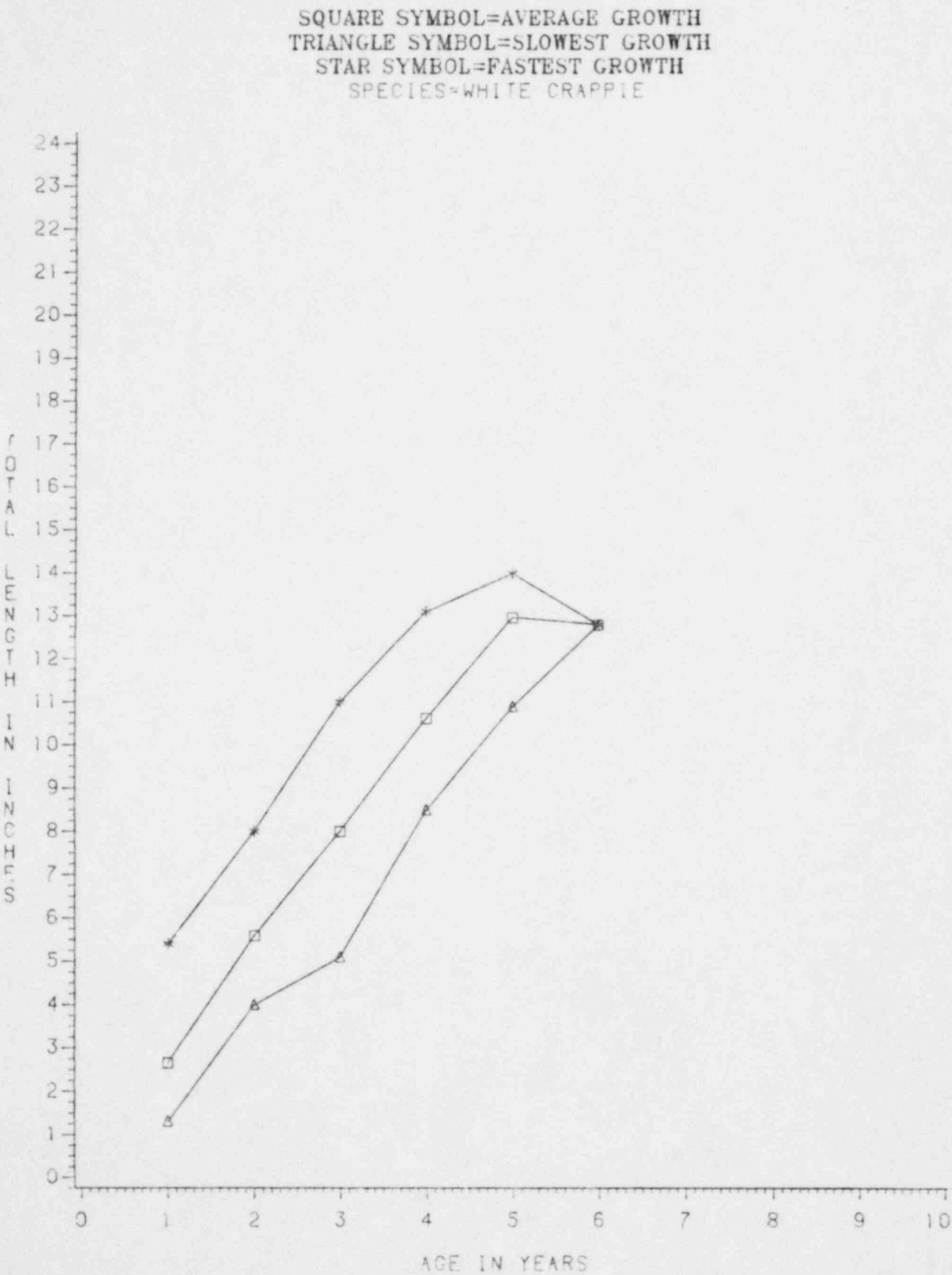


FIGURE 22

PERCENT GIZZARD SHAD COMPARED TO PERCENT THREADFIN SHAD
IN DARDANELLE RESERVOIR
FOR 1973 THROUGH 1981

SQUARE SYMBOL=GIZZARD SHAD
STAR SYMBOL=THREADFIN SHAD

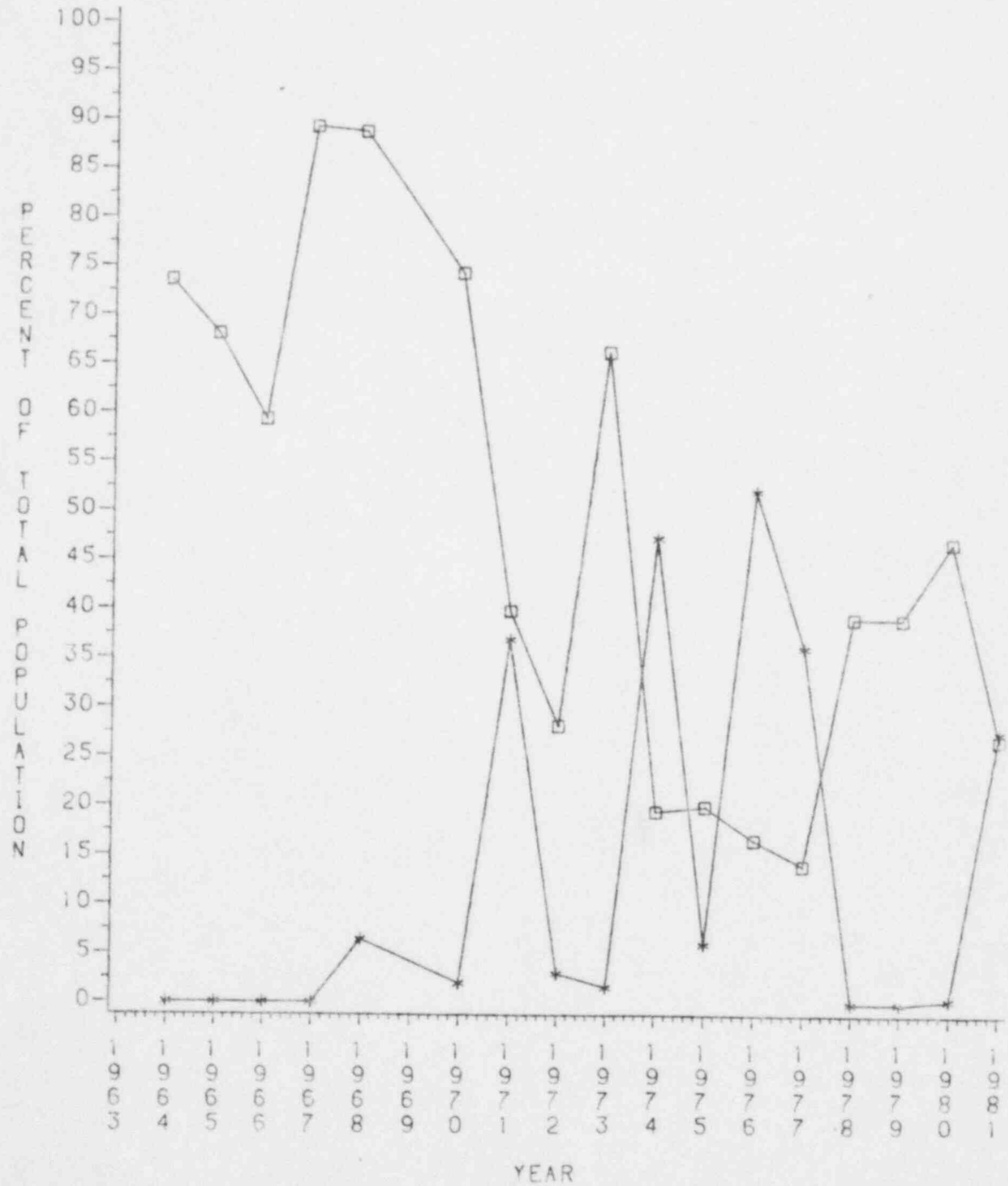


FIGURE 23

NUMBER PER ACRE OF BASS SPECIES IN DARDANELLE RESERVOIR

(THIS INCLUDES SERRANIDAE AND CENTRARCHIDAE SPECIES)
FOR 1973 THROUGH 1981

SQUARE SYMBOL=LARGEMOUTH BASS
STAR SYMBOL=WHITE BASS
TRIANGLE SYMBOL=STRIPED BASS

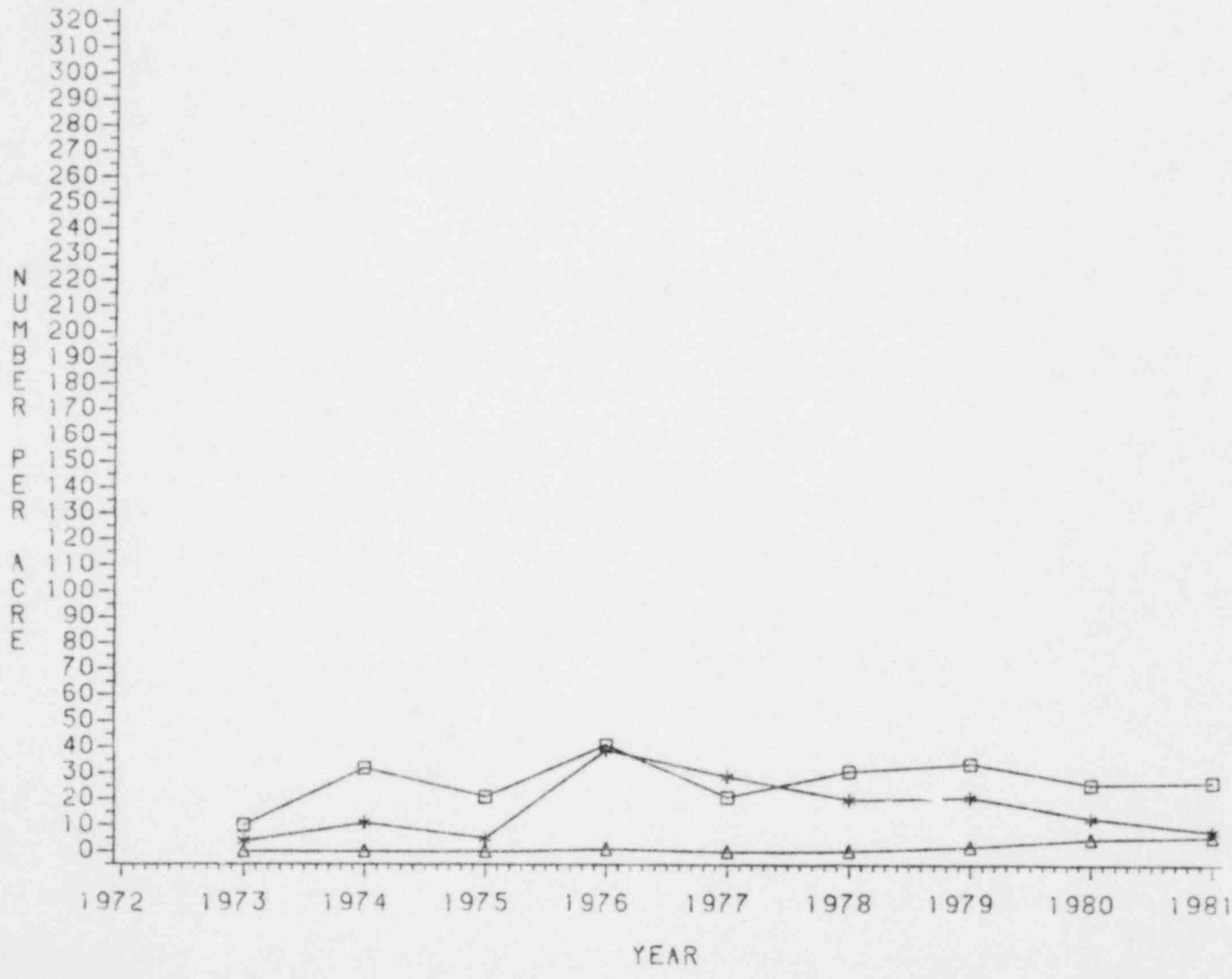


FIGURE 24

POUNDS PER ACRE OF BASS SPECIES IN DARDANELLE RESERVOIR

(THIS INCLUDES SERRANIDAE AND CENTRARCHIDAE SPECIES)
FOR 1973 THROUGH 1981

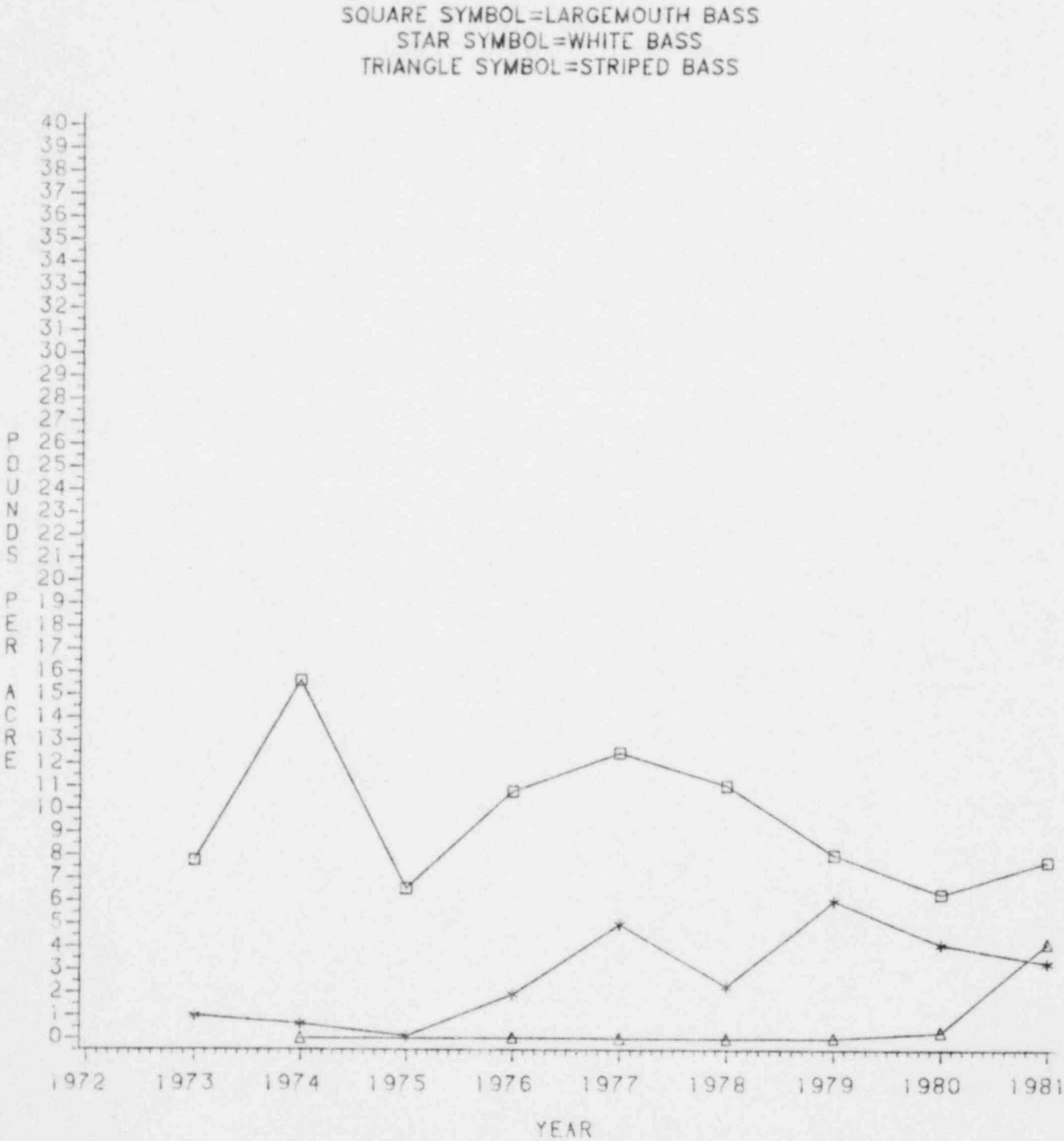


FIGURE 25

NUMBER PER ACRE OF CRAPPIE SPECIES IN DARDANELLE RESERVOIR
FOR 1973 THROUGH 1981

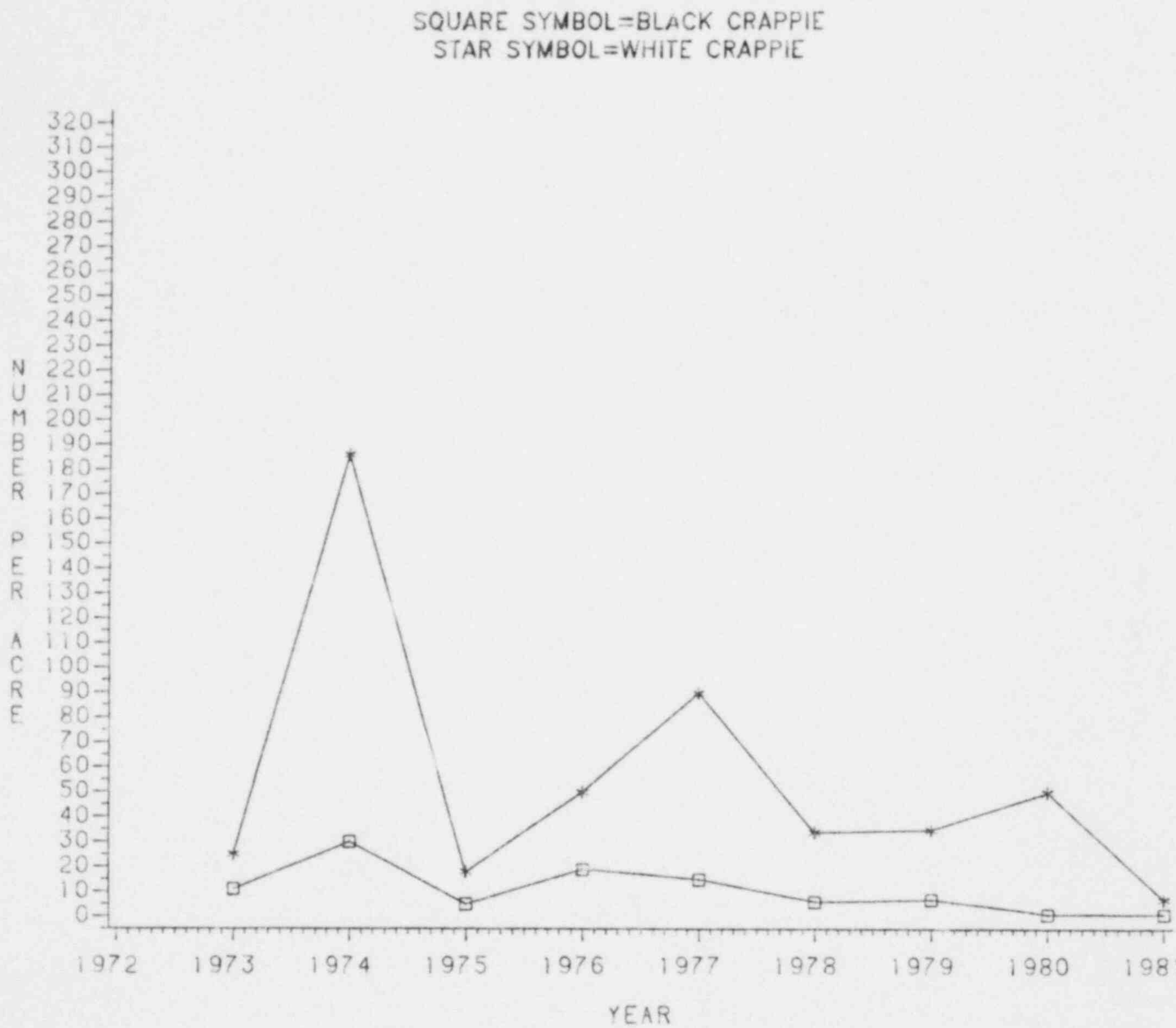


FIGURE 26

POUNDS PER ACRE OF CRAPPIE SPECIES IN DARDANELLE RESERVOIR
FOR 1973 THROUGH 1981

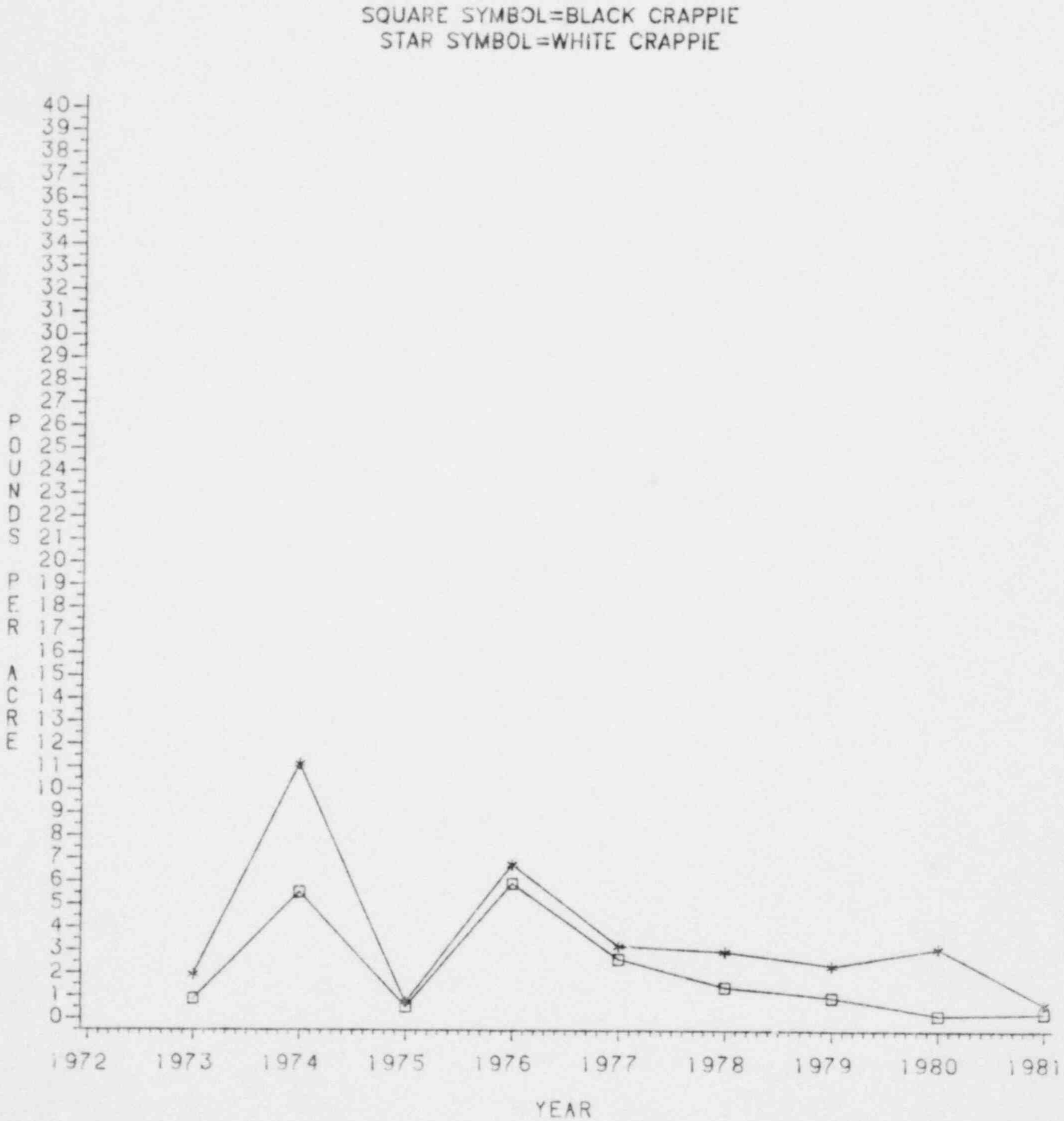


FIGURE 27
NUMBER PER ACRE OF CATFISH SPECIES IN DARDANELLE RESERVOIR
FOR 1973 THROUGH 1981

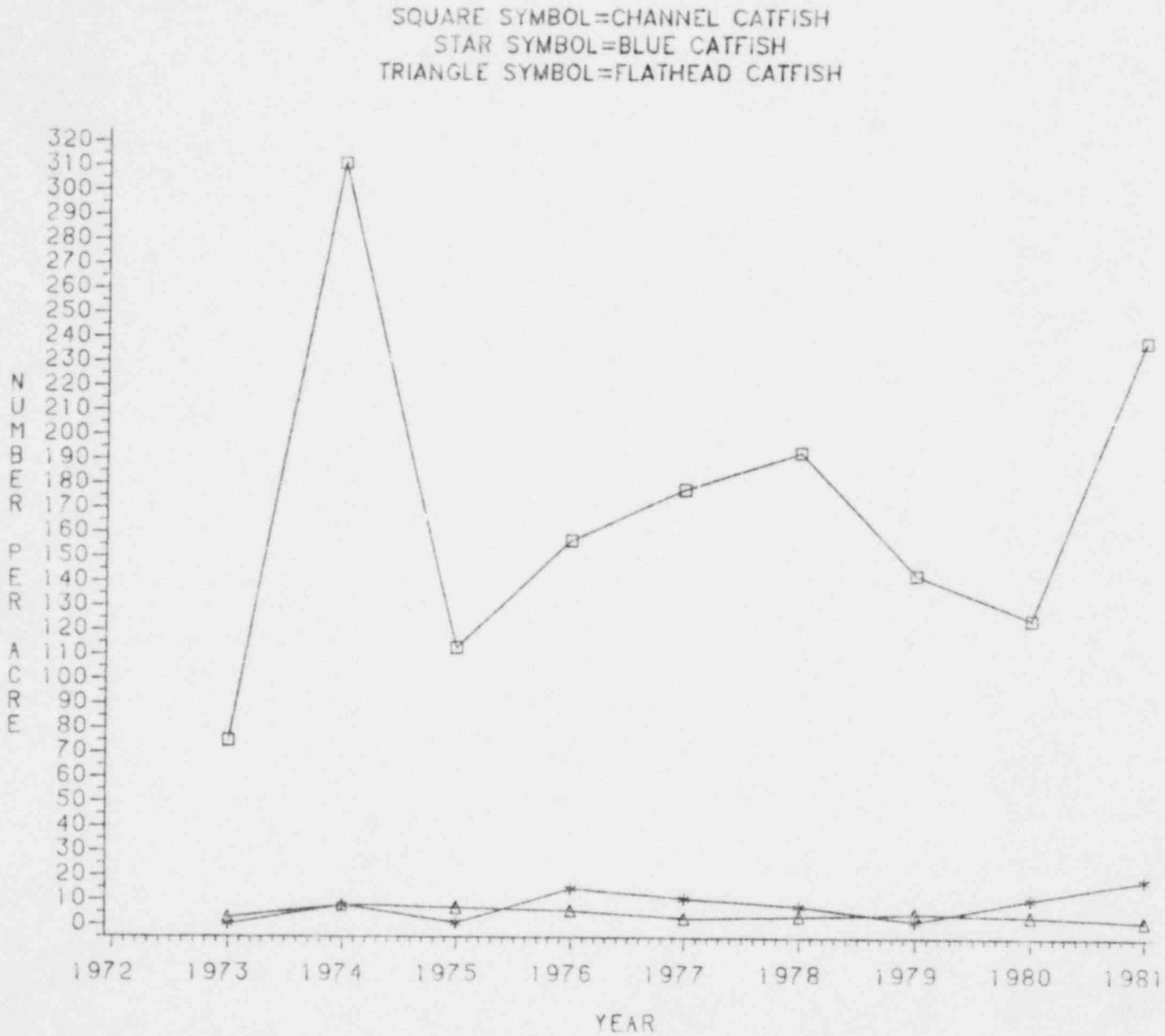
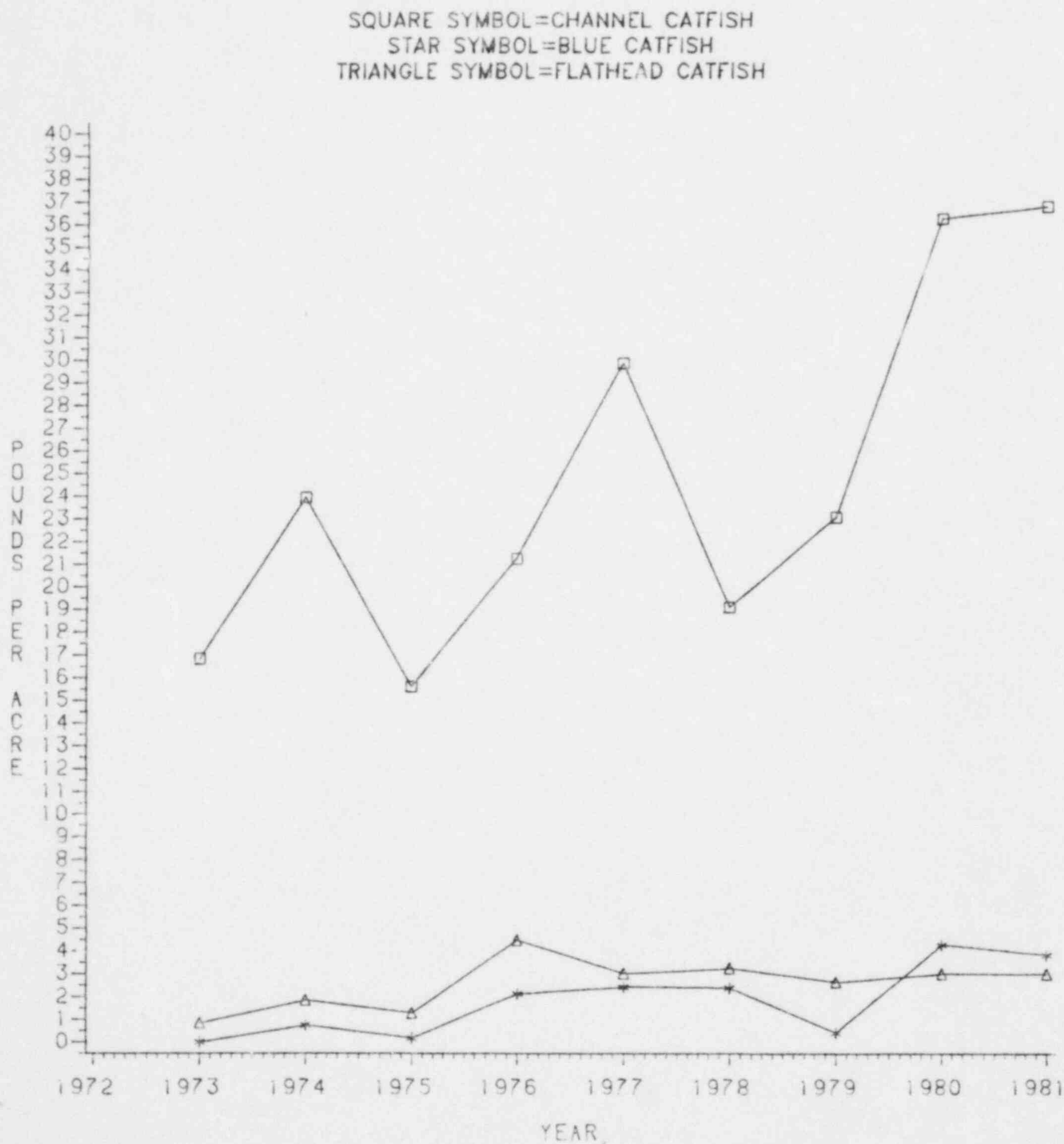


FIGURE 28

POUNDS PER ACRE OF CATFISH SPECIES IN DARDANELLE RESERVOIR
FOR 1973 THROUGH 1981



Dardanelle Reservior Fisheries Background Survey

Progress Report No. 14

I. INTRODUCTION

A. The report period covered in this document includes January through December 1981. Data collections were temporarily halted at times due to high water, low water, wind, rain, fog, vandalized or lost equipment, and mechanical breakdowns. However, all samplings were carried out as scheduled.

Field work during this report period consisted of the following:

1. Gill and trammel net combination twice each quarter.
2. Semiannual trap netting.
3. Weekly meter netting from March 27 through July 31 and semimonthly through October 9, 1981.
4. Weekly midwater trawling from June 10 through September 16, 1981.
5. Shoreline seining every other week from March 27 through September 12, 1981.
6. Annual rotenone samples in area "A" (backwater) and "C" (discharge).
7. Temperature, dissolved oxygen and secchi disc data.
8. Semiannual radiological fish samples collected.
9. Semiannual radiological mussel samples collected from cages.
10. Age and growth data.

II. PROCEDURE

A. Site Location

The same five sampling areas as previously utilized were used during this collection period. The areas denoted as reference areas "A", "B", "C", "D", and "E" are depicted on Figure 1.

B. Gill and Trammel Net Survey

A combination of one experimental gill net and one trammel net was set in sample areas "A", "B", "C", and "D" for two days of fishing twice each quarter.

Gill nets were 300' total length, comprised of 100' each of bar mesh sizes 1", 1.5" and 2" respectively. All trammel nets were 300' total length with an outside wall of 14" bar mesh. Two sizes of inside wall trammel nets were employed. Inside wall bar measurements were 1.5" and 2.5". The larger 2.5" trammel was fished the first sampling period and the smaller 1.5" trammel was fished the second period of each quarter.

Unusually high numbers of skipjack herring and striped bass were taken in the August and November nettings. High net mortality occurred in both species, especially skipjack herring. Gill and trammel net data are presented in Tables 1 through 12.

C. Trap Net Survey

Trap nets employed were 5/8" bar mesh 16' long, a frame 6' x 3', a lead 100' long by 3' deep with 5/8" bar mesh. Trap nets were set on May 18 through May 23 and November 10 through November 15, 1981, and fished for five consecutive days each period in sample areas "A", "B", "C", and "D".

A total of 590 adult threadfin shad were removed from the trap net in Area "C" on May 19. At this time the net was coated with threadfin shad eggs. These eggs were very sticky and felt granular to the touch. Numerous eggs were also present on the trap net in Area "D" on the same date. Evidently the May 19 netting date coincided with a major spawning period for the threadfin shad. Trap net data are presented in Table 13 through 17.

D. Trawling Survey

Two types of trawls were employed: (1) a meter net with 1/32" delta mesh nylon webbing; and (2) a midwater trawl with frame 6' 2" x 2' 6" and 8' of 5/8" bar mesh #6 twine, 8' of 3/8" bar king mesh, and 8' of 1/8" bar delta mesh on the cod end.

(1) Meter Net

Weekly meter netting began on March 27 through July 31 and continued

semimonthly through October 9, 1981. Sampling Areas were "A", "B", "C", and "D". Two trawls of approximately five minutes at 1,000 RPMs were made in each sample area. Fish in the meter net samples under 40 mm in length were usually keyed to family due to the large numbers and small size.

Meter net data for May 1, 1981, are incomplete due to a boat malfunction that required over one week to repair. Meter net data are presented in Tables 18 through 21 and in Figure 2.

(2) Midwater Trawl

Nighttime midwater trawling began on June 10 and continued on weekly intervals through September 16, 1981. Sample areas were "A", "B", "C", and "D". Two trawls of approximately five minutes each at 1,200 to 1,500 RPMs were made in each sample area. Fish under 40 mm collected in the midwater trawl were usually keyed to families and no weights taken due to gross errors in weighing fish this small. Fish above 40 mm were placed in 5 mm groups and weighed. Midwater trawl data are presented in Tables 22 through 25 and Figure 3.

E. Deformities

1. Raised areas or growths in fish samples.

A. Growths on several species of fish were common in each of the sampling areas. Area "A" still produces more fish with growths than the other areas. The cause or effect of this abnormality is still unknown. These data are presented in Tables 20, 24, and 30.

2. Curvature of the spine (humpback) in fish samples.

A. Only four fish were collected with curvature of the spine. One in Area "A", two in Area "B", none in Area "C" and one in Area "D". Curvature of the spine is noted when the abnormality can be detected with the unaided eye. Therefore, very small fish with curvature of the spine are not recorded. These data are presented in Tables 20, 24, and 30.

F. Shoreline Seine

Gear employed was a 1/8" mesh, 20' long, 6' deep nylon seine with a full bag. Every other week shoreline seining began on March 27 and continued through September 12, 1981. Each sample Area "A", "B", "C", and "D", was divided into two 80' lengths of shoreline giving two separate but adjoining subsamples in each sampling area.

Fish collected in the seine under 1.5" long were usually keyed to family and no weights taken. Unusually large numbers of threadfin shad were taken in the July seine samples. Shoreline seine data are

presented in Tables 26 through 31 and Figure 4.

G. Rotenone Samples

In cooperation with the Arkansas Game and Fish Commission two standard rotenone samples were taken in September 1981.

1. Area "A" rotenone sample September 8 and 9, 1981.
   a. Location: A cove located across the river and slightly downstream from the mouth of Piney Creek.
   b. Collection site: 4.1 acres with average depth of 6.0'.
   c. Collection method: 62 pounds of 7% powdered rotenone.
   d. Water temperature: 80 degrees F.
   e. Visibility: 16"
   f. Cover: Brush, marginal vegetation and rock.
   g. Remarks: This sample area was located directly across the main river channel and slightly downstream from the mouth of Big Piney creek on Dardanelle Reservoir. The mouth of the cove opened directly downstream into the main river channel. Part of the area consisted of steep, rocky banks; while the remaining banks were gently sloping and covered with rocks and timber. This was an open cove; with the bottom consisting of clay type soils, rocks, and gravel. Cover consisted of brush, marginal vegetation and rock. The area was surveyed to determine the exact size, which was 4.1 acres. The maximum

depth was 16', with an average depth of 6.0'. A block-off net was utilized to completely seal off the sample area. A two day pick-up of fish was employed in conducting this sample. The block-off net that was used to close the area was put out in the dark, and rotenone was distributed in the water at daylight. This area was sampled in 1970 and from 1973 through 1981, as a reference area in the Dardanelle Reservoir Fish Survey. The fish collected in this sample were worked up in 2" size groups. This was done so data available would be similar for any future comparisons of fish species diversity within this particular area, or other related areas of the reservoir.

2. Area "C" rotenone sample September 10 and 11, 1981.
   a. Location: A cove located in the effluent bay at Arkansas Nuclear One and located approximately 1/2 mile southwest of the power plant on the south side of the bay.
   b. Collection Site: 6.75 acres with an average depth of 4.2'.
   c. Collection Method: 72 pounds of 7% powdered rotenone.
   d. Water Temperature: 91 degrees F.
   e. Visibility: 24"
   f. Cover: Fallen and dead timber, inundated buck brush, and a few rock.

g. Remarks: This sample area was a wide-mouth, wooded cove located in the effluent bay at Arkansas Nuclear One. The banks were gently sloping around the sample area, with clay eroded banks caused by wave action at the mouth of the cove. The bottom soils consisted of clay, gravel, mud, and debris. Cover consisted of fallen and dead timber, inundated buck brush, and a few rocks. The area was surveyed to determine the exact size, which was 6.75 acres. The maximum depth was 12', and the average depth of the area was 4.2'. A block-off net 600' long was utilized to completely seal off the sample area. A two day pick-up of fish was employed in conducting this sample. The block-off net used to close off the area was put out in the dark, and rotenone was distributed in the water at daylight. This area had been sampled annually since 1971, in connection with the Dardanelle Reservoir Fish Survey. The fish collected in this sample were worked up in 2" size groups. This was done so data available would be similar for future comparisons of fish species diversity within this particular area, or other related areas of the reservoir. Rotenone data are presented in Tables 32 through 33 and Figures 5 and 6.

H. Environmental Information

Lake levels, weather and lake conditions, dissolved oxygen, water tem-

perature and secchi disk data were taken during fish sampling operations throughout the study period. Sample Areas were "A", "B", "C", and "D". Thermal and dissolved oxygen data were collected at 20% and 80% total depths by means of a YSI 54RC oxygen meter and YSI probe. Tables 34 and 35 presents the above date.

I. Radiological Samples

(1) Fish Samples

Two semiannual fish samples were collected and sent to AP&L in May and November 1981. The sample consisted of 10 pounds each of predators, suckers and plankton feeders for each sample Area "A", "B", "C", "D", and "E".

(2) Two semiannual mussel samples were collected and sent to AP&L in April and October 1981. Mussel samples were collected in Areas "A", "B", "C", and "D". The mussels collected from local streams are held in cages 2' x 4' x 4' with a solid bottom, 6" sides and covered with 16 gauge galvanized vinyl dipped wire. Each cage had a 6" layer of gravel in the bottom. Each sample Area "A", "B", "C", and "D" contains two cages.

J. Age and Growth

Age and growth calculations were made on seven species of fish collected. The species are: White Bass, Morone chrysops; Largemouth Bass,

Micropterus salmoides; White Crappie, *Pomoxis annularis*; Freshwater Drum, *Aplodinotus grunniens*; Flathead Catfish, *Pylodictis olivaris*; Channel Catfish, *Ictalurus punctatus*, and Blue Catfish, *Ictalurus furcatus*.

Determination o the age and rate of growth of a particular fish is accomplished by examination of a scale (or bony ray of catfish) under magnification, and interpretation of the markings which typically occur.

Breaks in the normal pattern of growth occur during the winter period of growth cessation, forming "annuli", and by counting these annuli the age of the fish can be determined. False annuli appeared on the scales of many fish but could usually be identified by their position or by the relative degree of crowding of the circular ridges (circuli). The scales of each fish were cleaned by rubbing them between thumb and forefinger and mounted on glass slides with Scotch Brand "Magic Transparent Tape", No. 810 as described by Smith (1974) Prog. Fish Cult. 36(4): 195. All spines were sectioned using a small power saw on a stationary platform. This unit consisted of a fixed blade which could be elevated, a mechanical table that regulated the thickness of the sections, and a sliding table to which a V-block and clamp were attached to hold the spines immovable. All spines were mounted on glass microscope slides with Duro Super Glue.

Growth was calculated by direct proportion with an assumed intercept of zero for all species. Fish collected from October 1 through March 31

are considered to have an annulus. Data on age and growth are presented in Tables 36 through 42 and Figures 7 through 31.

Figures 16, 18, 24, and 28 were constructed from data consisting of only one fish each. As a result the symbols for fastest, average and slowest growth overprinted each other. It may appear that some species, particularly White Crappie, have undergone a reduction in growth during this sample period. However, a different sample size and age structure would probably account for this.

K. <u>Quality Control</u>

a. Quality control measures were followed during the report period. Checks and calibrations were made on the following items:

- barometer
- oxygen meter
- flow meters
- weight scales
- shoreline seine areas
- gill nets
- trammel nets
- meter net
- trap nets
- bag seine

Data for these measures are recorded in the lake log.

L. Maintainence

a. Boat, gear, and cove marker maintainence was performed as needed. Dates and maintainence are recorded in the lake log.

M. Miscellaneous

a. Considerable time was devoted to transferring raw data to computer key punch forms.

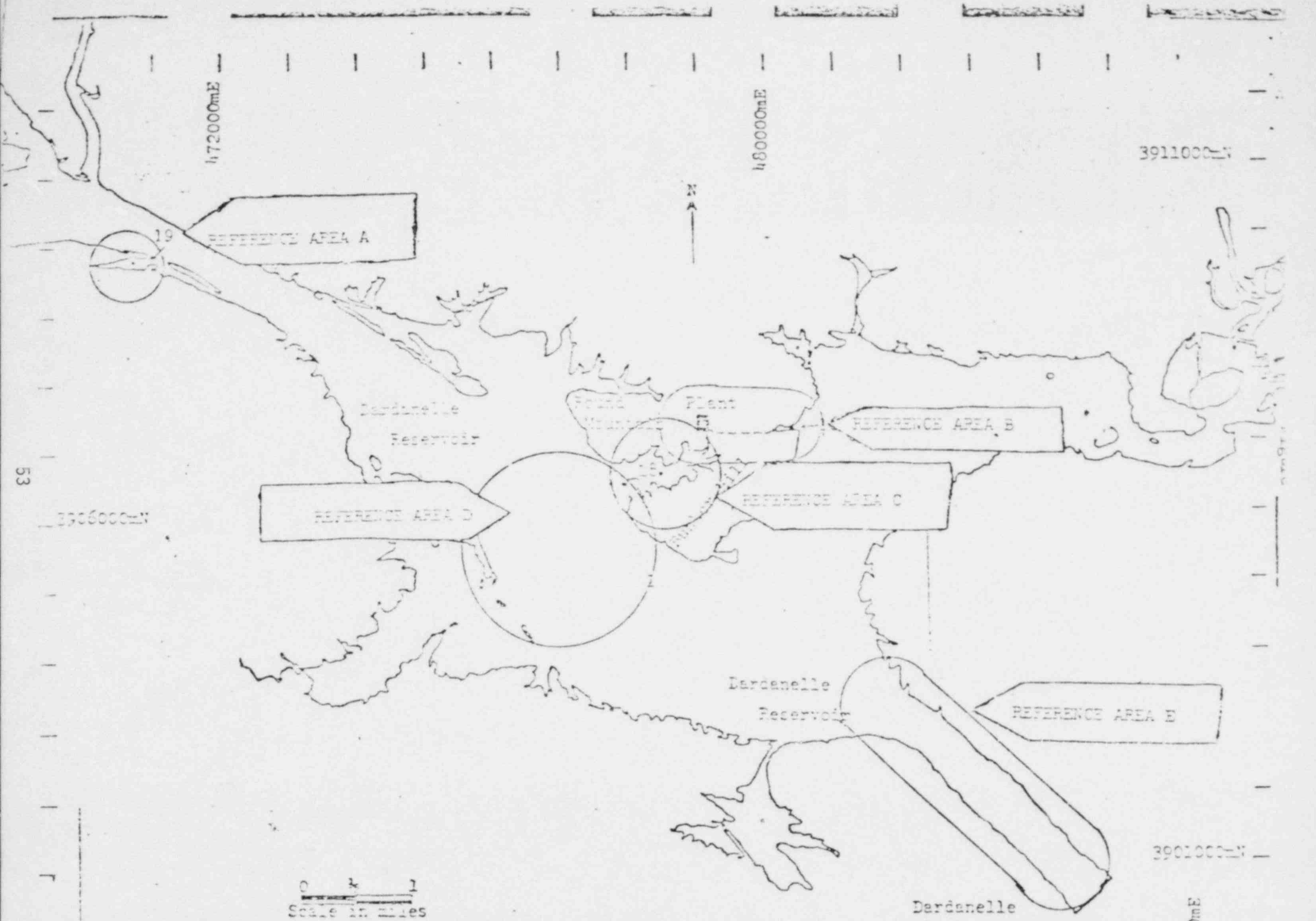

472000mE
480000mE
391100O mN
390600O mN
390100O mN
N
19
REFERENCE AREA A
REFERENCE AREA B
REFERENCE AREA C
REFERENCE AREA D
REFERENCE AREA E
Dardanelle
Reservoir
Plant
Dardanelle
Reservoir
Dardanelle
Dam
0 ½ 1
Scale in miles

Figure 1

TABLE 1

TOTAL NUMBER OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR GILLNET 1981

TABLE OF DATE BY STATION

DATE STATION

FREQUENCY / PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810221	42	9	54	33	138
	1.56	0.33	2.00	1.22	5.12
810222	0	0	63	0	63
	0.00	0.00	2.34	0.00	2.34
810224	75	10	0	60	145
	2.78	0.37	0.00	2.23	5.38
810313	48	1	21	23	93
	1.78	0.04	0.78	0.85	3.45
810314	20	3	20	17	60
	0.74	0.11	0.74	0.63	2.23
810519	66	21	23	47	157
	2.45	0.78	0.85	1.74	5.83
810520	47	6	18	30	101
	1.74	0.22	0.67	1.11	3.75
810611	48	14	59	11	132
	1.78	0.52	2.19	0.41	4.90
810612	51	5	25	8	89
	1.89	0.19	0.93	0.30	3.30
TOTAL	784	348	783	780	2695
	29.09	12.91	29.05	28.94	100.00

(CONTINUED)

TABLE 1

TOTAL NUMBER OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR GILLNET 1981

TABLE OF DATE BY STATION

DATE FREQUENCY PERCENT	STATION CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810812	72 2.67	53 1.97	78 2.89	8 0.30	211 7.83
810813	58 2.15	38 1.41	50 1.86	11 0.41	157 5.83
810829	24 0.89	47 1.74	74 2.75	57 2.12	202 7.50
810830	46 1.71	19 0.71	67 2.49	37 1.37	169 6.27
811031	75 2.78	40 1.48	63 2.34	165 6.12	343 12.73
811101	35 1.30	12 0.45	76 2.82	133 4.94	256 9.50
811114	34 1.26	40 1.48	57 2.12	77 2.86	208 7.72
811115	43 1.60	30 1.11	35 1.30	63 2.34	171 6.35
TOTAL	784 29.09	348 12.91	783 29.05	780 28.94	2695 100.00

TABLE 2

TOTAL WEIGHT OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR GILLNET 1981

TABLE OF DATE BY STATION

DATE FREQUENCY PERCENT	STATION CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810221	28	4	19	33	85
	2.02	0.31	1.42	2.41	6.15
810222	0	0	11	0	11
	0.00	0.00	0.84	0.00	0.84
810224	52	10	0	63	125
	3.81	0.70	0.00	4.55	9.06
810313	26	0	9	18	53
	1.89	0.01	0.66	1.33	3.89
810314	11	2	12	11	36
	0.80	0.12	0.88	0.82	2.62
810519	11	15	15	45	87
	0.81	1.08	1.13	3.31	6.32
810520	9	4	4	18	36
	0.66	0.33	0.32	1.30	2.61
810611	22	4	22	16	64
	1.59	0.28	1.59	1.16	4.62
810612	19	1	7	12	39
	1.40	0.09	0.54	0.84	2.87
TOTAL	314	151	355	554	1375
	22.84	11.01	25.85	40.31	100.00

(CONTINUED)

TABLE 2

TOTAL WEIGHT OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR GILLNET 1981

TABLE OF DATE BY STATION

DATE STATION

FREQUENCY / PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810812	31 2.28	16 1.16	32 2.30	10 0.74	89 6.48
810813	12 0.85	10 0.74	22 1.61	18 1.32	62 4.53
810829	5 0.36	8 0.60	28 2.04	32 2.30	73 5.30
810830	11 0.84	14 1.04	36 2.62	31 2.28	93 6.78
811031	39 2.84	26 1.92	32 2.30	77 5.63	174 12.69
811101	15 1.09	10 0.73	34 2.49	75 5.47	134 9.77
811114	10 0.75	14 1.02	43 3.16	56 4.07	124 9.00
811115	12 0.88	12 0.91	27 1.96	38 2.76	89 6.48
TOTAL	314 22.84	151 11.01	355 25.85	554 40.31	1375 100.00

TABLE 3

NUMBER OF SPECIES BY STATION FOR GILLNET 1981

TABLE OF SPECIES BY STATION

SPECIES / FREQUENCY / PERCENT (STATION)	CHANNEL REF D	BACKWATER REF A	INTAKE REF H	DISCHARGE REF C	TOTAL
LONGNOSE GAR	3	0	0	3	6
	0.11	0.00	0.00	0.11	0.22
SHORTNOSE GAR	3	0	2	2	7
	0.11	0.00	0.07	0.07	0.26
GIZZARD SHAD	139	54	185	52	430
	5.16	2.00	6.86	1.93	15.96
SKIPJACK HERRING	100	17	59	299	475
	3.71	0.63	2.19	11.09	17.63
THREADFIN SHAD	5	2	2	1	10
	0.19	0.07	0.07	0.04	0.37
GOLDEYE	1	0	0	0	1
	0.04	0.00	0.00	0.00	0.04
CARP	11	1	13	6	31
	0.41	0.04	0.48	0.22	1.15
RIVER CARPSUCKER	10	30	54	109	203
	0.37	1.11	2.00	4.04	7.53
SMALLMOUTH BUFFA	0	1	1	4	6
	0.00	0.04	0.04	0.15	0.22
BLACK BUFFALO	0	1	1	0	2
	0.00	0.04	0.04	0.00	0.07
RIVER REDHORSE	0	1	0	0	1
	0.00	0.04	0.00	0.00	0.04
GOLDEN REDHORSE	1	0	0	0	1
	0.04	0.00	0.00	0.00	0.04
CHANNEL CATFISH	103	29	29	45	206
	3.82	1.08	1.08	1.67	7.64
TOTAL	784	348	783	780	2695
	29.09	12.91	29.05	28.94	100.00

(CONTINUED)

TABLE 3

NUMBER OF SPECIES BY STATION FOR GILLNET 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
BLUE CATFISH	134 4.97	29 1.08	49 1.82	87 3.23	299 11.09
FLATHEAD CATFISH	1 0.04	1 0.04	1 0.04	1 0.04	4 0.15
WHITE BASS	13 0.48	12 0.45	73 2.71	43 1.60	141 5.23
STRIPED BASS	16 0.59	17 0.63	88 3.27	45 1.67	166 6.16
WARMOUTH	2 0.07	2 0.07	0 0.00	0 0.00	4 0.15
GREEN SUNFISH	0 0.00	6 0.22	0 0.00	0 0.00	6 0.22
BLUEGILL	5 0.19	2 0.07	12 0.45	8 0.30	27 1.00
LONGEAR SUNFISH	3 0.11	2 0.07	2 0.07	1 0.04	8 0.30
LARGEMOUTH BASS	0 0.00	3 0.11	1 0.04	1 0.04	5 0.19
WHITE CRAPPIE	56 2.08	52 1.93	149 5.53	52 1.93	309 11.47
BLACK CRAPPIE	0 0.00	1 0.04	0 0.00	5 0.19	6 0.22
SAUGER	4 0.15	0 0.00	6 0.22	5 0.19	15 0.56
FRESHWATER DRUM	174 6.46	85 3.15	56 2.08	11 0.41	326 12.10
TOTAL	784 29.09	348 12.91	783 29.05	780 28.94	2695 100.00

TABLE 4

WEIGHT OF SPECIES BY STATION FOR GILLNET 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
LONGNOSE GAR	10 0,75	0 0,00	0 0,00	9 0,63	19 1.38
SHORTNOSE GAR	15 1,06	0 0,00	8 0,56	8 0,57	30 2.19
GIZZARD SHAD	16 1,17	6 0,43	20 1,43	7 0,49	48 3.53
SKIPJACK HERRING	32 2,36	12 0,86	41 2,96	159 11,53	243 17.70
THREADFIN SHAD	0 0,02	0 0,01	0 0,02	0 0,00	1 0.06
GOLDEYE	1 0,06	0 0,00	0 0,00	0 0,00	1 0.06
CARP	17 1,25	2 0,15	20 1,42	9 0,64	48 3.48
RIVER CARPSUCKER	19 1,37	45 3,26	85 6,18	169 12,26	317 23.08
SMALLMOUTH BUFFA	0 0,00	3 0,19	3 0,23	7 0,53	13 0.95
BLACK BUFFALO	0 0,00	3 0,18	2 0,17	0 0,00	5 0.35
RIVER REDHORSE	0 0,00	3 0,20	0 0,00	0 0,00	3 0.20
GOLDEN REDHORSE	2 0,12	0 0,00	0 0,00	0 0,00	2 0.12
CHANNEL CATFISH	47 3,40	16 1,16	11 0,79	21 1,50	94 6.86
TOTAL	314 22,84	151 11,01	355 25,85	554 40,31	1375 100,00

(CONTINUED)

TABLE 4

WEIGHT OF SPECIES BY STATION FOR GILLNET 1981

TABLE OF SPECIES BY STATION

SPECIES   STATION

FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	RIDISCHARGE REF C	TOTAL
BLUE CATFISH	87 6.32	10 0.76	36 2.60	53 3.82	186 13.51
FLATHEAD CATFISH	0 0.01	1 0.09	1 0.05	2 0.11	4 0.27
WHITE BASS	5 0.35	5 0.39	32 2.33	21 1.54	63 4.61
STRIPED BASS	12 0.86	12 0.87	32 2.33	51 3.70	107 7.76
WARMOUTH	0 0.01	0 0.02	0 0.00	0 0.00	0 0.04
GREEN SUNFISH	0 0.00	1 0.07	0 0.00	0 0.00	1 0.07
BLUEGILL	0 0.04	0 0.03	1 0.05	1 0.06	2 0.17
LONGEAR SUNFISH	0 0.01	0 0.01	0 0.01	0 0.00	0 0.04
LARGEMOUTH BASS	0 0.00	1 0.11	0 0.01	5 0.39	7 0.51
WHITE CRAPPIE	15 1.13	19 1.35	52 3.82	22 1.64	109 7.93
BLACK CRAPPIE	0 0.00	1 0.07	0 0.00	2 0.17	3 0.25
SAUGER	2 0.18	0 0.00	4 0.31	6 0.44	13 0.92
FRESHWATER DRUM	32 2.36	11 0.76	8 0.56	4 0.29	55 3.98
TOTAL	314 22.84	151 11.01	355 25.85	554 40.31	1375 100.00

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	GOLDEYE	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFA	TOTAL
810221	0	0	5	1	0	0	1	3	0	42
	0.00	0.00	0.64	0.13	0.00	0.00	0.13	0.38	.	5.36
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	11	7	0	0	2	0	0	75
	0.00	0.00	1.40	0.89	0.00	0.00	0.26	0.00	.	9.57
810313	0	0	8	1	0	0	1	1	0	48
	0.00	0.00	1.02	0.13	0.00	0.00	0.13	0.13	.	6.12
810314	0	0	4	0	0	0	0	1	0	20
	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.13	.	2.55
810519	0	0	30	1	0	0	0	0	0	66
	0.00	0.00	3.83	0.13	0.00	0.00	0.00	0.00	.	8.42
810520	0	0	7	4	1	0	1	0	0	47
	0.00	0.00	0.89	0.51	0.13	0.00	0.13	0.00	.	5.99
810611	0	1	3	0	0	1	0	2	0	48
	0.00	0.13	0.38	0.00	0.00	0.13	0.00	0.26	.	6.12
810612	0	1	20	1	1	0	5	1	0	51
	0.00	0.13	2.55	0.13	0.13	0.00	0.64	0.13	.	6.51
TOTAL	3	3	139	100	5	1	11	10	.	784
	0.38	0.38	17.73	12.76	0.64	0.13	1.40	1.28	.	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	GOLDEYE	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFA	TOTAL
810612	3	1	11	1	1	0	0	0	0	72
	0.38	0.13	1.40	0.13	0.13	0.00	0.00	0.00	.	9.18
810613	0	0	20	0	0	0	0	0	0	58
	0.00	0.00	2.55	0.00	0.00	0.00	0.00	0.00	.	7.40
810629	0	0	6	1	2	0	0	0	0	24
	0.00	0.00	0.77	0.13	0.26	0.00	0.00	0.00	.	3.06
810630	0	0	6	7	0	0	0	0	0	46
	0.00	0.00	0.77	0.89	0.00	0.00	0.00	0.00	.	5.87
811031	0	0	3	33	0	0	1	1	0	75
	0.00	0.00	0.38	4.21	0.00	0.00	0.13	0.13	.	9.57
811101	0	0	0	12	0	0	0	1	0	35
	0.00	0.00	0.00	1.53	0.00	0.00	0.00	0.13	.	4.46
811114	0	0	3	9	0	0	0	0	0	34
	0.00	0.00	0.38	1.15	0.00	0.00	0.00	0.00	.	4.34
811115	0	0	2	22	0	0	0	0	0	43
	0.00	0.00	0.26	2.81	0.00	0.00	0.00	0.00	.	5.48
TOTAL	3	3	139	100	5	1	11	10	.	784
	0.38	0.38	17.73	12.76	0.64	0.13	1.40	1.28	.	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	WARMOUTH	TOTAL
810221	0	0	1	9	7	0	3	2	0	42
	.	.	0.13	1.15	0.89	0.00	0.38	0.26	0.00	5.36
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	3	29	0	6	8	0	75
	.	.	0.00	0.38	3.70	0.00	0.77	1.02	0.00	9.57
810313	0	0	0	18	9	0	0	1	0	48
	.	.	0.00	2.30	1.15	0.00	0.00	0.13	0.00	6.12
810314	0	0	0	7	5	0	0	0	0	20
	.	.	0.00	0.89	0.64	0.00	0.00	0.00	0.00	2.55
810519	0	0	0	5	12	0	0	0	0	66
	.	.	0.00	0.64	1.53	0.00	0.00	0.00	0.00	8.42
810520	0	0	0	10	10	0	0	1	0	47
	.	.	0.00	1.28	1.28	0.00	0.00	0.13	0.00	5.99
810611	0	0	0	8	9	0	1	1	0	48
	.	.	0.00	1.02	1.15	0.00	0.13	0.13	0.00	6.12
810612	0	0	0	1	6	1	0	0	0	51
	.	.	0.00	0.13	0.77	0.13	0.00	0.00	0.00	6.51
TOTAL	.	.	1	103	134	1	13	16	2	784
	.	.	0.13	13.14	17.09	0.13	1.66	2.04	0.26	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE SPECIES

FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	WARMOUTH	TOTAL
810812	0	0	0	6	8	0	0	0	0	72
	.	.	0.00	0.77	1.02	0.00	0.00	0.00	0.00	9.18
810813	0	0	0	6	4	0	0	0	1	58
	.	.	0.00	0.77	0.51	0.00	0.00	0.00	0.13	7.40
810829	0	0	0	2	1	0	0	0	0	24
	.	.	0.00	0.26	0.13	0.00	0.00	0.00	0.00	3.06
810830	0	0	0	1	5	0	0	0	0	46
	.	.	0.00	0.13	0.64	0.00	0.00	0.00	0.00	5.87
811031	0	0	0	8	17	0	2	3	0	75
	.	.	0.00	1.02	2.17	0.00	0.26	0.38	0.00	9.57
811101	0	0	0	10	5	0	1	0	0	35
	.	.	0.00	1.28	0.64	0.00	0.13	0.00	0.00	4.46
811114	0	0	0	5	5	0	0	0	0	34
	.	.	0.00	0.64	0.64	0.00	0.00	0.00	0.00	4.34
811115	0	0	0	4	2	0	0	0	1	43
	.	.	0.00	0.51	0.26	0.00	0.00	0.00	0.13	5.48
TOTAL	.	.	1	103	134	1	13	16	2	784
	.	.	0.13	13.14	17.09	0.13	1.66	2.04	0.26	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	SPECIES: GREEN SUNFISH	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810221	0	1	0	0	5	0	2	2	42
	.	0.13	0.00	.	0.64	.	0.26	0.26	5.36
810222	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	0.00
810223	0	0	1	0	4	0	2	2	75
	.	0.00	0.13	.	0.51	.	0.26	0.26	9.57
810313	0	1	0	0	5	0	0	3	48
	.	0.13	0.00	.	0.64	.	0.00	0.38	6.12
810314	0	0	0	0	1	0	0	2	20
	.	0.00	0.00	.	0.13	.	0.00	0.26	2.55
810519	0	0	0	0	6	0	0	12	66
	.	0.00	0.00	.	0.77	.	0.00	1.53	8.42
810520	0	0	1	0	7	0	0	5	47
	.	0.00	0.13	.	0.89	.	0.00	0.64	5.99
810611	0	0	0	0	5	0	0	17	48
	.	0.00	0.00	.	0.64	.	0.00	2.17	6.12
810612	0	2	0	0	2	0	0	10	51
	.	0.26	0.00	.	0.26	.	0.00	1.28	6.51
TOTAL	.	5	3	.	56	.	4	174	784
	.	0.64	0.38	.	7.14	.	0.51	22.19	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	GREEN SUNFISH	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810812	0	0	0	0	6	0	0	35	72
	.	0,00	0,00	.	0,77	.	0,00	4,46	9,18
810813	0	0	0	0	2	0	0	25	58
	.	0,00	0,00	.	0,26	.	0,00	3,19	7,40
810829	0	0	0	0	3	0	0	9	24
	.	0,00	0,00	.	0,38	.	0,00	1,15	3,06
810830	0	0	0	0	4	0	0	23	46
	.	0,00	0,00	.	0,51	.	0,00	2,93	5,87
811031	0	0	0	0	1	0	0	6	75
	.	0,00	0,00	.	0,13	.	0,00	0,77	9,57
811101	0	1	0	0	0	0	0	5	35
	.	0,13	0,00	.	0,00	.	0,00	0,64	4,46
811114	0	0	0	0	3	0	0	9	34
	.	0,00	0,00	.	0,38	.	0,00	1,15	4,34
811115	0	0	1	0	2	0	0	9	43
	.	0,00	0,13	.	0,26	.	0,00	1,15	5,48
TOTAL	.	5	3	.	56	.	4	174	784
	.	0,64	0,38	.	7,14	.	0,51	22,19	100,00

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	SPECIES: LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	GOLDEYE	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFA	TOTAL
221	0	0	3	0	0	0	0	1	0	9
	.	.	0.86	0.00	0.00	.	0.00	0.29	0.00	2.59
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	2	0	0	0	0	4	0	10
	.	.	0.57	0.00	0.00	.	0.00	1.15	0.00	2.87
810313	0	0	0	0	0	0	0	0	0	1
	.	.	0.00	0.00	0.00	.	0.00	0.00	0.00	0.29
810314	0	0	0	0	0	0	0	1	0	3
	.	.	0.00	0.00	0.00	.	0.00	0.29	0.00	0.86
810519	0	0	1	0	1	0	0	6	0	21
	.	.	0.29	0.00	0.29	.	0.00	1.72	0.00	6.03
810520	0	0	0	0	0	0	1	2	0	6
	.	.	0.00	0.00	0.00	.	0.29	0.57	0.00	1.72
810611	0	0	5	0	0	0	0	1	0	14
	.	.	1.44	0.00	0.00	.	0.00	0.29	0.00	4.02
810612	0	0	2	0	1	0	0	0	0	5
	.	.	0.57	0.00	0.29	.	0.00	0.00	0.00	1.44
TOTAL	.	.	54	17	2	.	1	30	1	348
	.	.	15.52	4.89	0.57	.	0.29	8.62	0.29	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE SPECIES

FREQUENCY PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	GOLDEYE	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFALO	TOTAL
810812	0	0	10	0	0	0	0	3	0	53
	.	.	2.87	0.00	0.00	.	0.00	0.86	0.00	15.23
810813	0	0	10	1	0	0	0	1	0	38
	.	.	2.87	0.29	0.00	.	0.00	0.29	0.00	10.92
810829	0	0	8	0	0	0	0	2	0	47
	.	.	2.30	0.00	0.00	.	0.00	0.57	0.00	13.51
810830	0	0	1	0	0	0	0	4	1	19
	.	.	0.29	0.00	0.00	.	0.00	1.15	0.29	5.46
811031	0	0	3	3	0	0	0	4	0	40
	.	.	0.86	0.86	0.00	.	0.00	1.15	0.00	11.49
811101	0	0	2	0	0	0	0	1	0	12
	.	.	0.57	0.00	0.00	.	0.00	0.29	0.00	3.45
811114	0	0	3	4	0	0	0	0	0	40
	.	.	0.86	1.15	0.00	.	0.00	0.00	0.00	11.49
811115	0	0	4	9	0	0	0	0	0	30
	.	.	1.15	2.59	0.00	.	0.00	0.00	0.00	8.62
TOTAL	.	.	54	17	2	.	1	30	1	348
	.	.	15.52	4.89	0.57	.	0.29	8.62	0.29	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	WARMOUTH	TOTAL
810221	0	0	0	0	0	0	1	0	1	9
	0.00	0.00	.	0.00	0.00	0.00	0.29	0.00	0.29	2.59
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	2	0	0	0	0	1	10
	0.00	0.00	.	0.57	0.00	0.00	0.00	0.00	0.29	2.87
810313	0	0	0	0	0	0	0	0	0	1
	0.00	0.00	.	0.00	0.00	0.00	0.00	0.00	0.00	0.29
810314	0	0	0	1	1	0	0	0	0	3
	0.00	0.00	.	0.29	0.29	0.00	0.00	0.00	0.00	0.86
810519	0	0	0	4	3	1	0	0	0	21
	0.00	0.00	.	1.15	0.86	0.29	0.00	0.00	0.00	6.03
810520	0	0	0	1	0	0	0	0	0	6
	0.00	0.00	.	0.29	0.00	0.00	0.00	0.00	0.00	1.72
810611	0	0	0	2	1	0	0	0	0	14
	0.00	0.00	.	0.57	0.29	0.00	0.00	0.00	0.00	4.02
810612	0	0	0	1	0	0	0	0	0	5
	0.00	0.00	.	0.29	0.00	0.00	0.00	0.00	0.00	1.44
TOTAL	1	1	.	29	29	1	12	17	2	348
	0.29	0.29	.	8.33	8.33	0.29	3.45	4.89	0.57	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	SPECIES: BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	WARMOUTH	TOTAL
810812	0	0	0	4	6	0	2	3	0	53
	0.00	0.00	.	1.15	1.72	0.00	0.57	0.86	0.00	15.23
810813	0	0	0	0	2	0	0	8	0	38
	0.00	0.00	.	0.00	0.57	0.00	0.00	2.30	0.00	10.92
810829	0	0	0	0	0	0	2	0	0	47
	0.00	0.00	.	0.00	0.00	0.00	0.57	0.00	0.00	13.51
810830	1	0	0	0	0	0	1	0	0	19
	0.29	0.00	.	0.00	0.00	0.00	0.29	0.00	0.00	5.46
811031	0	0	0	3	5	0	1	0	0	40
	0.00	0.00	.	0.86	1.44	0.00	0.29	0.00	0.00	11.49
811101	0	1	0	6	0	0	0	0	0	12
	0.00	0.29	.	1.72	0.00	0.00	0.00	0.00	0.00	3.45
811114	0	0	0	3	8	0	3	5	0	40
	0.00	0.00	.	0.86	2.30	0.00	0.86	1.44	0.00	11.49
811115	0	0	0	2	3	0	2	1	0	30
	0.00	0.00	.	0.57	0.86	0.00	0.57	0.29	0.00	8.62
TOTAL	1	1	.	29	29	1	12	17	2	348
	0.29	0.29	.	8.33	8.33	0.29	3.45	4.89	0.57	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE SPECIES

FREQUENCY / PERCENT	GREEN SUNFISH	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810221	1	0	0	0	1	0	0	1	9
	0.29	0.00	0.00	0.00	0.29	0.00	.	0.29	2.59
810222	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	1	0	0	0	0	10
	0.00	0.00	0.00	0.29	0.00	0.00	.	0.00	2.87
810313	0	1	0	0	0	0	0	0	1
	0.00	0.29	0.00	0.00	0.00	0.00	.	0.00	0.29
810314	0	0	0	0	0	0	0	0	3
	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00	0.86
810519	0	1	0	0	4	0	0	0	21
	0.00	0.29	0.00	0.00	1.15	0.00	.	0.00	6.03
810520	1	0	1	0	0	0	0	0	6
	0.29	0.00	0.29	0.00	0.00	0.00	.	0.00	1.72
810611	0	0	0	0	3	0	0	2	14
	0.00	0.00	0.00	0.00	0.86	0.00	.	0.57	4.02
810612	0	0	0	0	1	0	0	0	5
	0.00	0.00	0.00	0.00	0.29	0.00	.	0.00	1.44
TOTAL	6	2	2	3	52	1	.	85	348
	1.72	0.57	0.57	0.86	14.94	0.29	.	24.43	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	SPECIES: GREEN SUNFISH	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810612	2	0	0	0	1	0	0	22	53
	0.57	0.00	0.00	0.00	0.29	0.00	.	6.32	15.23
810813	0	0	0	0	4	0	0	12	38
	0.00	0.00	0.00	0.00	1.15	0.00	.	3.45	10.92
810629	0	0	0	1	0	0	0	34	47
	0.00	0.00	0.00	0.29	0.00	0.00	.	9.77	13.51
810630	0	0	0	0	2	0	0	9	19
	0.00	0.00	0.00	0.00	0.57	0.00	.	2.59	5.46
811031	0	0	0	0	15	1	0	5	40
	0.00	0.00	0.00	0.00	4.31	0.29	.	1.44	11.49
811101	0	0	0	0	2	0	0	0	12
	0.00	0.00	0.00	0.00	0.57	0.00	.	0.00	3.45
811114	0	0	1	0	13	0	0	0	40
	0.00	0.00	0.29	0.00	3.74	0.00	.	0.00	11.49
811115	2	0	0	1	6	0	0	0	30
	0.57	0.00	0.00	0.29	1.72	0.00	.	0.00	8.62
TOTAL	6	2	2	3	52	1	.	85	348
	1.72	0.57	0.57	0.86	14.94	0.29	.	24.43	100.00

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE SPECIES

FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	GOLDEYE	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFA	TOTAL
810221	0	0	31	0	0	0	2	1	0	54
	.	0.00	3.96	0.00	0.00	.	0.26	0.13	0.00	6.90
810222	0	0	53	0	0	0	0	1	0	63
	.	0.00	6.77	0.00	0.00	.	0.00	0.13	0.00	8.05
810224	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810313	0	0	4	0	0	0	1	0	0	21
	.	0.00	0.51	0.00	0.00	.	0.13	0.00	0.00	2.68
810314	0	0	4	0	0	0	2	2	0	20
	.	0.00	0.51	0.00	0.00	.	0.26	0.26	0.00	2.55
810519	0	0	5	1	0	0	2	1	0	23
	.	0.00	0.64	0.13	0.00	.	0.26	0.13	0.00	2.94
810520	0	0	10	0	0	0	2	0	0	18
	.	0.00	1.28	0.00	0.00	.	0.26	0.00	0.00	2.30
810611	0	0	29	0	0	0	1	2	0	59
	.	0.00	3.70	0.00	0.00	.	0.13	0.26	0.00	7.54
810612	0	1	16	0	0	0	0	1	0	25
	.	0.13	2.04	0.00	0.00	.	0.00	0.13	0.00	3.19
TOTAL	.	2	185	59	2	.	13	54	1	783
	.	0.26	23.63	7.54	0.26	.	1.66	6.90	0.13	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY, PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	GOLDEYE	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFALO	TOTAL
810512	0	0	6	0	2	0	0	10	0	78
	.	0.00	0.77	0.00	0.26	.	0.00	1.28	0.00	9.96
810613	0	0	10	0	0	0	0	4	1	50
	.	0.00	1.28	0.00	0.00	.	0.00	0.51	0.13	6.39
810629	0	1	2	0	0	0	0	4	0	74
	.	0.13	0.26	0.00	0.00	.	0.00	0.51	0.00	9.45
810630	0	0	6	4	0	0	0	14	0	67
	.	0.00	0.77	0.51	0.00	.	0.00	1.79	0.00	8.56
811031	0	0	2	9	0	0	0	1	0	63
	.	0.00	0.26	1.15	0.00	.	0.00	0.13	0.00	8.05
811101	0	0	7	13	0	0	0	3	0	76
	.	0.00	0.89	1.66	0.00	.	0.00	0.38	0.00	9.71
811114	0	0	0	16	0	0	0	10	0	57
	.	0.00	0.00	2.04	0.00	.	0.00	1.28	0.00	7.28
811115	0	0	0	16	0	0	3	0	0	35
	.	0.00	0.00	2.04	0.00	.	0.38	0.00	0.00	4.47
TOTAL	.	2	185	59	2	.	13	54	1	783
	.	0.26	23.63	7.54	0.26	.	1.66	6.90	0.13	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	WARMOUTH	TOTAL
810221	0	0	0	0	4	0	2	4	0	54
	0.00	.	.	0.00	0.51	0.00	0.26	0.51	.	6.90
810222	0	0	0	1	1	0	3	3	0	63
	0.00	.	.	0.13	0.13	0.00	0.38	0.38	.	8.05
810224	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810313	0	0	0	3	10	0	0	2	0	21
	0.00	.	.	0.38	1.28	0.00	0.00	0.26	.	2.68
810314	0	0	0	2	5	0	0	0	0	20
	0.00	.	.	0.26	0.64	0.00	0.00	0.00	.	2.55
810519	0	0	0	3	2	0	1	3	0	23
	0.00	.	.	0.38	0.26	0.00	0.13	0.38	.	2.94
810520	0	0	0	1	0	0	1	0	0	18
	0.00	.	.	0.13	0.00	0.00	0.13	0.00	.	2.30
810611	1	0	0	1	9	0	4	0	0	59
	0.13	.	.	0.13	1.15	0.00	0.51	0.00	.	7.54
810612	0	0	0	1	0	0	0	0	0	25
	0.00	.	.	0.13	0.00	0.00	0.00	0.00	.	3.19
TOTAL	1	.	.	29	49	1	73	88	.	783
	0.13	.	.	3.70	6.26	0.13	9.32	11.24	.	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE SPECIES

FREQUENCY PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	WARMOUTH	TOTAL
810812	0	0	0	1	1	0	10	22	0	78
	0,00	.	.	0,13	0,13	0,00	1,28	2,81	.	9,96
810813	0	0	0	3	1	0	1	15	0	50
	0,00	.	.	0,38	0,13	0,00	0,13	1,92	.	6,39
810829	0	0	0	3	0	0	3	30	0	74
	0,00	.	.	0,38	0,00	0,00	0,38	3,83	.	9,45
810830	0	0	0	2	1	0	21	0	0	67
	0,00	.	.	0,26	0,13	0,00	2,68	0,00	.	8,56
811031	0	0	0	5	6	1	14	3	0	63
	0,00	.	.	0,64	0,77	0,13	1,79	0,38	.	8,05
811101	0	0	0	2	4	0	8	1	0	76
	0,00	.	.	0,26	0,51	0,00	1,02	0,13	.	9,71
811114	0	0	0	0	5	0	5	5	0	57
	0,00	.	.	0,00	0,64	0,00	0,64	0,64	.	7,28
811115	0	0	0	1	0	0	0	0	0	35
	0,00	.	.	0,13	0,00	0,00	0,00	0,00	.	4,47
TOTAL	1	.	.	29	49	1	73	88	.	783
	0,13	.	.	3,70	6,26	0,13	9,32	11,24	.	100,00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	GREEN SUNFISH	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810221	0	1	0	0	3	0	3	3	54
	.	0.13	0.00	0.00	0.38	.	0.38	0.38	6.90
810222	0	0	0	0	0	0	1	0	63
	.	0.00	0.00	0.00	0.00	.	0.13	0.00	8.05
810224	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	0.00
810313	0	0	0	0	1	0	0	0	21
	.	0.00	0.00	0.00	0.13	.	0.00	0.00	2.59
810314	0	0	0	0	2	0	0	3	20
	.	0.00	0.00	0.00	0.26	.	0.00	0.38	2.55
810519	0	0	0	0	3	0	0	2	23
	.	0.00	0.00	0.00	0.38	.	0.00	0.26	2.94
810520	0	0	0	0	0	0	0	4	18
	.	0.00	0.00	0.00	0.00	.	0.00	0.51	2.30
810611	0	5	0	0	7	0	0	0	59
	.	0.64	0.00	0.00	0.89	.	0.00	0.00	7.54
810612	0	1	0	0	3	0	1	1	25
	.	0.13	0.00	0.00	0.38	.	0.13	0.13	3.19
TOTAL	.	12	2	1	149	.	6	56	783
	.	1.53	0.26	0.13	19.03	.	0.77	7.15	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	GREEN SUNFISH	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810812	0	1	0	0	16	0	0	9	78
	.	0.13	0.00	0.00	2.04	.	0.00	1.15	9.96
810813	0	0	0	0	13	0	0	2	50
	.	0.00	0.00	0.00	1.66	.	0.00	0.26	6.39
810829	0	0	0	0	14	0	0	17	74
	.	0.00	0.00	0.00	1.79	.	0.00	2.17	9.45
810830	0	0	0	0	8	0	0	11	67
	.	0.00	0.00	0.00	1.02	.	0.00	1.40	8.55
811031	0	1	0	1	18	0	1	1	63
	.	0.13	0.00	0.13	2.30	.	0.13	0.13	8.05
811101	0	1	0	0	35	0	0	2	76
	.	0.13	0.00	0.00	4.47	.	0.00	0.26	9.71
811114	0	1	1	0	13	0	0	1	57
	.	0.13	0.13	0.00	1.66	.	0.00	0.13	7.28
811115	0	1	1	0	13	0	0	0	35
	.	0.13	0.13	0.00	1.66	.	0.00	0.00	4.47
TOTAL	.	12	2	1	149	.	6	56	783
	.	1.53	0.26	0.13	19.03	.	0.77	7.15	100.00

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	GOLDEYE	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFA	TOTAL
810221	0	0	4	0	0	0	1	1	0	33
	0.00	0.00	0.51	0.00	0.00	.	0.13	0.13	0.00	4.23
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	1	0	2	5	0	0	2	6	0	60
	0.13	0.00	0.26	0.64	0.00	.	0.26	0.77	0.00	7.69
810313	0	0	7	2	0	0	0	5	0	23
	0.00	0.00	0.90	0.26	0.00	.	0.00	0.64	0.00	2.95
810314	0	0	7	0	0	0	0	3	0	17
	0.00	0.00	0.90	0.00	0.00	.	0.00	0.38	0.00	2.18
810519	0	0	3	0	0	0	1	25	0	47
	0.00	0.00	0.38	0.00	0.00	.	0.13	3.21	0.00	6.03
810520	0	0	6	1	1	0	0	9	0	30
	0.00	0.00	0.77	0.13	0.13	.	0.00	1.15	0.00	3.85
810611	1	2	0	0	0	0	0	2	0	11
	0.13	0.26	0.00	0.00	0.00	.	0.00	0.26	0.00	1.41
810612	0	0	0	0	0	0	1	6	0	8
	0.00	0.00	0.00	0.00	0.00	.	0.13	0.77	0.00	1.03
TOTAL	3	2	52	299	1	.	6	109	4	780
	0.38	0.26	6.67	38.33	0.13	.	0.77	13.97	0.51	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY, PERCENT	SPECIES: LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	GOLDEYE	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFA	TOTAL
810812	0	0	1	0	0	0	1	5	0	8
	0.00	0.00	0.13	0.00	0.00	.	0.13	0.64	0.00	1.03
810813	0	0	0	0	0	0	0	7	2	11
	0.00	0.00	0.00	0.00	0.00	.	0.00	0.90	0.26	1.41
810829	0	0	16	6	0	0	0	14	0	57
	0.00	0.00	2.05	0.77	0.00	.	0.00	1.79	0.00	7.31
810830	0	0	4	2	0	0	0	15	1	37
	0.00	0.00	0.51	0.26	0.00	.	0.00	1.92	0.13	4.74
811031	0	0	1	98	0	0	0	8	0	165
	0.00	0.00	0.13	12.56	0.00	.	0.00	1.03	0.00	21.15
811101	1	0	1	81	0	0	0	2	0	133
	0.13	0.00	0.13	10.38	0.00	.	0.00	0.26	0.00	17.05
811114	0	0	0	61	0	0	0	1	0	77
	0.00	0.00	0.00	7.82	0.00	.	0.00	0.13	0.00	9.87
811115	0	0	0	43	0	0	0	0	1	63
	0.00	0.00	0.00	5.51	0.00	.	0.00	0.00	0.13	8.08
TOTAL	3	2	52	299	1	.	6	109	4	780
	0.38	0.26	6.67	38.33	0.13	.	0.77	13.97	0.51	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE SPECIES

FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	WARMOUTH	TOTAL
810221	0	0	0	3	15	0	2	3	0	33
	.	.	.	0.38	1.92	0.00	0.26	0.38	.	4.23
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	3	16	0	6	10	0	60
	.	.	.	0.38	2.05	0.00	0.77	1.28	.	7.69
810313	0	0	0	3	2	0	0	1	0	23
	.	.	.	0.38	0.26	0.00	0.00	0.13	.	2.95
810314	0	0	0	1	5	0	1	0	0	17
	.	.	.	0.13	0.64	0.00	0.13	0.00	.	2.18
810519	0	0	0	5	6	1	0	0	0	47
	.	.	.	0.64	0.77	0.13	0.00	0.00	.	6.03
810520	0	0	0	4	2	0	1	1	0	30
	.	.	.	0.51	0.26	0.00	0.13	0.13	.	3.85
810611	0	0	0	0	1	0	0	0	0	11
	.	.	.	0.00	0.13	0.00	0.00	0.00	.	1.41
810612	0	0	0	1	0	0	0	0	0	8
	.	.	.	0.13	0.00	0.00	0.00	0.00	.	1.03
TOTAL	.	.	.	45	87	1	43	45	.	780
	.	.	.	5.77	11.15	0.13	5.51	5.77	.	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE SPECIES

FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	WARMOUTH	TOTAL
810812	0	0	0	0	1	0	0	0	0	8
	.	.	.	0.00	0.13	0.00	0.00	0.00	.	1.03
810813	0	0	0	2	0	0	0	0	0	11
	.	.	.	0.26	0.00	0.00	0.00	0.00	.	1.41
810629	0	0	0	9	4	0	1	0	0	57
	.	.	.	1.15	0.51	0.00	0.13	0.00	.	7.31
810630	0	0	0	4	6	0	2	0	0	37
	.	.	.	0.51	0.77	0.00	0.26	0.00	.	4.74
811031	0	0	0	4	15	0	12	12	0	165
	.	.	.	0.51	1.92	0.00	1.54	1.54	.	21.15
811101	0	0	0	5	11	0	14	5	0	133
	.	.	.	0.64	1.41	0.00	1.79	0.64	.	17.05
811114	0	0	0	0	1	0	1	6	0	77
	.	.	.	0.00	0.13	0.00	0.13	0.77	.	9.87
811115	0	0	0	1	2	0	3	7	0	63
	.	.	.	0.13	0.26	0.00	0.38	0.90	.	8.08
TOTAL	.	.	.	45	87	1	43	45	.	780
	.	.	.	5.77	11.15	0.13	5.51	5.77	.	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	SPECIES: GREEN SUNFISH	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810221	0	0	0	1	1	0	2	0	33
	.	0.00	0.00	0.13	0.13	0.00	0.26	0.00	4.23
810222	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	0	1	4	2	2	60
	.	0.00	0.00	0.00	0.13	0.51	0.26	0.26	7.69
810313	0	1	0	0	2	0	0	0	23
	.	0.13	0.00	0.00	0.26	0.00	0.00	0.00	2.95
810314	0	0	0	0	0	0	0	0	17
	.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18
810519	0	1	0	0	3	0	0	2	47
	.	0.13	0.00	0.00	0.38	0.00	0.00	0.26	6.03
810520	0	1	0	0	2	0	0	2	30
	.	0.13	0.00	0.00	0.26	0.00	0.00	0.26	3.85
810611	0	1	0	0	1	0	0	3	11
	.	0.13	0.00	0.00	0.13	0.00	0.00	0.38	1.41
810612	0	0	0	0	0	0	0	0	8
	.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
TOTAL	.	8	1	1	52	5	5	11	780
	.	1.03	0.13	0.13	6.67	0.64	0.64	1.41	100.00

(CONTINUED)

TABLE 5

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR GILL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE SPECIES

FREQUENCY PERCENT	GREEN SUNFISH	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810812	0	0	0	0	0	0	0	0	8
	.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
810813	0	0	0	0	0	0	0	0	11
	.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
810829	0	2	0	0	5	0	0	0	57
	.	0.26	0.00	0.00	0.64	0.00	0.00	0.00	7.31
810830	0	1	0	0	2	0	0	0	37
	.	0.13	0.00	0.00	0.26	0.00	0.00	0.00	4.74
811031	0	0	0	0	14	1	0	0	165
	.	0.00	0.00	0.00	1.79	0.13	0.00	0.00	21.15
811101	0	0	1	0	9	0	1	2	133
	.	0.00	0.13	0.00	1.15	0.00	0.13	0.26	17.05
811114	0	0	0	0	7	0	0	0	77
	.	0.00	0.00	0.00	0.90	0.00	0.00	0.00	9.87
811115	0	1	0	0	5	0	0	0	63
	.	0.13	0.00	0.00	0.64	0.00	0.00	0.00	8.08
TOTAL	.	8	1	1	52	5	5	11	780
	.	1.03	0.13	0.13	6.67	0.64	0.64	1.41	100.00

Table 6

TOTAL NUMBER OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR TRAMMEL NET 1981

TABLE OF DATE BY STATION

DATE STATION

FREQUENCY / PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810221	51	34	34	8	127
	2.41	1.61	1.61	0.38	6.01
810222	0	0	37	0	37
	0.00	0.00	1.75	0.00	1.75
810224	78	39	0	13	130
	3.69	1.84	0.00	0.61	6.15
810513	41	17	42	21	121
	1.94	0.80	1.99	0.99	5.72
810514	34	7	33	11	85
	1.61	0.33	1.56	0.52	4.02
810519	50	16	28	69	163
	2.37	0.76	1.32	3.26	7.71
810520	39	2	8	34	83
	1.84	0.09	0.38	1.61	3.93
810611	35	15	106	48	204
	1.66	0.71	5.01	2.27	9.65
810612	18	19	23	22	82
	0.85	0.90	1.09	1.04	3.88
TOTAL	550	375	630	559	2114
	26.02	17.74	29.80	26.44	100.00

(CONTINUED)

Table 6

TOTAL NUMBER OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR TRAMMEL NET 1981

TABLE OF DATE BY STATION

DATE — STATION

FREQUENCY / PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810812	18	22	41	30	111
	0.85	1.04	1.94	1.42	5.25
810813	7	23	15	15	60
	0.33	1.09	0.71	0.71	2.84
810829	20	32	55	44	151
	0.95	1.51	2.60	2.08	7.14
810830	20	25	31	39	115
	0.95	1.18	1.47	1.84	5.44
811031	21	25	38	13	97
	0.99	1.18	1.80	0.61	4.59
811101	14	20	24	15	73
	0.66	0.95	1.14	0.71	3.45
811114	40	48	77	95	260
	1.89	2.27	3.64	4.49	12.30
811115	64	31	38	82	215
	3.03	1.47	1.80	3.88	10.17
TOTAL	550	375	630	559	2114
	26.02	17.74	29.80	26.44	100.00

Table 7

TOTAL WEIGHT OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR TRAMMEL NET 1981 3

TABLE OF DATE BY STATION

DATE STATION

FREQUENCY / PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810221	110	69	70	16	265
	3.59	2.25	2.29	0.51	8.64
810222	0	0	78	0	78
	0.00	0.00	2.54	0.00	2.54
810224	148	76	0	25	249
	4.83	2.49	0.00	0.82	8.14
810313	44	22	39	20	125
	1.43	0.72	1.29	0.66	4.09
810314	24	5	29	16	75
	0.78	0.20	0.95	0.52	2.45
810319	116	40	59	135	349
	3.78	1.30	1.92	4.41	11.40
810320	78	6	19	78	180
	2.53	0.18	0.61	2.56	5.89
810611	46	22	102	59	229
	1.49	0.73	3.34	1.93	7.48
810612	18	25	22	32	98
	0.60	0.83	0.73	1.04	3.21
TOTAL	832	544	880	807	3064
	27.17	17.76	28.71	26.35	100.00

(CONTINUED)

Table 7

TOTAL WEIGHT OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR TRAMMEL NET 1981

TABLE OF DATE BY STATION

DATE / FREQUENCY / PERCENT	STATION: CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810812	43	50	92	60	245
	1.39	1.64	3.00	1.95	7.99
810813	16	45	32	28	122
	0.54	1.48	1.04	0.92	3.97
810829	13	22	54	50	139
	0.44	0.71	1.78	1.62	4.54
810830	18	22	30	55	126
	0.60	0.73	0.99	1.79	4.11
811031	47	48	85	29	208
	1.52	1.58	2.77	0.93	6.81
811101	24	40	70	28	162
	0.79	1.29	2.28	0.92	5.28
811114	33	31	69	97	229
	1.07	1.00	2.27	3.16	7.49
811115	55	20	28	80	183
	1.78	0.65	0.92	2.62	5.97
TOTAL	832	544	880	807	3064
	27.17	17.76	28.71	26.35	100.00

Table 8

NUMBER OF SPECIES BY STATION FOR TRAMMEL NET 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
LONGNOSE GAR	0 0.00	0 0.00	2 0.09	2 0.09	4 0.19
SHORTNOSE GAR	0 0.00	2 0.09	1 0.05	1 0.05	4 0.19
GIZZARD SHAD	5 0.24	3 0.14	2 0.09	0 0.00	10 0.47
SKIPJACK HERRING	43 2.03	5 0.24	52 2.46	143 6.76	243 11.49
THREADFIN SHAD	6 0.28	0 0.00	0 0.00	4 0.19	10 0.47
CARP	54 2.55	14 0.66	21 0.99	11 0.52	100 4.73
RIVER CARPSUCKER	194 9.18	153 7.24	193 9.13	256 12.1[illegible]	796 37.65
SMALLMOUTH BUFFA	16 0.76	10 0.47	34 1.61	11 0.52	71 3.36
BIGMOUTH BUFFALO	1 0.05	1 0.05	4 0.19	1 0.05	7 0.33
BLACK BUFFALO	4 0.19	2 0.09	3 0.14	0 0.00	9 0.43
RIVER REDHORSE	0 0.00	0 0.00	1 0.05	0 0.00	1 0.05
GOLDEN REDHORSE	1 0.05	1 0.05	0 0.00	0 0.00	2 0.09
YELLOW BULLHEAD	0 0.00	1 0.05	0 0.00	0 0.00	1 0.05
TOTAL	550 26.02	375 17.74	630 29.80	559 26.44	2114 100.00

(CONTINUED)

Table 8

NUMBER OF SPECIES BY STATION FOR TRAMMEL NET 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
CHANNEL CATFISH	32 1.51	15 0.71	9 0.43	9 0.43	65 3.07
BLUE CATFISH	60 2.84	24 1.14	42 1.99	41 1.94	167 7.90
FLATHEAD CATFISH	10 0.47	9 0.43	10 0.47	2 0.09	31 1.47
WHITE BASS	10 0.47	10 0.47	82 3.88	27 1.28	129 6.10
STRIPED BASS	15 0.71	5 0.24	22 1.04	16 0.76	58 2.74
WARMOUTH	0 0.00	2 0.09	0 0.00	0 0.00	2 0.09
GREEN SUNFISH	0 0.00	1 0.05	0 0.00	0 0.00	1 0.05
BLUEGILL	3 0.14	0 0.00	11 0.52	1 0.05	15 0.71
LARGEMOUTH BASS	0 0.00	4 0.19	6 0.28	0 0.00	10 0.47
WHITE CRAPPIE	43 2.03	75 3.55	119 5.63	25 1.18	262 12.39
BLACK CRAPPIE	0 0.00	10 0.47	1 0.05	0 0.00	11 0.52
SAUGER	1 0.05	0 0.00	4 0.19	3 0.14	8 0.38
FRESHWATER DRUM	52 2.46	28 1.32	11 0.52	6 0.28	97 4.59
TOTAL	550 26.02	375 17.74	630 29.80	559 26.44	2114 100.00

Table 9

WEIGHT OF SPECIES BY STATION FOR TRAMMEL NET 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION (FREQUENCY, PERCENT)	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
LONGNOSE GAR	0	0	10	3	13
	0.00	0.00	0.33	0.10	0.42
SHORTNOSE GAR	0	4	7	3	14
	0.00	0.14	0.23	0.08	0.45
GIZZARD SHAD	1	0	0	0	2
	0.04	0.02	0.02	0.00	0.08
SKIPJACK HERRING	41	4	50	136	231
	1.33	0.14	1.64	4.43	7.55
THREADFIN SHAD	0	0	0	0	0
	0.01	0.00	0.00	0.01	0.01
CARP	135	36	40	23	233
	4.40	1.17	1.29	0.75	7.61
RIVER CARPSUCKER	369	286	368	486	1511
	12.03	9.35	12.01	15.92	49.31
SMALLMOUTH BUFFA	42	27	95	24	188
	1.36	0.88	3.11	0.77	6.13
BIGMOUTH BUFFALO	12	4	9	2	27
	0.38	0.14	0.29	0.08	0.89
BLACK BUFFALO	11	8	8	0	27
	0.36	0.25	0.27	0.00	0.88
RIVER REDHORSE	0	0	3	0	3
	0.00	0.00	0.11	0.00	0.11
GOLDEN REDHORSE	1	2	0	0	3
	0.04	0.08	0.00	0.00	0.11
YELLOW BULLHEAD	0	1	0	0	1
	0.00	0.02	0.00	0.00	0.02
TOTAL	832	544	880	807	3064
	27.17	17.76	28.71	26.35	100.00

(CONTINUED)

Table 9

WEIGHT OF SPECIES BY STATION FOR TRAMMEL NET 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
CHANNEL CATFISH	35	21	13	6	76
	1.14	0.69	0.44	0.21	2.48
BLUE CATFISH	73	30	41	66	211
	2.38	1.00	1.33	2.16	6.87
FLATHEAD CATFISH	36	28	27	5	96
	1.17	0.92	0.88	0.17	3.13
WHITE BASS	9	11	69	17	107
	0.31	0.37	2.25	0.56	3.48
STRIPED BASS	25	8	45	16	94
	0.83	0.26	1.46	0.51	3.07
WARMOUTH	0	1	0	0	1
	0.00	0.02	0.00	0.00	0.02
GREEN SUNFISH	0	0	0	0	0
	0.00	0.01	0.00	0.00	0.01
BLUEGILL	1	0	2	0	3
	0.02	0.00	0.08	0.00	0.10
LARGEMOUTH BASS	0	5	12	0	17
	0.00	0.16	0.40	0.00	0.56
WHITE CRAPPIE	26	49	62	13	150
	0.85	1.59	2.02	0.43	4.88
BLACK CRAPPIE	0	5	0	0	5
	0.00	0.16	0.01	0.00	0.17
SAUGER	1	0	5	4	11
	0.05	0.00	0.18	0.13	0.36
FRESHWATER DRUM	14	13	11	1	40
	0.47	0.41	0.38	0.04	1.30
TOTAL	832	544	880	807	3064
	27.17	17.76	28.71	26.35	100.00

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE SPECIES

FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFALO	BIGMOUTH BUFFALO	TOTAL
810221	0	0	0	0	0	4	25	1	0	34
	.	0.00	0.00	0.00	.	1.07	6.67	0.27	0.00	9.07
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	0	0	1	34	0	0	39
	.	0.00	0.00	0.00	.	0.27	9.07	0.00	0.00	10.40
810313	0	0	0	0	0	0	5	1	0	17
	.	0.00	0.00	0.00	.	0.00	1.33	0.27	0.00	4.53
810314	0	0	0	0	0	1	2	0	0	7
	.	0.00	0.00	0.00	.	0.27	0.53	0.00	0.00	1.87
810519	0	0	0	0	0	1	11	1	0	16
	.	0.00	0.00	0.00	.	0.27	2.93	0.27	0.00	4.27
810520	0	0	0	0	0	1	0	0	0	2
	.	0.00	0.00	0.00	.	0.27	0.00	0.00	0.00	0.53
810611	0	1	0	0	0	1	7	0	1	15
	.	0.27	0.00	0.00	.	0.27	1.87	0.00	0.27	4.00
810612	0	0	1	0	0	2	6	0	0	19
	.	0.00	0.27	0.00	.	0.53	1.60	0.00	0.00	5.07
TOTAL	.	2	3	5	.	14	153	10	1	375
	.	0.53	0.80	1.33	.	3.73	40.80	2.67	0.27	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	SPECIES: BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	YELLOW BULLHEAD	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810221	1	0	0	0	0	2	0	0	0	34
	0.27	.	0.00	0.00	0.00	0.53	0.00	0.00	0.00	9.07
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	1	0	1	2	0	0	0	39
	0.00	.	0.27	0.00	0.27	0.53	0.00	0.00	0.00	10.40
810313	0	0	0	0	2	2	1	0	0	17
	0.00	.	0.00	0.00	0.53	0.53	0.27	0.00	0.00	4.53
810314	0	0	0	0	0	2	0	1	0	7
	0.00	.	0.00	0.00	0.00	0.53	0.00	0.27	0.00	1.87
810519	0	0	0	0	1	1	1	0	0	16
	0.00	.	0.00	0.00	0.27	0.27	0.27	0.00	0.00	4.27
810520	0	0	0	0	0	0	1	0	0	2
	0.00	.	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.53
810611	0	0	0	0	0	1	0	1	0	15
	0.00	.	0.00	0.00	0.00	0.27	0.00	0.27	0.00	4.00
810612	0	0	0	0	6	1	0	0	0	19
	0.00	.	0.00	0.00	1.60	0.27	0.00	0.00	0.00	5.07
TOTAL	2	.	1	1	15	24	9	10	5	375
	0.53	.	0.27	0.27	4.00	6.40	2.40	2.67	1.33	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	WARMOUTH	GREEN SUNFISH	BLUEGILL	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810221	0	0	0	0	1	0	0	0	34
	0,00	0,00	.	0,00	0,27	0,00	.	0,00	9,07
810222	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	0,00
810224	0	0	0	0	0	0	0	0	39
	0,00	0,00	.	0,00	0,00	0,00	.	0,00	10,40
810313	1	0	0	4	1	0	0	0	17
	0,27	0,00	.	1,07	0,27	0,00	.	0,00	4,53
810314	0	0	0	0	0	0	0	1	7
	0,00	0,00	.	0,00	0,00	0,00	.	0,27	1,87
810519	0	0	0	0	0	0	0	0	16
	0,00	0,00	.	0,00	0,00	0,00	.	0,00	4,27
810520	0	0	0	0	0	0	0	0	2
	0,00	0,00	.	0,00	0,00	0,00	.	0,00	0,53
810611	1	0	0	0	2	0	0	0	15
	0,27	0,00	.	0,00	0,53	0,00	.	0,00	4,00
810612	0	0	0	0	2	0	0	1	19
	0,00	0,00	.	0,00	0,53	0,00	.	0,27	5,07
TOTAL	2	1	.	4	75	10	.	28	375
	0,53	0,27	.	1,07	20,00	2,67	.	7,47	100,00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

8

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFALO	BIGMOUTH BUFFALO	TOTAL
810812	0	0	0	0	0	1	13	0	0	22
	.	0,00	0,00	0,00	.	0,27	3,47	0,00	0,00	5,87
810813	0	0	0	0	0	1	11	3	0	23
	.	0,00	0,00	0,00	.	0,27	2,93	0,80	0,00	6,13
810829	0	0	0	0	0	1	4	0	0	32
	.	0,00	0,00	0,00	.	0,27	1,07	0,00	0,00	8,53
810830	0	1	1	0	0	0	4	2	0	25
	.	0,27	0,27	0,00	.	0,00	1,07	0,53	0,00	6,67
811031	0	0	0	0	0	0	15	0	0	25
	.	0,00	0,00	0,00	.	0,00	4,00	0,00	0,00	6,67
811101	0	0	0	0	0	0	12	2	0	20
	.	0,00	0,00	0,00	.	0,00	3,20	0,53	0,00	5,33
811114	0	0	0	2	0	0	4	0	0	48
	.	0,00	0,00	0,53	.	0,00	1,07	0,00	0,00	12,80
811115	0	0	1	3	0	0	0	0	0	31
	.	0,00	0,27	0,80	.	0,00	0,00	0,00	0,00	8,27
TOTAL	.	2	3	5	.	14	153	10	1	375
	.	0,53	0,80	1,33	.	3,73	40,80	2,67	0,27	100,00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	SPECIES: BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	YELLOW BULLHEAD	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810812	0	0	0	0	0	0	3	2	0	22
	0.00	.	0.00	0.00	0.00	0.00	0.80	0.53	0.00	5.87
810813	1	0	0	0	0	0	0	1	1	23
	0.27	.	0.00	0.00	0.00	0.00	0.00	0.27	0.27	6.13
810829	0	0	0	1	2	2	0	0	0	32
	0.00	.	0.00	0.27	0.53	0.53	0.00	0.00	0.00	8.53
810830	0	0	0	0	1	2	0	1	0	25
	0.00	.	0.00	0.00	0.27	0.53	0.00	0.27	0.00	6.67
811031	0	0	0	0	1	1	2	0	0	25
	0.00	.	0.00	0.00	0.27	0.27	0.53	0.00	0.00	6.67
811101	0	0	0	0	1	0	1	0	1	20
	0.00	.	0.00	0.00	0.27	0.00	0.27	0.00	0.27	5.33
811114	0	0	0	0	0	5	0	3	2	48
	0.00	.	0.00	0.00	0.00	1.33	0.00	0.80	0.53	12.80
811115	0	0	0	0	0	3	0	1	1	31
	0.00	.	0.00	0.00	0.00	0.80	0.00	0.27	0.27	8.27
TOTAL	2	.	1	1	15	24	9	10	5	375
	0.53	.	0.27	0.27	4.00	6.40	2.40	2.67	1.33	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	WARMOUTH	GREEN SUNFISH	BLUEGILL	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810812	0	0	0	0	1	0	0	2	22
	0.00	0.00	.	0.00	0.27	0.00	.	0.53	5.87
810813	0	0	0	0	1	0	0	4	23
	0.00	0.00	.	0.00	0.27	0.00	.	1.07	6.13
810829	0	0	0	0	9	3	0	10	32
	0.00	0.00	.	0.00	2.40	0.80	.	2.67	8.53
810830	0	0	0	0	6	1	0	6	25
	0.00	0.00	.	0.00	1.60	0.27	.	1.60	6.67
811031	0	0	0	0	4	0	0	2	25
	0.00	0.00	.	0.00	1.07	0.00	.	0.53	6.67
811101	0	0	0	0	3	0	0	0	20
	0.00	0.00	.	0.00	0.80	0.00	.	0.00	5.33
811114	0	1	0	0	28	2	0	1	48
	0.00	0.27	.	0.00	7.47	0.53	.	0.27	12.80
811115	0	0	0	0	17	4	0	1	31
	0.00	0.00	.	0.00	4.53	1.07	.	0.27	8.27
TOTAL	2	1	.	4	75	10	.	28	375
	0.53	0.27	.	1.07	20.00	2.67	.	7.47	100.00

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFALO	BIGMOUTH BUFFALO	TOTAL
810221	0	0	0	0	0	0	25	2	2	34
	0.00	0.00	0.00	0.00	.	0.00	3.97	0.32	0.32	5.40
810222	0	0	0	0	0	1	30	2	0	37
	0.00	0.00	0.00	0.00	.	0.16	4.76	0.32	0.00	5.87
810224	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810313	0	0	0	0	0	2	5	0	0	42
	0.00	0.00	0.00	0.00	.	0.32	0.79	0.00	0.00	6.67
810314	0	0	0	0	0	3	4	1	0	33
	0.00	0.00	0.00	0.00	.	0.48	0.63	0.16	0.00	5.24
810519	0	0	0	0	0	1	19	3	0	28
	0.00	0.00	0.00	0.00	.	0.16	3.02	0.48	0.00	4.44
810520	0	0	0	0	0	1	4	1	1	8
	0.00	0.00	0.00	0.00	.	0.16	0.63	0.16	0.16	1.27
810611	0	1	1	1	0	4	15	0	0	106
	0.00	0.16	0.16	0.16	.	0.63	2.38	0.00	0.00	16.83
810612	0	0	1	0	0	4	3	0	0	23
	0.00	0.00	0.16	0.00	.	0.63	0.48	0.00	0.00	3.65
TOTAL	2	1	2	52	.	21	193	34	4	630
	0.32	0.16	0.32	8.25	.	3.33	30.63	5.40	0.63	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF H

DATE SPECIES

FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	YELLOW BULLHEAD	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810221	1	0	0	0	1	1	0	0	0	34
	0,16	0,00	.	.	0,16	0,16	0,00	0,00	0,00	5,40
810222	0	1	0	0	0	1	0	0	0	37
	0,00	0,16	.	.	0,00	0,16	0,00	0,00	0,00	5,87
810224	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0,00
810313	0	0	0	0	0	16	0	0	1	42
	0,00	0,00	.	.	0,00	2,54	0,00	0,00	0,16	6,67
810314	0	0	0	0	1	7	1	0	1	33
	0,00	0,00	.	.	0,16	1,11	0,16	0,00	0,16	5,24
810519	0	0	0	0	0	1	2	1	0	28
	0,00	0,00	.	.	0,00	0,16	0,32	0,16	0,00	4,44
810520	0	0	0	0	0	1	0	0	0	8
	0,00	0,00	.	.	0,00	0,16	0,00	0,00	0,00	1,27
810611	0	0	0	0	3	4	2	46	2	106
	0,00	0,00	.	.	0,48	0,63	0,32	7,30	0,32	16,83
810612	1	0	0	0	0	2	0	8	0	23
	0,16	0,00	.	.	0,00	0,32	0,00	1,27	0,00	3,65
TOTAL	3	1	.	.	9	42	10	82	22	630
	0,48	0,16	.	.	1,43	6,67	1,59	13,02	3,49	100,00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE SPECIES

FREQUENCY, PERCENT	WARMOUTH	GREEN SUNFISH	BLUEGILL	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810221	0	0	0	0	2	0	0	0	34
	.	.	0.00	0.00	0.32	0.00	0.00	0.00	5.40
810222	0	0	0	1	1	0	0	0	37
	.	.	0.00	0.16	0.16	0.00	0.00	0.00	5.87
810224	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	0.00
810313	0	0	1	3	12	0	0	2	42
	.	.	0.16	0.48	1.90	0.00	0.00	0.32	6.67
810314	0	0	2	0	8	0	3	2	33
	.	.	0.32	0.00	1.27	0.00	0.48	0.32	5.24
810519	0	0	0	0	1	0	0	0	28
	.	.	0.00	0.00	0.16	0.00	0.00	0.00	4.44
810520	0	0	0	0	0	0	0	0	8
	.	.	0.00	0.00	0.00	0.00	0.00	0.00	1.27
810611	0	0	1	0	25	0	0	1	106
	.	.	0.16	0.00	3.97	0.00	0.00	0.16	16.83
810612	0	0	1	0	3	0	0	0	23
	.	.	0.16	0.00	0.48	0.00	0.00	0.00	3.65
TOTAL	.	.	11	6	119	1	4	11	630
	.	.	1.75	0.95	18.89	0.16	0.63	1.75	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE SPECIES

FREQUENCY PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFA	BIGMOUTH BUFFALO	TOTAL
810612	0	0	0	0	0	0	23	11	1	41
	0,00	0,00	0,00	0,00	.	0,00	3,65	1,75	0,16	6,51
810613	0	0	0	0	0	0	13	2	0	15
	0,00	0,00	0,00	0,00	.	0,00	2,06	0,32	0,00	2,38
810629	1	0	0	0	0	3	15	1	0	55
	0,16	0,00	0,00	0,00	.	0,46	2,38	0,16	0,00	8,73
810630	1	0	0	0	0	2	5	1	0	31
	0,16	0,00	0,00	0,00	.	0,32	0,79	0,16	0,00	4,92
811031	0	0	0	0	0	0	20	7	0	38
	0,00	0,00	0,00	0,00	.	0,00	3,17	1,11	0,00	6,03
811101	0	0	0	0	0	0	9	3	0	24
	0,00	0,00	0,00	0,00	.	0,00	1,43	0,48	0,00	3,81
811114	0	0	0	38	0	0	2	0	0	77
	0,00	0,00	0,00	6,03	.	0,00	0,32	0,00	0,00	12,22
811115	0	0	0	13	0	0	1	0	0	38
	0,00	0,00	0,00	2,06	.	0,00	0,16	0,00	0,00	6,03
TOTAL	2	1	2	52	.	21	193	34	4	630
	0,32	0,16	0,32	8,25	.	3,33	30,63	5,40	0,63	100,00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	YELLOW BULLHEAD	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810812	1	0	0	0	0	0	0	0	0	41
	0,16	0,00	.	.	0,00	0,00	0,00	0,00	0,00	6,51
810813	0	0	0	0	0	0	0	0	0	15
	0,00	0,00	.	.	0,00	0,00	0,00	0,00	0,00	2,38
810829	0	0	0	0	1	1	0	9	1	55
	0,00	0,00	.	.	0,16	0,16	0,00	1,43	0,15	8,73
810830	0	0	0	0	0	0	0	8	5	31
	0,00	0,00	.	.	0,00	0,00	0,00	1,27	0,79	4,92
811031	0	0	0	0	0	0	2	2	3	38
	0,00	0,00	.	.	0,00	0,00	0,32	0,32	0,48	6,03
811101	0	0	0	0	0	1	1	3	4	24
	0,00	0,00	.	.	0,00	0,16	0,16	0,48	0,63	3,81
811114	0	0	0	0	2	6	2	1	4	77
	0,00	0,00	.	.	0,32	0,95	0,32	0,16	0,63	12,22
811115	0	0	0	0	1	1	0	4	1	38
	0,00	0,00	.	.	0,16	0,16	0,00	0,63	0,16	6,03
TOTAL	3	1	.	.	9	42	10	82	22	630
	0,48	0,16	.	.	1,43	6,67	1,59	13,02	3,49	100,00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	SPECIES: WARMOUTH	GREEN SUNFISH	BLUEGILL	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810612	0	0	0	1	1	0	0	3	41
	.	.	0,00	0,16	0,16	0,00	0,00	0,48	6,51
810613	0	0	0	0	0	0	0	0	15
	.	.	0,00	0,00	0,00	0,00	0,00	0,00	2,38
810624	0	0	0	1	20	1	0	1	55
	.	.	0,00	0,16	3,17	0,16	0,00	0,16	8,73
810630	0	0	1	0	7	0	0	1	31
	.	.	0,16	0,00	1,11	0,00	0,00	0,16	4,92
811031	0	0	0	0	4	0	0	0	38
	.	.	0,00	0,00	0,63	0,00	0,00	0,00	6,03
811101	0	0	0	0	2	0	0	1	24
	.	.	0,00	0,00	0,32	0,00	0,00	0,16	3,81
811114	0	0	1	0	20	0	1	0	77
	.	.	0,16	0,00	3,17	0,00	0,16	0,00	12.22
811115	0	0	4	0	13	0	0	0	38
	.	.	0,63	0,00	2,06	0,00	0,00	0,00	6,03
TOTAL	.	.	11	6	119	1	4	11	630
	.	.	1,75	0,95	18,89	0,16	0,63	1,75	100,00

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE SPECIES

FREQUENCY PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFALO	BIGMOUTH BUFFALO	TOTAL
810221	0	0	0	0	0	0	5	0	0	8
	0.00	0.00	.	0.00	0.00	0.00	0.89	0.00	0.00	1.43
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	0	0	1	11	0	0	13
	0.00	0.00	.	0.00	0.00	0.18	1.97	0.00	0.00	2.33
810313	1	0	0	3	0	0	0	0	0	21
	0.18	0.00	.	0.54	0.00	0.00	0.00	0.00	0.00	3.76
810314	0	0	0	0	0	1	1	0	0	11
	0.00	0.00	.	0.00	0.00	0.18	0.18	0.00	0.00	1.97
810519	1	0	0	0	0	0	67	0	0	69
	0.18	0.00	.	0.00	0.00	0.00	11.99	0.00	0.00	12.34
810520	0	0	0	0	0	1	29	2	0	34
	0.00	0.00	.	0.00	0.00	0.18	5.19	0.36	0.00	6.08
810611	0	0	0	0	4	3	17	1	1	48
	0.00	0.00	.	0.00	0.72	0.54	3.04	0.18	0.18	8.59
810612	0	1	0	0	0	3	8	0	0	22
	0.00	0.18	.	0.00	0.00	0.54	1.43	0.00	0.00	3.94
TOTAL	2	1	.	143	4	11	256	11	1	559
	0.36	0.18	.	25.58	0.72	1.97	45.80	1.97	0.18	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE SPECIES

FREQUENCY PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	YELLOW BULLHEAD	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810221	0	0	0	0	0	3	0	0	0	8
	.	.	.	.	0.00	0.54	0.00	0.00	0.00	1.43
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	0	0	1	0	0	0	13
	.	.	.	.	0.00	0.18	0.00	0.00	0.00	2.33
810313	0	0	0	0	4	8	0	1	0	21
	.	.	.	.	0.72	1.43	0.00	0.18	0.00	3.76
810314	0	0	0	0	0	9	0	0	0	11
	.	.	.	.	0.00	1.61	0.00	0.00	0.00	1.97
810519	0	0	0	0	0	0	0	0	0	69
	.	.	.	.	0.00	0.00	0.00	0.00	0.00	12.34
810520	0	0	0	0	0	1	1	0	0	34
	.	.	.	.	0.00	0.18	0.18	0.00	0.00	6.08
810611	0	0	0	0	1	7	1	9	1	48
	.	.	.	.	0.18	1.25	0.18	1.61	0.18	8.59
810612	0	0	0	0	1	1	0	3	1	22
	.	.	.	.	0.18	0.18	0.00	0.54	0.18	3.94
TOTAL	.	.	.	.	9	41	2	27	16	559
	.	.	.	.	1.61	7.33	0.36	4.83	2.86	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REP C

DATE FREQUENCY PERCENT	SPECIES WARMOUTH	GREEN SUNFISH	BLUEGILL	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810221	0	0	0	0	0	0	0	0	8
	.	.	0.00	.	0.00	.	0.00	0.00	1.43
810222	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	0	0	0	0	0	13
	.	.	0.00	.	0.00	.	0.00	0.00	2.33
810313	0	0	0	0	1	0	2	1	21
	.	.	0.00	.	0.18	.	0.36	0.18	3.76
810314	0	0	0	0	0	0	0	0	11
	.	.	0.00	.	0.00	.	0.00	0.00	1.97
810519	0	0	0	0	0	0	0	1	69
	.	.	0.00	.	0.00	.	0.00	0.18	12.34
810520	0	0	0	0	0	0	0	0	34
	.	.	0.00	.	0.00	.	0.00	0.00	6.08
810611	0	0	0	0	2	0	0	1	48
	.	.	0.00	.	0.36	.	0.00	0.18	8.59
810612	0	0	0	0	3	0	0	1	22
	.	.	0.00	.	0.54	.	0.00	0.18	3.94
TOTAL	.	.	1	.	25	.	3	6	559
	.	.	0.18	.	4.47	.	0.54	1.07	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFALO	BIGMOUTH BUFFALO	TOTAL
810812	0	0	0	0	0	0	29	1	0	30
	0,00	0,00	.	0,00	0,00	0,00	5,19	0,18	0,00	5,37
810813	0	0	0	0	0	0	15	0	0	15
	0,00	0,00	.	0,00	0,00	0,00	2,68	0,00	0,00	2,68
810829	0	0	0	7	0	0	23	2	0	44
	0,00	0,00	.	1,25	0,00	0,00	4,11	0,36	0,00	7,87
810830	0	0	0	0	0	1	28	3	0	39
	0,00	0,00	.	0,00	0,00	0,18	5,01	0,54	0,00	6,98
811031	0	0	0	0	0	0	11	1	0	13
	0,00	0,00	.	0,00	0,00	0,00	1,97	0,18	0,00	2,33
811101	0	0	0	2	0	1	11	0	0	15
	0,00	0,00	.	0,36	0,00	0,18	1,97	0,00	0,00	2,68
811114	0	0	0	75	0	0	0	1	0	95
	0,00	0,00	.	13,42	0,00	0,00	0,00	0,18	0,00	16,99
811115	0	0	0	56	0	0	1	0	0	82
	0,00	0,00	.	10,02	0,00	0,00	0,18	0,00	0,00	14,67
TOTAL	2	1	.	143	4	11	256	11	1	559
	0,36	0,18	.	25,58	0,72	1,97	45,80	1,97	0,18	100,00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE SPECIES

FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	YELLOW BULLHEAD	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810812	0	0	0	0	0	0	0	0	0	30
	.	.	.	.	0,00	0,00	0,00	0,00	0,00	5,37
810813	0	0	0	0	0	0	0	0	0	15
	.	.	.	.	0,00	0,00	0,00	0,00	0,00	2,68
810829	0	0	0	0	1	0	0	3	0	44
	.	.	.	.	0,18	0,00	0,00	0,54	0,00	7,87
810830	0	0	0	0	0	1	0	3	0	39
	.	.	.	.	0,00	0,18	0,00	0,54	0,00	6,98
811031	0	0	0	0	0	0	0	0	1	13
	.	.	.	.	0,00	0,00	0,00	0,00	0,18	2,33
811101	0	0	0	0	1	0	0	0	0	15
	.	.	.	.	0,18	0,00	0,00	0,00	0,00	2,68
811114	0	0	0	0	1	4	0	2	6	95
	.	.	.	.	0,18	0,72	0,00	0,36	1,07	16,99
811115	0	0	0	0	0	6	0	6	7	82
	.	.	.	.	0,00	1,07	0,00	1,07	1,25	14,67
TOTAL	.	.	.	.	9	41	2	27	15	559
	.	.	.	.	1,61	7,33	0,36	4,83	2,68	100,00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE SPECIES

FREQUENCY / PERCENT	WARMOUTH	GREEN SUNFISH	BLUEGILL	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810612	0	0	0	0	0	0	0	0	30
	.	.	0,00	.	0,00	.	0,00	0,00	5,37
810613	0	0	0	0	0	0	0	0	15
	.	.	0,00	.	0,00	.	0,00	0,00	2,68
810829	0	0	0	0	7	0	0	1	44
	.	.	0,00	.	1,25	.	0,00	0,18	7,87
810830	0	0	1	0	2	0	0	0	39
	.	.	0,18	.	0,36	.	0,00	0,00	6,98
811031	0	0	0	0	0	0	0	0	13
	.	.	0,00	.	0,00	.	0,00	0,00	2,33
811101	0	0	0	0	0	0	0	0	15
	.	.	0,00	.	0,00	.	0,00	0,00	2,68
811114	0	0	0	0	5	0	1	0	95
	.	.	0,00	.	0,89	.	0,18	0,00	16,99
811115	0	0	0	0	5	0	0	1	82
	.	.	0,00	.	0,89	.	0,00	0,18	14,67
TOTAL	.	.	1	.	25	.	3	6	559
	.	.	0,18	.	4,47	.	0,54	1,07	100,00

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL HEF J

DATE SPECIES

FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFALO	BIGMOUTH BUFFALO	TOTAL
810221	0	0	0	0	0	3	34	2	0	51
	.	.	0.00	0.00	0.00	0.55	6.18	0.36	0.00	9.27
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	0	0	0	0	0	1	66	2	0	76
	.	.	0.00	0.00	0.00	0.18	12.00	0.36	0.00	14.16
810313	0	0	0	0	0	3	4	0	0	41
	.	.	0.00	0.00	0.00	0.55	0.73	0.00	0.00	7.45
810314	0	0	2	0	0	2	0	0	0	34
	.	.	0.36	0.00	0.00	0.36	0.00	0.00	0.00	6.18
810519	0	0	0	0	0	8	26	6	1	50
	.	.	0.00	0.00	0.00	1.45	4.73	1.09	0.18	9.09
810520	0	0	2	0	0	8	18	2	0	39
	.	.	0.36	0.00	0.00	1.45	3.27	0.36	0.00	7.09
810611	0	0	1	0	1	10	4	0	0	35
	.	.	0.18	0.00	0.18	1.82	0.73	0.00	0.00	6.36
810612	0	0	0	0	0	3	4	0	0	18
	.	.	0.00	0.00	0.00	0.55	0.73	0.00	0.00	3.27
TOTAL	.	.	5	43	6	54	194	16	1	550
	.	.	0.91	7.82	1.09	9.82	35.27	2.91	0.18	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET 3

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL WEF D

DATE / FREQUENCY / PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	YELLOW BULLHEAD	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810221	2	0	0	0	0	6	0	0	3	51
	0.36	.	0.00	.	0.00	1.09	0.00	0.00	0.55	9.27
810222	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810224	1	0	0	0	3	4	0	0	1	78
	0.18	.	0.00	.	0.55	0.73	0.00	0.00	0.18	14.18
810313	0	0	0	0	11	21	0	0	1	41
	0.00	.	0.00	.	2.00	3.82	0.00	0.00	0.18	7.45
810314	0	0	1	0	6	9	0	0	0	34
	0.00	.	0.18	.	1.09	1.64	0.00	0.00	0.00	6.18
810519	1	0	0	0	1	0	2	0	0	50
	0.18	.	0.00	.	0.18	0.00	0.36	0.00	0.00	9.09
810520	0	0	0	0	1	2	4	0	0	39
	0.00	.	0.00	.	0.18	0.36	0.73	0.00	0.00	7.09
810611	0	0	0	0	3	5	1	0	0	35
	0.00	.	0.00	.	0.55	0.91	0.18	0.00	0.00	6.36
810612	0	0	0	0	0	2	0	1	0	18
	0.00	.	0.00	.	0.00	0.36	0.00	0.18	0.00	3.27
TOTAL	4	.	1	.	32	60	10	10	15	550
	0.73	.	0.18	.	5.82	10.91	1.82	1.82	2.73	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	WARMOUTH	GREEN SUNFISH	BLUEGILL	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810221	0	0	0	0	1	0	0	0	51
	.	.	0,00	.	0,18	.	0,00	0,00	9,27
810222	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	0,00
810224	0	0	0	0	0	0	0	0	78
	.	.	0,00	.	0,00	.	0,00	0,00	14,18
810513	0	0	0	0	0	0	0	1	41
	.	.	0,00	.	0,00	.	0,00	0,18	7,45
810514	0	0	1	0	10	0	0	3	34
	.	.	0,18	.	1,82	.	0,00	0,55	6,18
810519	0	0	0	0	0	0	0	5	50
	.	.	0,00	.	0,00	.	0,00	0,91	9,09
810520	0	0	0	0	0	0	0	2	39
	.	.	0,00	.	0,00	.	0,00	0,36	7,09
810611	0	0	1	0	3	0	0	6	35
	.	.	0,18	.	0,55	.	0,00	1,09	6,36
810612	0	0	0	0	4	0	0	4	18
	.	.	0,00	.	0,73	.	0,00	0,73	3,27
TOTAL	.	.	3	.	43	.	1	52	550
	.	.	0,55	.	7,82	.	0,18	9,45	100,00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE SPECIES

FREQUENCY / PERCENT	LONGNOSE GAR	SHORTNOSE GAR	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CARP	RIVER CARPSUCKER	SMALLMOUTH BUFFALO	BIGMOUTH BUFFALO	TOTAL
810812	0	0	0	0	0	6	7	0	0	18
	.	.	0,00	0,00	0,00	1,09	1,27	0,00	0,00	3,27
810813	0	0	0	0	0	3	2	1	0	7
	.	.	0,00	0,00	0,00	0,55	0,36	0,18	0,00	1,27
810829	0	0	0	0	0	1	2	0	0	20
	.	.	0,00	0,00	0,00	0,18	0,36	0,00	0,00	3,64
810830	0	0	0	0	0	5	0	0	0	20
	.	.	0,00	0,00	0,00	0,91	0,00	0,00	0,00	3,64
811031	0	0	0	0	0	0	10	2	0	21
	.	.	0,00	0,00	0,00	0,00	1,82	0,36	0,00	3,82
811101	0	0	0	0	0	0	12	1	0	14
	.	.	0,00	0,00	0,00	0,00	2,18	0,18	0,00	2,55
811114	0	0	0	8	1	1	3	0	0	40
	.	.	0,00	1,45	0,18	0,18	0,55	0,00	0,00	7,27
811115	0	0	0	35	4	0	2	0	0	64
	.	.	0,00	6,36	0,73	0,00	0,36	0,00	0,00	11,64
TOTAL	.	.	5	43	6	54	194	16	1	550
	.	.	0,91	7,82	1,09	9,82	35,27	2,91	0,18	100,00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE SPECIES

FREQUENCY PERCENT	BLACK BUFFALO	RIVER REDHORSE	GOLDEN REDHORSE	YELLOW BULLHEAD	CHANNEL CATFISH	BLUE CATFISH	FLATHEAD CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810612	0	0	0	0	0	0	1	0	0	18
	0.00	.	0.00	.	0.00	0.00	0.18	0.00	0.00	3.27
810613	0	0	0	0	0	0	0	0	0	7
	0.00	.	0.00	.	0.00	0.00	0.00	0.00	0.00	1.27
810629	0	0	0	0	0	2	0	0	0	20
	0.00	.	0.00	.	0.00	0.36	0.00	0.00	0.00	3.64
810630	0	0	0	0	3	0	1	0	0	20
	0.00	.	0.00	.	0.55	0.00	0.18	0.00	0.00	3.64
811031	0	0	0	0	1	2	1	0	1	21
	0.00	.	0.00	.	0.18	0.36	0.18	0.00	0.18	3.82
811101	0	0	0	0	0	0	0	0	0	14
	0.00	.	0.00	.	0.00	0.00	0.00	0.00	0.00	2.55
811114	0	0	0	0	2	2	0	4	3	40
	0.00	.	0.00	.	0.36	0.36	0.00	0.73	0.55	7.27
811115	0	0	0	0	1	5	0	5	6	64
	0.00	.	0.00	.	0.18	0.91	0.00	0.91	1.09	11.64
TOTAL	4	.	1	.	32	60	10	10	15	550
	0.73	.	0.18	.	5.82	10.91	1.82	1.82	2.73	100.00

(CONTINUED)

Table 10

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAMMEL NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	WARMOUTH	GREEN SUNFISH	BLUEGILL	LARGEMOUTH BASS	WHITE CRAPPIE	BLACK CRAPPIE	SAUGER	FRESHWATER DRUM	TOTAL
810612	0	0	0	0	2	0	0	2	18
	.	.	0,00	.	0,36	.	0,00	0,36	3,27
810813	0	0	0	0	0	0	0	1	7
	.	.	0,00	.	0,00	.	0,00	0,18	1,27
810829	0	0	0	0	4	0	0	11	20
	.	.	0,00	.	0,73	.	0,00	2,00	3,64
810830	0	0	0	0	4	0	0	7	20
	.	.	0,00	.	0,73	.	0,00	1,27	3,64
811031	0	0	0	0	0	0	0	4	21
	.	.	0,00	.	0,00	.	0,00	0,73	3,82
811101	0	0	0	0	1	0	0	0	14
	.	.	0,00	.	0,18	.	0,00	0,00	2,55
811114	0	0	1	0	8	0	1	6	40
	.	.	0,18	.	1,45	.	0,18	1,09	7,27
811115	0	0	0	0	6	0	0	0	64
	.	.	0,00	.	1,09	.	0,00	0,00	11,64
TOTAL	.	.	3	.	43	.	1	52	550
	.	.	0,55	.	7,82	.	0,18	9,45	100,00

Table 11

NUMBER OF SPECIES BY STATION FOR COMBINED GILL AND TRAMMEL NET 1981

TABLE OF SPECIES BY STATION

SPECIES STATION

FREQUENCY / PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
LONGNOSE GAR	3	0	2	5	10
	0.06	0.00	0.04	0.10	0.21
SHORTNOSE GAR	3	2	3	3	11
	0.06	0.04	0.06	0.06	0.23
GIZZARD SHAD	144	57	187	52	440
	2.99	1.19	3.89	1.08	9.15
SKIPJACK HERRING	143	22	111	442	718
	2.97	0.46	2.31	9.19	14.93
THREADFIN SHAD	11	2	2	5	20
	0.23	0.04	0.04	0.10	0.42
GOLDEYE	1	0	0	0	1
	0.02	0.00	0.00	0.00	0.02
CARP	65	15	34	17	131
	1.35	0.31	0.71	0.35	2.72
RIVER CARPSUCKER	204	183	247	365	999
	4.24	3.81	5.14	7.59	20.77
SMALLMOUTH BUFFA	16	11	35	15	77
	0.33	0.23	0.73	0.31	1.60
BIGMOUTH BUFFALO	1	1	4	1	7
	0.02	0.02	0.08	0.02	0.15
BLACK BUFFALO	4	3	4	0	11
	0.08	0.06	0.08	0.00	0.23
RIVER REDHORSE	0	1	1	0	2
	0.00	0.02	0.02	0.00	0.04
GOLDEN REDHORSE	2	1	0	0	3
	0.04	0.02	0.00	0.00	0.06
YELLOW BULLHEAD	0	1	0	0	1
	0.00	0.02	0.00	0.00	0.02
CHANNEL CATFISH	135	44	38	54	271
	2.81	0.91	0.79	1.12	5.64
TOTAL	1334	723	1413	1339	4809
	27.74	15.03	29.38	27.84	100.00

(CONTINUED)

Table 11

NUMBER OF SPECIES BY STATION FOR COMBINED GILL AND TRAMMEL NET 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
BLUE CATFISH	194 4.03	53 1.10	91 1.89	128 2.66	466 9.69
FLATHEAD CATFISH	11 0.23	10 0.21	11 0.23	3 0.06	35 0.73
WHITE BASS	23 0.48	22 0.46	155 3.22	70 1.46	270 5.61
YELLOW BASS	0 0.00	0 0.00	0 0.00	1 0.02	1 0.02
STRIPED BASS	31 0.64	22 0.46	110 2.29	60 1.25	223 4.64
WARMOUTH	2 0.04	4 0.08	0 0.00	0 0.00	6 0.12
GREEN SUNFISH	0 0.00	7 0.15	0 0.00	0 0.00	7 0.15
BLUEGILL	8 0.17	2 0.04	23 0.48	9 0.19	42 0.87
LONGEAR SUNFISH	3 0.06	2 0.04	2 0.04	1 0.02	8 0.17
LARGEMOUTH BASS	0 0.00	7 0.15	7 0.15	1 0.02	15 0.31
WHITE CRAPPIE	99 2.06	127 2.64	268 5.57	77 1.60	571 11.87
BLACK CRAPPIE	0 0.00	11 0.23	1 0.02	5 0.10	17 0.35
SAUGER	5 0.10	0 0.00	10 0.21	8 0.17	23 0.48
FRESHWATER DRUM	226 4.70	113 2.35	67 1.39	17 0.35	423 8.80
TOTAL	1334 27.74	723 15.03	1413 29.38	1339 27.84	4809 100.00

Table 12

WEIGHT OF SPECIES BY STATION FOR COMBINED GILL AND TRAMMEL NET 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION (FREQUENCY / PERCENT)	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
LONGNOSE GAR	10 0.23	0 0.00	10 0.23	12 0.26	32 0.72
SHORTNOSE GAR	15 0.33	4 0.09	15 0.33	10 0.23	44 0.99
GIZZARD SHAD	17 0.39	6 0.14	20 0.46	7 0.15	51 1.14
SKIPJACK HERRING	73 1.65	16 0.36	91 2.05	294 6.63	475 10.69
THREADFIN SHAD	0 0.01	0 0.00	0 0.01	0 0.00	1 0.03
GOLDEYE	1 0.02	0 0.00	0 0.00	0 0.00	1 0.02
CARP	152 3.43	38 0.86	59 1.33	32 0.71	281 6.33
RIVER CARPSUCKER	387 8.72	331 7.47	453 10.20	656 14.79	1828 41.18
SMALLMOUTH BUFFA	42 0.94	30 0.67	98 2.22	31 0.70	201 4.52
BIGMOUTH BUFFALO	12 0.25	4 0.10	9 0.20	2 0.05	27 0.61
BLACK BUFFALO	11 0.25	10 0.23	11 0.24	0 0.00	32 0.72
RIVER REDHORSE	0 0.00	3 0.06	3 0.07	0 0.00	6 0.14
GOLDEN REDHORSE	3 0.06	2 0.05	0 0.00	0 0.00	5 0.11
YELLOW BULLHEAD	0 0.00	1 0.01	0 0.00	0 0.00	1 0.01
CHANNEL CATFISH	82 1.84	37 0.84	24 0.55	27 0.61	170 3.83
TOTAL	1147 25.83	696 15.67	1235 27.82	1362 30.68	4439 100.00

(CONTINUED)

Table 12

WEIGHT OF SPECIES BY STATION FOR COMBINED GILL AND TRAMMEL NET 1981

TABLE OF SPECIES BY STATION

SPECIES STATION

FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
BLUE CATFISH	160 3.60	41 0.92	76 1.72	119 2.68	396 8.93
FLATHEAD CATFISH	36 0.81	29 0.66	28 0.62	7 0.15	100 2.25
WHITE BASS	14 0.32	17 0.35	101 2.27	38 0.86	170 3.83
YELLOW BASS	0 0.00	0 0.00	0 0.00	1 0.01	1 0.01
STRIPED BASS	37 0.84	20 0.45	77 1.73	66 1.49	200 4.51
WARMOUTH	0 0.00	1 0.02	0 0.00	0 0.00	1 0.03
GREEN SUNFISH	0 0.00	1 0.03	0 0.00	0 0.00	1 0.03
BLUEGILL	1 0.03	0 0.01	3 0.07	1 0.02	5 0.12
LONGEAR SUNFISH	0 0.00	0 0.00	0 0.00	0 0.00	0 0.01
LARGEMOUTH BASS	0 0.00	6 0.14	12 0.28	5 0.12	24 0.54
WHITE CRAPPIE	41 0.93	67 1.52	114 2.57	36 0.80	259 5.83
BLACK CRAPPIE	0 0.00	6 0.13	0 0.01	2 0.05	9 0.19
SAUGER	4 0.09	0 0.00	10 0.22	10 0.23	24 0.53
FRESHWATER DRUM	47 1.05	23 0.52	19 0.43	5 0.12	94 2.13
TOTAL	1147 25.83	696 15.67	1235 27.82	1362 30.68	4439 100.00

Table 13

TOTAL NUMBER OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR TRAPNET 1981

TABLE OF DATE BY STATION

DATE / FREQUENCY / PERCENT	STATION: CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810519	0	1	1	639	641
	0.00	0.09	0.09	58.09	58.27
810520	0	2	0	137	139
	0.00	0.18	0.00	12.45	12.64
810521	10	1	2	48	61
	0.91	0.09	0.18	4.36	5.55
810522	4	0	1	19	24
	0.36	0.00	0.09	1.73	2.18
810523	0	0	0	11	11
	0.00	0.00	0.00	1.00	1.00
811111	15	35	2	22	74
	1.36	3.18	0.18	2.00	6.73
811112	9	11	4	27	51
	0.82	1.00	0.36	2.45	4.64
811113	0	6	4	17	27
	0.00	0.55	0.36	1.55	2.45
811114	1	20	7	16	44
	0.09	1.82	0.64	1.45	4.00
811115	1	15	0	12	28
	0.09	1.36	0.00	1.09	2.55
TOTAL	40	91	21	948	1100
	3.64	8.27	1.91	86.18	100.00

Table 14

TOTAL WEIGHT OF FISH CAUGHT PER STATION BY DATE AND FOR THE YEAR FOR TRAPNET 1981

TABLE OF DATE BY STATION

DATE FREQUENCY PERCENT	STATION CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810519	0 0.00	0 0.00	0 0.12	25 28.97	25 29.09
810520	0 0.00	0 0.00	0 0.00	14 16.82	14 16.82
810521	0 0.47	0 0.12	0 0.00	3 3.27	3 3.86
810522	0 0.23	0 0.00	0 0.00	3 3.15	3 3.39
810523	0 0.00	0 0.00	0 0.00	5 5.72	5 5.72
811111	6 6.66	10 11.57	0 0.00	1 1.05	16 19.28
811112	5 5.49	0 0.58	0 0.00	1 1.17	6 7.24
811113	0 0.00	1 1.29	0 0.00	1 1.64	2 2.92
811114	0 0.00	4 4.21	2 2.34	2 2.10	7 8.64
811115	0 0.00	3 3.04	0 0.00	0 0.00	3 3.04
TOTAL	11 12.85	18 20.79	2 2.45	55 63.90	86 100.00

Table 15

NUMBER OF SPECIES BY STATION FOR TRAPNET 1981

TABLE OF SPECIES BY STATION

SPECIES STATION

FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
GIZZARD SHAD	0 0.00	3 0.27	0 0.00	4 0.36	7 0.64
SKIPJACK HERRING	0 0.00	0 0.00	0 0.00	1 0.09	1 0.09
THREADFIN SHAD	3 0.27	8 0.73	0 0.00	652 59.27	663 60.27
CHANNEL CATFISH	0 0.00	4 0.36	1 0.09	37 3.36	42 3.82
BLUE CATFISH	1 0.09	0 0.00	0 0.00	4 0.36	5 0.45
WHITE BASS	0 0.00	0 0.00	0 0.00	2 0.18	2 0.18
STRIPED BASS	0 0.00	0 0.00	0 0.00	16 1.45	16 1.45
WARMOUTH	0 0.00	2 0.18	3 0.27	0 0.00	5 0.45
GREEN SUNFISH	0 0.00	1 0.09	0 0.00	0 0.00	1 0.09
ORANGESPOTTED SU	0 0.00	2 0.18	0 0.00	3 0.27	5 0.45
BLUEGILL	1 0.09	18 1.64	12 1.09	172 15.64	203 18.45
LONGEAR SUNFISH	0 0.00	2 0.18	0 0.00	47 4.27	49 4.45
WHITE CRAPPIE	15 1.36	51 4.64	5 0.45	9 0.82	80 7.27
FRESHWATER DRUM	20 1.82	0 0.00	0 0.00	1 0.09	21 1.91
TOTAL	40 3.64	91 8.27	21 1.91	948 86.18	1100 100.00

Table 16

WEIGHT OF SPECIES BY STATION FOR TRAPNET 1981

TABLE OF SPECIES BY STATION

SPECIES / FREQUENCY PERCENT	STATION: CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
GIZZARD SHAD	0	0	0	0	0
	0.00	0.12	0.00	0.35	0.47
SKIPJACK HERRING	0	0	0	0	0
	0.00	0.00	0.00	0.12	0.12
THREADFIN SHAD	0	0	0	20	20
	0.23	0.12	0.00	23.13	23.48
CHANNEL CATFISH	0	0	0	15	15
	0.00	0.23	0.00	17.06	17.29
BLUE CATFISH	0	0	0	0	0
	0.00	0.00	0.00	0.47	0.47
WHITE BASS	0	0	0	1	1
	0.00	0.00	0.00	1.17	1.17
STRIPED BASS	0	0	0	1	1
	0.00	0.00	0.00	0.93	0.93
WARMOUTH	0	0	0	0	0
	0.00	0.12	0.00	0.00	0.12
GREEN SUNFISH	0	0	0	0	0
	.	.	.	.	0.00
ORANGESPOTTED SU	0	0	0	0	0
	0.00	0.00	0.00	0.12	0.12
BLUEGILL	0	1	0	13	14
	0.12	0.70	0.12	15.07	16.00
LONGEAR SUNFISH	0	0	0	2	2
	0.00	0.12	0.00	2.80	2.92
WHITE CRAPPIE	9	17	2	2	30
	10.51	19.39	2.34	2.57	34.81
FRESHWATER DRUM	2	0	0	0	2
	1.99	0.00	0.00	0.12	2.10
TOTAL	11	18	2	55	86
	12.85	20.79	2.45	63.90	100.00

Table 17

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAP NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	SPECIES: GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CHANNEL CATFISH	BLUE CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810519	0	0	0	1	0	0	0	1
	0.00	.	0.00	1.10	.	.	.	1.10
810520	0	0	0	0	0	0	0	2
	0.00	.	0.00	0.00	.	.	.	2.20
810521	0	0	0	0	0	0	0	1
	0.00	.	0.00	0.00	.	.	.	1.10
810522	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
810523	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
811111	3	0	4	2	0	0	0	35
	3.30	.	4.40	2.20	.	.	.	38.46
811112	0	0	4	0	0	0	0	11
	0.00	.	4.40	0.00	.	.	.	12.09
811113	0	0	0	0	0	0	0	6
	0.00	.	0.00	0.00	.	.	.	6.59
811114	0	0	0	0	0	0	0	20
	0.00	.	0.00	0.00	.	.	.	21.98
811115	0	0	0	1	0	0	0	15
	0.00	.	0.00	1.10	.	.	.	16.48
TOTAL	3	.	8	4	.	.	.	91
	3.30	.	8.79	4.40	.	.	.	100.00

(CONTINUED)

Table 17

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAP NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	WARMOUTH	GREEN SUNFISH	ORANGESPOTTED SUN	BLUEGILL	LONGEAR SUNFISH	WHITE CRAPPIE	FRESHWATER DRUM	TOTAL
810519	0	0	0	0	0	0	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	.	1.10
810520	0	1	0	1	0	0	0	2
	0.00	1.10	0.00	1.10	0.00	0.00	.	2.20
810521	0	0	0	0	0	1	0	1
	0.00	0.00	0.00	0.00	0.00	1.10	.	1.10
810522	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
810523	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
811111	0	0	0	2	0	24	0	35
	0.00	0.00	0.00	2.20	0.00	26.37	.	38.46
811112	0	0	1	3	2	1	0	11
	0.00	0.00	1.10	3.30	2.20	1.10	.	12.09
811113	0	0	0	0	0	6	0	6
	0.00	0.00	0.00	0.00	0.00	6.59	.	6.59
811114	1	0	1	7	0	11	0	20
	1.10	0.00	1.10	7.69	0.00	12.09	.	21.98
811115	1	0	0	5	0	8	0	15
	1.10	0.00	0.00	5.49	0.00	8.79	.	16.48
TOTAL	2	1	2	18	2	51	.	91
	2.20	1.10	2.20	19.78	2.20	56.04	.	100.00

Table 17

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAP NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF 8

DATE SPECIES

FREQUENCY / PERCENT	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CHANNEL CATFISH	BLUE CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810519	0	0	0	0	0	0	0	1
	.	.	.	0.00	.	.	.	4.76
810520	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
810521	0	0	0	0	0	0	0	2
	.	.	.	0.00	.	.	.	9.52
810522	0	0	0	1	0	0	0	1
	.	.	.	4.76	.	.	.	4.76
810523	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
811111	0	0	0	0	0	0	0	2
	.	.	.	0.00	.	.	.	9.52
811112	0	0	0	0	0	0	0	4
	.	.	.	0.00	.	.	.	19.05
811113	0	0	0	0	0	0	0	4
	.	.	.	0.00	.	.	.	19.05
811114	0	0	0	0	0	0	0	7
	.	.	.	0.00	.	.	.	33.33
811115	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
TOTAL	.	.	.	1	.	.	.	21
	.	.	.	4.76	.	.	.	100.00

(CONTINUED)

Table 17

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAP NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	WARMOUTH	GREEN SUNFISH	ORANGESPOTTED SUN	BLUEGILL	LONGEAR SUNFISH	WHITE CRAPPIE	FRESHWATER DRUM	TOTAL
810519	0	0	0	1	0	0	0	1
	0.00	.	.	4.76	.	0.00	.	4.76
810520	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
810521	2	0	0	0	0	0	0	2
	9.52	.	.	0.00	.	0.00	.	9.52
810522	0	0	0	0	0	0	0	1
	0.00	.	.	0.00	.	0.00	.	4.76
810523	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
811111	0	0	0	2	0	0	0	2
	0.00	.	.	9.52	.	0.00	.	9.52
811112	1	0	0	3	0	0	0	4
	4.76	.	.	14.29	.	0.00	.	19.05
811113	0	0	0	4	0	0	0	4
	0.00	.	.	19.05	.	0.00	.	19.05
811114	0	0	0	2	0	5	0	7
	0.00	.	.	9.52	.	23.81	.	33.33
811115	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
TOTAL	3	.	.	12	.	5	.	21
	14.29	.	.	57.14	.	23.81	.	100.00

Table 17

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAP NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CHANNEL CATFISH	BLUE CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810519	4	0	590	17	4	0	8	639
	0,42	0,00	62,24	1,79	0,42	0,00	0,84	67,41
810520	0	0	1	4	0	0	8	137
	0,00	0,00	0,11	0,42	0,00	0,00	0,84	14,45
810521	0	0	0	3	0	0	0	48
	0,00	0,00	0,00	0,32	0,00	0,00	0,00	5,06
810522	0	0	0	2	0	0	0	19
	0,00	0,00	0,00	0,21	0,00	0,00	0,00	2,00
810523	0	0	0	7	0	2	0	11
	0,00	0,00	0,00	0,74	0,00	0,21	0,00	1,16
811111	0	1	19	0	0	0	0	22
	0,00	0,11	2,00	0,00	0,00	0,00	0,00	2,32
811112	0	0	21	0	0	0	0	27
	0,00	0,00	2,22	0,00	0,00	0,00	0,00	2,85
811113	0	0	10	3	0	0	0	17
	0,00	0,00	1,05	0,32	0,00	0,00	0,00	1,79
811114	0	0	11	1	0	0	0	15
	0,00	0,00	1,16	0,11	0,00	0,00	0,00	1,59
811115	0	0	0	0	0	0	0	12
	0,00	0,00	0,00	0,00	0,00	0,00	0,00	1,27
TOTAL	4	1	652	37	4	2	16	948
	0,42	0,11	68,78	3,90	0,42	0,21	1,69	100,00

(CONTINUED)

Table 17

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAP NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	WARMOUTH	GREEN SUNFISH	ORANGESPOTTED SUN	BLUEGILL	LONGEAR SUNFISH	WHITE CRAPPIE	FRESHWATER DRUM	TOTAL
810519	0	0	0	4	12	0	0	639
	.	.	0.00	0.42	1.27	0.00	0.00	67.41
810520	0	0	1	101	17	5	0	137
	.	.	0.11	10.65	1.79	0.53	0.00	14.45
810521	0	0	0	37	7	1	0	48
	.	.	0.00	3.90	0.74	0.11	0.00	5.06
810522	0	0	0	15	1	1	0	19
	.	.	0.00	1.58	0.11	0.11	0.00	2.00
810523	0	0	0	0	2	0	0	11
	.	.	0.00	0.00	0.21	0.00	0.00	1.16
811111	0	0	0	1	0	0	1	22
	.	.	0.00	0.11	0.00	0.00	0.11	2.32
811112	0	0	1	1	3	1	0	27
	.	.	0.11	0.11	0.32	0.11	0.00	2.85
811113	0	0	0	3	1	0	0	17
	.	.	0.00	0.32	0.11	0.00	0.00	1.79
811114	0	0	0	1	2	1	0	16
	.	.	0.00	0.11	0.21	0.11	0.00	1.69
811115	0	0	1	9	2	0	0	12
	.	.	0.11	0.95	0.21	0.00	0.00	1.27
TOTAL	.	.	3	172	47	9	1	948
	.	.	0.32	18.14	4.96	0.95	0.11	100.00

Table 17

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAP NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF U

DATE / FREQUENCY / PERCENT	GIZZARD SHAD	SKIPJACK HERRING	THREADFIN SHAD	CHANNEL CATFISH	BLUE CATFISH	WHITE BASS	STRIPED BASS	TOTAL
810519	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
810520	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
810521	0	0	0	0	0	0	0	10
	.	.	0.00	.	0.00	.	.	25.00
810522	0	0	0	0	0	0	0	4
	.	.	0.00	.	0.00	.	.	10.00
810523	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
811111	0	0	3	0	0	0	0	15
	.	.	7.50	.	0.00	.	.	37.50
811112	0	0	0	0	0	0	0	9
	.	.	0.00	.	0.00	.	.	22.50
811113	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
811114	0	0	0	0	1	0	0	1
	.	.	0.00	.	2.50	.	.	2.50
811115	0	0	0	0	0	0	0	1
	.	.	0.00	.	0.00	.	.	2.50
TOTAL	.	.	3	.	1	.	.	40
	.	.	7.50	.	2.50	.	.	100.00

(CONTINUED)

Table 17

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR TRAP NET

2

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATIONCHANNEL REF U

DATE / FREQUENCY / PERCENT	WARMOUTH	GREEN SUNFISH	ORANGESPOTTED SUN	BLUEGILL	LONGEAR SUNFISH	WHITE CRAPPIE	FRESHWATER DRUM	TOTAL
810519	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
810520	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
810521	0	0	0	0	0	0	10	10
	.	.	.	0.00	.	0.00	25.00	25.00
810522	0	0	0	0	0	0	4	4
	.	.	.	0.00	.	0.00	10.00	10.00
810523	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
811111	0	0	0	0	0	7	5	15
	.	.	.	0.00	.	17.50	12.50	37.50
811112	0	0	0	1	0	8	0	9
	.	.	.	2.50	.	20.00	0.00	22.50
811113	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	0.00
811114	0	0	0	0	0	0	0	1
	.	.	.	0.00	.	0.00	0.00	2.50
811115	0	0	0	0	0	0	1	1
	.	.	.	0.00	.	0.00	2.50	2.50
TOTAL	.	.	.	1	.	15	20	40
	.	.	.	2.50	.	37.50	50.00	100.00

Table 18

NUMBER OF FISH PER STATION BY DATE FOR METER NET 1981 1

TABLE OF DATE BY STATION

DATE / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE R EF B	DISCHARG E REF C	TOTAL
810327	0	0	0	0	0
	.	.	.	.	0.00
810404	0	0	0	1	1
	0.00	0.00	0.00	0.00	0.00
810410	1	35	1	4	41
	0.00	0.09	0.00	0.01	0.10
810417	32	73	3	7	115
	0.08	0.18	0.01	0.02	0.29
810424	14	301	11	12	338
	0.04	0.76	0.03	0.03	0.85
810501	0	140	0	0	140
	0.00	0.35	0.00	0.00	0.35
810509	0	0	459	0	459
	0.00	0.00	1.11	0.00	1.11
810512	2786	3182	0	164	6132
	7.02	8.02	0.00	0.41	15.45
810515	391	1629	702	119	2841
	0.99	4.10	1.77	0.30	7.16
810523	108	1442	379	130	2059
	0.27	3.63	0.95	0.33	5.19
810529	1260	515	278	166	2219
	3.18	1.30	0.70	0.42	5.59
810605	2031	1412	224	239	3906
	5.12	3.56	0.56	0.60	9.84
810612	2076	1280	606	217	4179
	5.23	3.23	1.53	0.55	10.53
TOTAL	15087	19738	3074	1786	39685
	38.02	49.74	7.75	4.50	100.00

(CONTINUED)

Table 18

NUMBER OF FISH PER STATION BY DATE FOR METER NET 1981

TABLE OF DATE BY STATION

DATE / FREQUENCY / PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	MIDISCHARGE REF C	TOTAL
810619	5434	5723	192	562	11911
	13.69	14.42	0.48	1.42	30.01
810626	320	721	160	43	1244
	0.81	1.82	0.40	0.11	3.13
810703	232	1395	53	103	1783
	0.59	3.52	0.13	0.26	4.49
810710	305	565	11	3	884
	0.77	1.42	0.03	0.01	2.23
810717	37	154	2	1	194
	0.09	0.39	0.01	0.00	0.49
810724	10	16	2	5	33
	0.03	0.04	0.01	0.01	0.08
810731	9	66	4	9	88
	0.02	0.17	0.01	0.02	0.22
810814	0	1087	6	0	1093
	0.00	2.74	0.02	0.00	2.75
810828	41	1	1	1	44
	0.10	0.00	0.00	0.00	0.11
810912	0	0	0	0	0
	.	.	.	.	0.00
810925	0	1	0	0	1
	0.00	0.00	0.00	0.00	0.00
811009	0	0	0	0	0
	.	.	.	.	0.00
TOTAL	15087	19738	3074	1786	39685
	38.02	49.74	7.75	4.50	100.00

Table 19

SPECIES NUMBERS OF FISH PER STATION FOR METER NET 1981 1

TABLE OF SPECIES BY STATION

SPECIES STATION

FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	RIDISCHARGE REF C	TOTAL
CLUPEIDAE	14897	19149	3032	1754	38832
	37.54	48.25	7.64	4.42	97.85
GIZZARD SHAD	0	10	0	0	10
	0.00	0.03	0.00	0.00	0.03
THREADFIN SHAD	0	29	0	0	29
	0.00	0.07	0.00	0.00	0.07
CYPRINIDAE	2	2	1	0	5
	0.01	0.01	0.00	0.00	0.01
CATOSTOMIDAE	0	1	2	0	3
	0.00	0.00	0.01	0.00	0.01
CENTRARCHIDAE SP	1	0	0	0	1
	0.00	0.00	0.00	0.00	0.00
LEPOMIS SP.	129	357	26	12	524
	0.33	0.90	0.07	0.03	1.32
POMOXIS SP.	14	160	5	1	180
	0.04	0.40	0.01	0.00	.45
PERCIDAE-PERCHES	1	2	0	1	4
	0.00	0.01	0.00	0.00	0.01
ATHERINIDAE-SILV	43	28	8	18	97
	0.11	0.07	0.02	0.05	0.24
TOTAL	15087	19736	3074	1786	39685
	38.02	49.74	7.75	4.50	100.00

BAR CHART COMPARISON OF ALL FISH PER REPLICATE FOR METER NET 1981 2

BAR CHART OF NUMBER

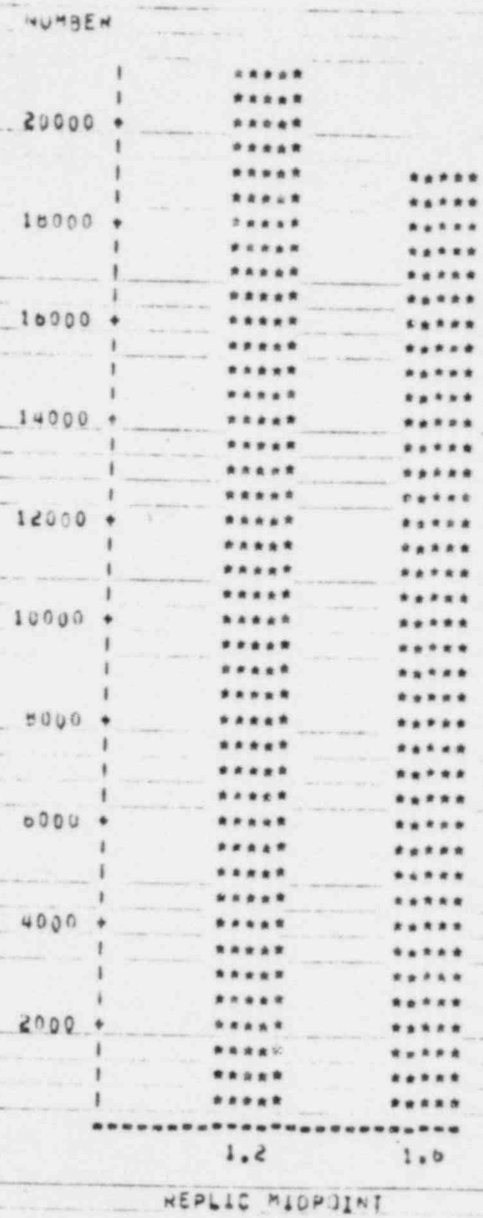


Figure 2

Table 20

ABNORMALITIES BY SPECIES AND STATION FOR METER NET 1981

TABLE OF STATION BY DISEASEP
CONTROLLING FOR SPECIES=CLUPEIDAE

STATION / DISEASEP FREQUENCY PERCENT	NO PARASITE	GROWTH	HUMPBACK	TOTAL
CHANNEL REF D	0 .	61 9.41	0 0.00	61 9.41
BACKWATER REF A	0 .	444 68.52	1 0.15	445 68.67
INTAKE REF B	0 .	73 11.27	0 0.00	73 11.27
DISCHARGE REF C	0 .	69 10.65	0 0.00	69 10.65
TOTAL	. .	647 99.85	1 0.15	648 100.00

Table 21

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR METER NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	CATOSTOMIDAE	CENTRARCHIDAE SP	LEPOMIS SP.	POMOXIS SP.	PERCIDAE-PERCH	ATHERINIDAE-SILV	TOTAL
810404	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810410	2	0	0	0	0	0	0	31	2	0	35
	0.01	0.00	0.00	0.00	0.00	.	0.00	0.16	0.01	0.00	0.18
810417	50	0	0	0	0	0	0	23	0	0	73
	0.25	0.00	0.00	0.00	0.00	.	0.00	0.12	0.00	0.00	0.37
810424	222	0	0	0	0	0	0	76	0	3	301
	1.12	0.00	0.00	0.00	0.00	.	0.00	0.39	0.00	0.02	1.52
810501	124	0	0	0	0	0	0	15	0	1	140
	0.63	0.00	0.00	0.00	0.00	.	0.00	0.08	0.00	0.01	0.71
810509	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810512	3156	0	0	0	0	0	9	11	0	6	3182
	15.99	0.00	0.00	0.00	0.00	.	0.05	0.06	0.00	0.03	16.12
810515	1612	0	0	0	0	0	13	3	0	1	1629
	8.17	0.00	0.00	0.00	0.00	.	0.07	0.02	0.00	0.01	8.25
810523	1425	0	0	0	1	0	7	1	0	8	1442
	7.22	0.00	0.00	0.00	0.01	.	0.04	0.01	0.00	0.04	7.31
810529	500	0	0	0	0	0	10	0	0	5	515
	2.53	0.00	0.00	0.00	0.00	.	0.05	0.00	0.00	0.03	2.61
810605	1369	0	0	0	0	0	42	0	0	1	1412
	6.94	0.00	0.00	0.00	0.00	.	0.21	0.00	0.00	0.01	7.15
TOTAL	19149	10	29	2	1	.	357	160	2	28	19738
	97.02	0.05	0.15	0.01	0.01	.	1.81	0.81	0.01	0.14	100.00

(CONTINUED)

Table 21

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR METER NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	SPECIES: CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	CATOSTOMIDAE	CENTRARCHIDAE SP	LEPOMIS SP.	POMOXIS SP.	PERCIDAE-PERCHES	ATHERINIDAE-SILV	TOTAL
810612	1271	0	0	0	0	0	7	0	0	2	1280
	6.44	0.00	0.00	0.00	0.00	.	0.04	0.00	0.00	0.01	6.48
810619	5628	0	0	0	0	0	95	0	0	0	5723
	28.51	0.00	0.00	0.00	0.00	.	0.48	0.00	0.00	0.00	28.99
810626	614	0	0	2	0	0	105	0	0	0	721
	3.11	0.00	0.00	0.01	0.00	.	0.53	0.00	0.00	0.00	3.65
810703	1372	0	0	0	0	0	23	0	0	0	1395
	6.95	0.00	0.00	0.00	0.00	.	0.12	0.00	0.00	0.00	7.07
810710	550	0	0	0	0	0	14	0	0	1	565
	2.79	0.00	0.00	0.00	0.00	.	0.07	0.00	0.00	0.01	2.86
810717	127	0	0	0	0	0	27	0	0	0	154
	0.64	0.00	0.00	0.00	0.00	.	0.14	0.00	0.00	0.00	0.78
810724	11	0	0	0	0	0	5	0	0	0	16
	0.06	0.00	0.00	0.00	0.00	.	0.03	0.00	0.00	0.00	0.08
810731	66	0	0	0	0	0	0	0	0	0	66
	0.33	0.00	0.00	0.00	0.00	.	0.00	0.00	0.00	0.00	0.33
810814	1048	10	29	0	0	0	0	0	0	0	1087
	5.31	0.05	0.15	0.00	0.00	.	0.00	0.00	0.00	0.00	5.51
810828	1	0	0	0	0	0	0	0	0	0	1
	0.01	0.00	0.00	0.00	0.00	.	0.00	0.00	0.00	0.00	0.01
810925	1	0	0	0	0	0	0	0	0	0	1
	0.01	0.00	0.00	0.00	0.00	.	0.00	0.00	0.00	0.00	0.01
TOTAL	19149	10	29	2	1	.	357	160	2	28	19738
	97.02	0.05	0.15	0.01	0.01	.	1.81	0.81	0.01	0.14	100.00

Table 21

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR METER NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	CATOSTOMIDAE	CENTRARCHIDAE	LEPOMIS SP.	POMOXIS SP.	PERCIDAE-PERCH-S	ATHERINIDAE-SILV	TOTAL
810404	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810410	0	0	0	0	0	0	0	1	0	0	1
	0.00	.	.	0.00	0.00	.	0.00	0.03	.	0.00	0.03
810417	2	0	0	0	0	0	0	1	0	0	3
	0.07	.	.	0.00	0.00	.	0.00	0.03	.	0.00	0.10
810424	10	0	0	0	0	0	0	1	0	0	11
	0.33	.	.	0.00	0.00	.	0.00	0.03	.	0.00	0.36
810501	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810509	436	0	0	0	0	0	0	2	0	1	439
	14.18	.	.	0.00	0.00	.	0.00	0.07	.	0.03	14.28
810512	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810515	699	0	0	0	0	0	1	0	0	2	702
	22.74	.	.	0.00	0.00	.	0.03	0.00	.	0.07	22.84
810523	374	0	0	0	0	0	0	0	0	0	379
	12.33	.	.	0.00	0.00	.	0.00	0.00	.	0.00	12.33
810529	277	0	0	0	0	0	0	0	0	1	278
	9.01	.	.	0.00	0.00	.	0.00	0.00	.	0.03	9.04
810605	223	0	0	1	0	0	0	0	0	0	224
	7.25	.	.	0.03	0.00	.	0.00	0.00	.	0.00	7.29
TOTAL	3032	.	.	1	2	.	26	5	.	8	3074
	98.63	.	.	0.03	0.07	.	0.85	0.16	.	0.26	100.00

(CONTINUED)

Table 21

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR METER NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	CATOSTOMIDAE	CENTRARCHIDAE	LEPOMIS SP.	POMOXIS SP.	PERCIDAE-PERCHES	ATHERINIDAE-SILV	TOTAL
810612	605	0	0	0	1	0	0	0	0	0	606
	19.68	.	.	0.00	0.03	.	0.00	0.00	.	0.00	19.71
810619	190	0	0	0	0	0	2	0	0	0	192
	6.18	.	.	0.00	0.00	.	0.07	0.00	.	0.00	6.25
810626	143	0	0	0	1	0	16	0	0	0	160
	4.65	.	.	0.00	0.03	.	0.52	0.00	.	0.00	5.20
810703	49	0	0	0	0	0	3	0	0	1	53
	1.59	.	.	0.00	0.00	.	0.10	0.00	.	0.03	1.72
810710	11	0	0	0	0	0	0	0	0	0	11
	0.36	.	.	0.00	0.00	.	0.00	0.00	.	0.00	0.36
810717	1	0	0	0	0	0	1	0	0	0	2
	0.03	.	.	0.00	0.00	.	0.03	0.00	.	0.00	0.07
810724	1	0	0	0	0	0	0	0	0	1	2
	0.03	.	.	0.00	0.00	.	0.00	0.00	.	0.03	0.07
810731	2	0	0	0	0	0	0	0	0	2	4
	0.07	.	.	0.00	0.00	.	0.00	0.00	.	0.07	0.13
810814	3	0	0	0	0	0	3	0	0	0	6
	0.10	.	.	0.00	0.00	.	0.10	0.00	.	0.00	0.20
810828	1	0	0	0	0	0	0	0	0	0	1
	0.03	.	.	0.00	0.00	.	0.00	0.00	.	0.00	0.03
810925	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
TOTAL	3032	.	.	1	2	.	26	5	.	8	3074
	98.63	.	.	0.03	0.07	.	0.85	0.16	.	0.26	100.00

Table 21

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR METER NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	SPECIES: CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	CATOSTOMIDAE	CENTRARCHIDAE	LEPOMIS SP.	POMOXIS SP.	PERCIDAE-PERCHES	ATHERINIDAE-SILV	TOTAL
810404	1	0	0	0	0	0	0	0	0	0	1
	0.06	.	.	.	.	.	0.00	0.00	0.00	0.00	0.06
810410	1	0	0	0	0	0	0	0	0	3	4
	0.06	.	.	.	.	.	0.00	0.00	0.00	0.17	0.22
810417	3	0	0	0	0	0	0	1	0	3	7
	0.17	.	.	.	.	.	0.00	0.06	0.00	0.17	0.39
810424	8	0	0	0	0	0	0	0	1	3	12
	0.45	.	.	.	.	.	0.00	0.00	0.06	0.17	0.67
810501	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810509	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810512	159	0	0	0	0	0	0	0	0	5	164
	8.90	.	.	.	.	.	0.00	0.00	0.00	0.28	9.18
810515	118	0	0	0	0	0	0	0	0	1	119
	6.61	.	.	.	.	.	0.00	0.00	0.00	0.06	6.66
810523	129	0	0	0	0	0	0	0	0	1	130
	7.22	.	.	.	.	.	0.00	0.00	0.00	0.06	7.28
810529	166	0	0	0	0	0	0	0	0	0	166
	9.29	.	.	.	.	.	0.00	0.00	0.00	0.00	9.29
810605	237	0	0	0	0	0	2	0	0	0	239
	13.27	.	.	.	.	.	0.11	0.00	0.00	0.00	13.38
TOTAL	1754	.	.	.	.	.	12	1	1	18	1786
	98.21	.	.	.	.	.	0.67	0.06	0.06	1.01	100.00

(CONTINUED)

Table 21

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR METER NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	CATOSTOMIDAE	CENTRARCHIDAE SP	LEPOMIS SP.	POMOXIS SP.	PERCIDAE-PERCHES	ATHERINIDAE-SILV	TOTAL
810612	216	0	0	0	0	0	1	0	0	0	217
	12.09	.	.	.	.	.	0,06	0,00	0,00	0,00	12,15
810619	559	0	0	0	0	0	3	0	0	0	562
	31.30	.	.	.	.	.	0,17	0,00	0,00	0,00	31,47
810626	40	0	0	0	0	0	3	0	0	0	43
	2.24	.	.	.	.	.	0,17	0,00	0,00	0,00	2,41
810703	103	0	0	0	0	0	0	0	0	0	103
	5.77	.	.	.	.	.	0,00	0,00	0,00	0,00	5,77
810710	3	0	0	0	0	0	0	0	0	0	3
	0.17	.	.	.	.	.	0,00	0,00	0,00	0,00	0,17
810717	0	0	0	0	0	0	1	0	0	0	1
	0.00	.	.	.	.	.	0,06	0,00	0,00	0,00	0,06
810724	3	0	0	0	0	0	2	0	0	0	5
	0.17	.	.	.	.	.	0,11	0,00	0,00	0,00	0,28
810731	7	0	0	0	0	0	0	0	0	2	9
	0.39	.	.	.	.	.	0,00	0,00	0,00	0,11	0,50
810814	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0,00
810828	1	0	0	0	0	0	0	0	0	0	1
	0.06	.	.	.	.	.	0,00	0,00	0,00	0,00	0,06
810925	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0,00
TOTAL	1754	.	.	.	.	.	12	1	1	18	1786
	98.21	.	.	.	.	.	0,67	0,06	0,06	1,01	100,00

Table 21

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR METER NET 1

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	CATOSTOMIDAE	CENTRARCHIDAE SP	LEPOMIS SP.	POMOXIS SP.	PERCIDAE-PERCH	ATHERINIDAE-SILV	TOTAL
810404	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810410	1	0	0	0	0	0	0	0	0	0	1
	0.01	.	.	0.00	.	0.00	0.00	0.00	0.00	0.00	0.01
810417	11	0	0	0	0	0	0	14	1	6	32
	0.07	.	.	0.00	.	0.00	0.00	0.09	0.01	0.04	0.21
810424	14	0	0	0	0	0	0	0	0	0	14
	0.09	.	.	0.00	.	0.00	0.00	0.00	0.00	0.00	0.09
810501	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810509	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810512	2784	0	0	0	0	0	0	0	0	2	2786
	18.45	.	.	0.00	.	0.00	0.00	0.00	0.00	0.01	18.47
810515	391	0	0	0	0	0	0	0	0	0	391
	2.59	.	.	0.00	.	0.00	0.00	0.00	0.00	0.00	2.59
810523	108	0	0	0	0	0	0	0	0	0	108
	0.72	.	.	0.00	.	0.00	0.00	0.00	0.00	0.00	0.72
810529	1256	0	0	0	0	0	1	0	0	1	1260
	8.34	.	.	0.00	.	0.00	0.01	0.00	0.00	0.01	8.35
810605	2017	0	0	1	0	0	13	0	0	0	2031
	13.37	.	.	0.01	.	0.00	0.09	0.00	0.00	0.00	13.46
TOTAL	14897	.	.	2	.	1	129	14	1	43	15087
	98.74	.	.	0.01	.	0.01	0.86	0.09	0.01	0.29	100.00

(CONTINUED)

Table 21

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR METER NET

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF U

DATE FREQUENCY PERCENT	SPECIES CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	CATOSTOMIDAE	CENTRARCHIDAE SP	LEPOMIS SP.	POMOXIS SP.	PERCIDAE-PERCH	ATHERINIDAE-SILV	TOTAL
810612	2058	0	0	0	0	0	17	0	0	1	2076
	13.64	.	.	0.00	.	0.00	0.11	0.00	0.00	0.01	13.76
810619	5388	0	0	0	0	0	46	0	0	0	5434
	35.71	.	.	0.00	.	0.00	0.30	0.00	0.00	0.00	36.02
810626	315	0	0	0	0	0	5	0	0	0	320
	2.09	.	.	0.00	.	0.00	0.03	0.00	0.00	0.00	2.12
810703	222	0	0	0	0	1	7	0	0	2	232
	1.47	.	.	0.00	.	0.01	0.05	0.00	0.00	0.01	1.54
810710	305	0	0	0	0	0	0	0	0	0	305
	2.02	.	.	0.00	.	0.00	0.00	0.00	0.00	0.00	2.02
810717	5	0	0	1	0	0	31	0	0	0	37
	0.03	.	.	0.01	.	0.00	0.21	0.00	0.00	0.00	0.25
810724	1	0	0	0	0	0	9	0	0	0	10
	0.01	.	.	0.00	.	0.00	0.06	0.00	0.00	0.00	0.07
810731	9	0	0	0	0	0	0	0	0	0	9
	0.06	.	.	0.00	.	0.00	0.00	0.00	0.00	0.00	0.06
810814	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810828	10	0	0	0	0	0	0	0	0	31	41
	0.07	.	.	0.00	.	0.00	0.00	0.00	0.00	0.21	0.27
810925	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
TOTAL	14897	.	.	2	.	1	129	14	1	43	15087
	98.74	.	.	0.01	.	0.01	0.86	0.09	0.01	0.29	100.00

Table 22

NUMBER OF FISH PER STATION BY DATE FOR MID WATER TRAWL 1981

TABLE OF DATE BY STATION

DATE / FREQUENCY / PERCENT	STATION: CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810610	0	42	0	0	42
	0.00	0.17	0.00	0.00	0.17
810611	2	0	3	5	10
	0.01	0.00	0.01	0.02	0.04
810616	29	305	36	96	468
	0.12	1.22	0.14	0.39	1.87
810623	43	1729	83	262	2117
	0.17	6.91	0.33	1.05	8.46
810630	298	201	32	83	614
	1.19	0.80	0.13	0.33	2.45
810707	50	268	192	226	736
	0.20	1.07	0.77	0.90	2.94
810714	388	2458	186	0	3032
	1.55	9.83	0.74	0.00	12.12
810722	50	2329	119	1247	3745
	0.20	9.31	0.48	4.98	14.97
810728	317	1661	4263	62	6303
	1.27	6.64	17.04	0.25	25.19
TOTAL	2454	12553	7304	2706	25017
	9.81	50.18	29.20	10.82	100.00

(CONTINUED)

Table 22

NUMBER OF FISH PER STATION BY DATE FOR MID WATER TRAWL 1981

TABLE OF DATE BY STATION

DATE / FREQUENCY / PERCENT	STATION: CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810604	210	844	1300	27	2301
	0.84	3.37	5.20	0.11	9.52
810611	311	873	88	11	1283
	1.24	3.49	0.35	0.04	5.13
810618	406	1001	808	504	2719
	1.62	4.00	3.23	2.01	10.87
810625	158	454	120	122	854
	0.63	1.81	0.48	0.49	3.41
810901	0	224	0	0	224
	0.00	0.92	0.00	0.00	0.92
810902	163	0	28	47	238
	0.65	0.00	0.11	0.19	0.95
810907	25	94	39	6	164
	0.10	0.38	0.16	0.02	0.66
810916	4	65	7	6	82
	0.02	0.26	0.03	0.02	0.33
TOTAL	2454	12553	7304	2706	25017
	9.81	50.18	24.20	10.82	100.00

Table 23

SPECIES NUMBERS PER STATION FOR MID WATER TRAWL 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	MIDISCHARGE REF C	TOTAL
CLUPEIDAE	1773 7.09	12046 48.15	6011 24.03	2486 9.94	22316 89.20
GIZZARD SHAD	48 0.19	21 0.08	12 0.05	16 0.06	97 0.39
THREADFIN SHAD	505 2.02	337 1.35	1246 4.98	145 0.58	2233 8.93
CYPRINIDAE	1 0.00	3 0.01	1 0.00	1 0.00	6 0.02
ICTALURIDAE	1 0.00	6 0.02	0 0.00	0 0.00	7 0.03
CHANNEL CATFISH	14 0.06	7 0.03	5 0.02	1 0.00	27 0.11
BLUE CATFISH	69 0.28	41 0.16	3 0.01	32 0.13	145 0.58
MORONE SP.	0 0.00	4 0.02	1 0.00	0 0.00	5 0.02
WHITE BASS	1 0.00	1 0.00	2 0.01	0 0.00	4 0.02
STRIPED BASS	3 0.01	2 0.01	0 0.00	0 0.00	5 0.02
TOTAL	2454 9.81	12553 50.18	7304 29.20	2706 10.82	25017 100.00

(CONTINUED)

Table 23

SPECIES NUMBERS PER STATION FOR MID WATER TRAWL 1981

TABLE OF SPECIES BY STATION

SPECIES / FREQUENCY / PERCENT	STATION: CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
CENTRARCHIDAE SP	21	12	3	13	49
	0.08	0.05	0.01	0.05	0.20
BLUEGILL	0	1	0	2	3
	0.00	0.00	0.00	0.01	0.01
LONGEAR SUNFISH	0	0	1	0	1
	0.00	0.00	0.00	0.00	0.00
LARGEMOUTH BASS	0	1	0	0	1
	0.00	0.00	0.00	0.00	0.00
WHITE CRAPPIE	0	2	0	0	2
	0.00	0.01	0.00	0.00	0.01
FRESHWATER DRUM	4	0	0	3	7
	0.02	0.00	0.00	0.01	0.03
ATHERINIDAE-SILV	12	55	16	3	86
	0.05	0.22	0.06	0.01	0.34
BROOK SILVERSIDE	0	1	0	0	1
	0.00	0.00	0.00	0.00	0.00
MISSISSIPPI SILV	2	13	3	4	22
	0.01	0.05	0.01	0.02	0.09
TOTAL	2454	12553	7304	2706	25017
	9.81	50.15	29.20	10.82	100.00

BAR CHART COMPARISON OF ALL FISH PER REPLICATE FOR MID WATER TRAWL 1981

2

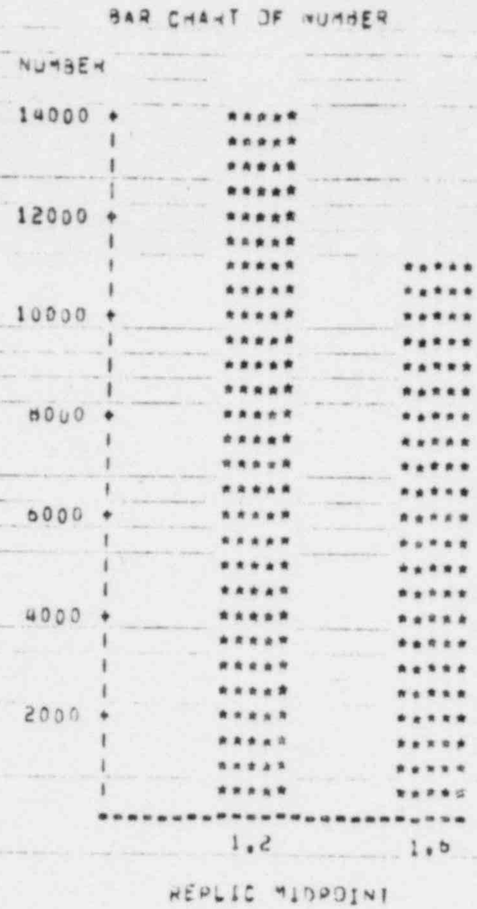


Figure 3

Table 24

ABNORMALITIES BY SPECIES AND STATION FOR MID WATER TRAWL 1981

TABLE OF STATION BY DISEASEP
CONTROLLING FOR SPECIES=CLUPEIDAE

STATION DISEASEP

FREQUENCY / PERCENT		GROWTH	TOTAL
CHANNEL REF D	0	0	0
	.	.	0.00
BACKWATER REF A	0	185	185
	.	95.36	95.36
INTAKE REF B	0	9	9
	.	4.64	4.64
DISCHARGE REF C		0	0
	.	.	0.00
TOTAL	.	194	194
	.	100.00	100.00

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	ICTALURIDAE	CHANNEL CATFISH	BLUE CATFISH	MORONE SP.	WHITE BASS	STRIPED BASS	TOTAL
810610	33	0	2	0	0	1	0	4	0	0	42
	0.26	0.00	0.02	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.33
810611	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810616	285	4	7	0	3	0	1	0	0	0	305
	2.27	0.03	0.06	0.00	0.02	0.00	0.01	0.00	0.00	0.00	2.43
810623	1716	2	5	0	2	2	0	0	0	1	1729
	13.67	0.02	0.04	0.00	0.02	0.02	0.00	0.00	0.00	0.01	13.77
810630	195	1	0	0	0	0	1	0	0	1	201
	1.55	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	1.60
810707	259	0	1	0	0	1	4	0	0	0	268
	2.06	0.00	0.01	0.00	0.00	0.01	0.03	0.00	0.00	0.00	2.13
810719	2421	0	5	1	0	0	0	0	0	0	2458
	19.29	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	19.58
810722	2284	7	22	1	0	0	8	0	1	0	2329
	18.19	0.06	0.18	0.01	0.00	0.00	0.06	0.00	0.01	0.00	18.55
810728	1636	0	15	0	1	0	8	0	0	0	1661
	13.03	0.00	0.12	0.00	0.01	0.00	0.06	0.00	0.00	0.00	13.23
TOTAL	12040	21	337	3	6	7	41	4	1	2	12553
	95.90	0.17	2.68	0.02	0.05	0.06	0.33	0.03	0.01	0.02	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	CENTRARCHIDAE SP	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810610	0	0	0	0	1	0	0	1	0	82
	0.00	0.00	.	0.00	0.01	.	0.00	0.01	0.00	0.33
810611	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810616	0	0	0	0	0	0	0	0	5	305
	0.00	0.00	.	0.00	0.00	.	0.00	0.00	0.04	2.43
810623	0	0	0	0	0	0	1	0	0	1729
	0.00	0.00	.	0.00	0.00	.	0.01	0.00	0.00	13.77
810630	0	0	0	0	0	0	0	0	0	201
	0.00	0.00	.	0.00	0.00	.	0.00	0.00	0.00	1.60
810707	2	0	0	0	1	0	0	0	0	268
	0.02	0.00	.	0.00	0.01	.	0.00	0.00	0.00	2.13
810714	3	0	0	0	0	0	26	0	2	2458
	0.02	0.00	.	0.00	0.00	.	0.21	0.00	0.02	19.58
810722	6	0	0	0	0	0	0	0	0	2329
	0.05	0.00	.	0.00	0.00	.	0.00	0.00	0.00	18.55
810728	1	0	0	0	0	0	0	0	0	1661
	0.01	0.00	.	0.00	0.00	.	0.00	0.00	0.00	13.23
TOTAL	12	1	.	1	2	.	55	1	13	12553
	0.10	0.01	.	0.01	0.02	.	0.44	0.01	0.10	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	ICTALURIDAE	CHANNEL CATFISH	BLUE CATFISH	MORONE SP.	WHITE BASS	STRIPED BASS	TOTAL
810804	749	1	91	0	0	0	3	0	0	0	844
	5.97	0.01	0.72	0.00	0.00	0.00	0.02	0.00	0.00	0.00	6.72
810811	866	0	7	0	0	0	0	0	0	0	873
	6.90	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.95
810818	934	2	23	0	0	1	6	0	0	0	1001
	7.44	0.02	0.18	0.00	0.00	0.01	0.05	0.00	0.00	0.00	7.97
810825	419	2	32	0	0	0	0	0	0	0	454
	3.34	0.02	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.62
810901	196	0	31	0	0	0	2	0	0	0	229
	1.56	0.00	0.25	0.00	0.00	0.00	0.02	0.00	0.00	0.00	1.82
810902	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810907	44	0	38	1	0	2	4	0	0	0	94
	0.35	0.00	0.30	0.01	0.00	0.02	0.03	0.00	0.00	0.00	0.75
810915	1	2	58	0	0	0	4	0	0	0	65
	0.01	0.02	0.46	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.52
TOTAL	12046	21	337	3	6	7	41	4	1	2	12553
	95.96	0.17	2.68	0.02	0.05	0.06	0.33	0.03	0.01	0.02	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / SPECIES FREQUENCY PERCENT	CENTRARCHIDAE SP	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810804	0	0	0	0	0	0	0	0	0	844
	0.00	0.00	.	0.00	0.00	.	0.00	0.00	0.00	6.72
810811	0	0	0	0	0	0	0	0	0	873
	0.00	0.00	.	0.00	0.00	.	0.00	0.00	0.00	6.95
810818	0	0	0	1	0	0	28	0	[illegible]	1001
	0.00	0.00	.	0.01	0.00	.	0.22	0.00	0.05	7.97
810825	0	1	0	0	0	0	0	0	0	454
	0.00	0.01	.	0.00	0.00	.	0.00	0.00	0.00	3.62
810901	0	0	0	0	0	0	0	0	0	229
	0.00	0.00	.	0.00	0.00	.	0.00	0.00	0.00	1.82
810902	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810907	0	0	0	0	0	0	0	0	0	94
	0.00	0.00	.	0.00	0.00	.	0.00	0.00	0.00	0.75
810916	0	0	0	0	0	0	0	0	0	65
	0.00	0.00	.	0.00	0.00	.	0.00	0.00	0.00	0.52
TOTAL	12	1	.	1	2	.	55	1	13	12553
	0.10	0.01	.	0.01	0.02	.	0.44	0.01	0.10	100.00

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	ICTALURIDAE	CHANNEL CATFISH	BLUE CATFISH	MORONE SP.	WHITE BASS	STRIPED BASS	TOTAL
810610	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810611	0	1	0	0	0	0	0	1	0	0	3
	0.00	0.01	0.00	0.00	.	0.00	0.00	0.01	0.00	.	0.04
810616	34	1	0	0	0	0	0	0	1	0	36
	0.47	0.01	0.00	0.00	.	0.00	0.00	0.00	0.01	.	0.49
810623	81	1	0	0	0	1	0	0	0	0	83
	1.11	0.01	0.00	0.00	.	0.01	0.00	0.00	0.00	.	1.14
810630	28	0	2	0	0	0	0	0	1	0	32
	0.38	0.00	0.03	0.00	.	0.00	0.00	0.00	0.01	.	0.44
810707	172	1	16	0	0	3	0	0	0	0	192
	2.35	0.01	0.22	0.00	.	0.04	0.00	0.00	0.00	.	2.63
810714	165	3	3	0	0	0	0	0	0	0	186
	2.26	0.04	0.04	0.00	.	0.00	0.00	0.00	0.00	.	2.55
810722	93	0	22	0	0	0	2	0	0	0	119
	1.27	0.00	0.30	0.00	.	0.00	0.03	0.00	0.00	.	1.63
810728	3997	0	266	0	0	0	0	0	0	0	4263
	54.72	0.00	3.64	0.00	.	0.00	0.00	0.00	0.00	.	58.37
TOTAL	6011	12	1246	1	.	5	3	1	2	.	7304
	82.30	0.16	17.06	0.01	.	0.07	0.04	0.01	0.03	.	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	SPECIES: CENTRARCHIDAE SP	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810610	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810611	0	0	0	0	0	0	1	0	0	3
	0.00	.	0.00	.	.	.	0.01	.	0.00	0.04
810615	0	0	0	0	0	0	0	0	0	36
	0.00	.	0.00	.	.	.	0.00	.	0.00	0.49
810623	0	0	0	0	0	0	0	0	0	83
	0.00	.	0.00	.	.	.	0.00	.	0.00	1.14
810630	0	0	0	0	0	0	0	0	1	32
	0.00	.	0.00	.	.	.	0.00	.	0.01	0.44
810707	0	0	0	0	0	0	0	0	0	192
	0.00	.	0.00	.	.	.	0.00	.	0.00	2.63
810714	2	0	1	0	0	0	10	0	2	186
	0.03	.	0.01	.	.	.	0.14	.	0.03	2.55
810722	0	0	0	0	0	0	2	0	0	119
	0.00	.	0.00	.	.	.	0.03	.	0.00	1.63
810728	0	0	0	0	0	0	0	0	0	4263
	0.00	.	0.00	.	.	.	0.00	.	0.00	58.37
TOTAL	3	.	1	.	.	.	16	.	3	7304
	0.04	.	0.01	.	.	.	0.22	.	0.04	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF H

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	ICTALURIDAE	CHANNEL CATFISH	BLUE CATFISH	MORONE SP.	WHITE BASS	STRIPED BASS	TOTAL
810804	1114	0	185	1	0	0	0	0	0	0	1300
	15.25	0.00	2.53	0.01	.	0.00	0.00	0.00	0.00	.	17.80
810811	73	0	14	0	0	0	1	0	0	0	88
	1.00	0.00	0.19	0.00	.	0.00	0.01	0.00	0.00	.	1.20
810818	233	4	566	0	0	1	0	0	0	0	806
	3.19	0.05	7.75	0.00	.	0.01	0.00	0.00	0.00	.	11.06
810825	11	1	108	0	0	0	0	0	0	0	120
	0.15	0.01	1.48	0.00	.	0.00	0.00	0.00	0.00	.	1.64
810901	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810902	3	0	25	0	0	0	0	0	0	0	28
	0.04	0.00	0.34	0.00	.	0.00	0.00	0.00	0.00	.	0.38
810907	7	0	32	0	0	0	0	0	0	0	39
	0.10	0.00	0.44	0.00	.	0.00	0.00	0.00	0.00	.	0.53
810916	0	0	7	0	0	0	0	0	0	0	7
	0.00	0.00	0.10	0.00	.	0.00	0.00	0.00	0.00	.	0.10
TOTAL	6011	12	1246	1	.	5	3	1	2	.	7304
	82.30	0.16	17.06	0.01	.	0.07	0.04	0.01	0.03	.	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF M

DATE SPECIES

FREQUENCY PERCENT	CENTRARCHIDAE SP	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810804	0	0	0	0	0	0	0	0	0	1300
	0.00	.	0.00	.	.	.	0.00	.	0.00	17.80
810811	0	0	0	0	0	0	0	0	0	88
	0.00	.	0.00	.	.	.	0.00	.	0.00	1.20
810818	1	0	0	0	0	0	3	0	0	808
	0.01	.	0.00	.	.	.	0.04	.	0.00	11.06
810825	0	0	0	0	0	0	0	0	0	120
	0.00	.	0.00	.	.	.	0.00	.	0.00	1.64
810901	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810902	0	0	0	0	0	0	0	0	0	28
	0.00	.	0.00	.	.	.	0.00	.	0.00	0.38
810907	0	0	0	0	0	0	0	0	0	39
	0.00	.	0.00	.	.	.	0.00	.	0.00	0.53
810915	0	0	0	0	0	0	0	0	0	7
	0.00	.	0.00	.	.	.	0.00	.	0.00	0.10
TOTAL	3	.	1	.	.	.	16	.	3	7304
	0.04	.	0.01	.	.	.	0.22	.	0.04	100.00

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	ICTALURIDAE	CHANNEL CATFISH	BLUE CATFISH	MORONE SP.	WHITE BASS	STRIPED BASS	TOTAL
810610	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810611	4	0	1	0	0	0	0	0	0	0	5
	0.15	0.00	0.04	0.00	.	0.00	0.00	.	.	.	0.18
810616	83	0	8	0	0	0	4	0	0	0	98
	3.07	0.00	0.30	0.00	.	0.00	0.15	.	.	.	3.62
810623	249	0	0	0	0	0	13	0	0	0	262
	9.20	0.00	0.00	0.00	.	0.00	0.48	.	.	.	9.68
810630	79	0	3	0	0	0	0	0	0	0	83
	2.92	0.00	0.11	0.00	.	0.00	0.00	.	.	.	3.07
810707	209	0	5	0	0	1	2	0	0	0	226
	7.72	0.00	0.18	0.00	.	0.04	0.07	.	.	.	8.35
810714	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810722	1225	0	19	0	0	0	3	0	0	0	1247
	45.27	0.00	0.70	0.00	.	0.00	0.11	.	.	.	46.08
810729	37	0	21	1	0	0	0	0	0	0	62
	1.37	0.00	0.78	0.04	.	0.00	0.00	.	.	.	2.29
TOTAL	2486	16	145	1	.	1	32	.	.	.	2706
	91.87	0.59	5.36	0.04	.	0.04	1.18	.	.	.	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE SPECIES

FREQUENCY PERCENT	CENTRARCHIDAE SP	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810610	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810611	0	0	0	0	0	0	0	0	0	5
	0.00	0.00	.	.	.	0.00	0.00	.	0.00	0.18
810615	0	1	0	0	0	1	0	0	1	98
	0.00	0.04	.	.	.	0.04	0.00	.	0.04	3.62
810623	0	0	0	0	0	0	0	0	0	202
	0.00	0.00	.	.	.	0.00	0.00	.	0.00	[illegible]
810630	1	0	0	0	0	0	0	0	3	8[illegible]
	0.04	0.00	.	.	.	0.00	0.00	.	0.00	3.[illegible]7
810707	7	0	0	0	0	2	0	0	0	226
	0.26	0.00	.	.	.	0.07	0.00	.	0.00	8.35
810714	0	0		0	0	0	0	0	0	0
	.	.		.	.	.	.	.	.	0.00
810722	0	0		0	0	0	0	0	0	1247
	0.00	0.00		.	.	0.00	0.00	.	0.00	46.08
810728	3	0	0	0	0	0	0	0	0	62
	0.11	0.00	.	.	.	0.00	0.00	.	0.00	2.29
TOTAL	13	2	.	.	.	3	3	.	4	2706
	0.48	0.07	.	.	.	0.11	0.11	.	0.15	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF L

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	ICTALURIDAE	CHANNEL CATFISH	BLUE CATFISH	MORONE SP.	WHITE BASS	STRIPED BASS	TOTAL
810804	22	0	3	0	0	0	1	0	0	0	27
	0.81	0.00	0.11	0.00	.	0.00	0.04	.	.	.	1.00
810811	8	0	1	0	0	0	1	0	0	0	11
	0.30	0.00	0.04	0.00	.	0.00	0.04	.	.	.	0.41
810818	439	13	44	0	0	0	4	0	0	0	504
	15.22	0.48	1.63	0.00	.	0.00	0.15	.	.	.	18.63
810825	93	2	25	0	0	0	1	0	0	0	122
	3.44	0.07	0.92	0.00	.	0.00	0.04	.	.	.	4.51
810901	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810902	34	1	7	0	0	0	3	0	0	0	47
	1.26	0.04	0.26	0.00	.	0.00	0.11	.	.	.	1.74
810907	4	0	2	0	0	0	0	0	0	0	6
	0.15	0.00	0.07	0.00	.	0.00	0.00	.	.	.	0.22
810916	0	0	6	0	0	0	0	0	0	0	6
	0.00	0.00	0.22	0.00	.	0.00	0.00	.	.	.	0.22
TOTAL	2486	16	145	1	.	1	32	.	.	.	2706
	91.87	0.59	5.36	0.04	.	0.04	1.18	.	.	.	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE SPECIES

FREQUENCY / PERCENT	CENTRARCHIDAE SP	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810804	0 0.00	0 0.00	0 .	0 .	0 .	0 0.00	1 0.04	0 .	0 0.00	27 1.00
810811	0 0.00	0 0.00	0 .	0 .	0 .	0 0.00	0 0.00	0 .	1 0.04	11 0.41
810818	2 0.07	1 0.04	0 .	0 .	0 .	0 0.00	1 0.04	0 .	0 0.00	504 18.63
810825	0 0.00	0 0.00	0 .	0 .	0 .	0 0.00	1 0.04	0 .	0 0.00	122 4.51
810901	0 .	0 .	0 .	0 .	0 .	0 .	0 .	0 .	0 .	0 0.00
810902	0 0.00	0 0.00	0 .	0 .	0 .	0 0.00	0 0.00	0 .	2 0.07	47 1.74
810907	0 0.00	0 0.00	0 .	0 .	0 .	0 0.00	0 0.00	0 .	0 0.00	6 0.22
810916	0 0.00	0 0.00	0 .	0 .	0 .	0 0.00	0 0.00	0 .	0 0.00	6 0.22
TOTAL	13 0.48	2 0.07	. .	. .	. .	3 0.11	3 0.11	. .	4 0.15	2706 100.00

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF U

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	ICTALURIDAE	CHANNEL CATFISH	BLUE CATFISH	MORONE SP.	WHITE BASS	STRIPED BASS	TOTAL
810610	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810611	2	0	0	0	0	0	0	0	0	0	2
	0.08	0.00	0.00	0.00	0.00	0.00	0.00	.	0.00	0.00	0.08
810616	20	0	3	0	0	0	5	0	0	1	29
	0.81	0.00	0.12	0.00	0.00	0.00	0.20	.	0.00	0.04	1.18
810623	10	0	1	0	0	1	28	0	1	0	43
	0.41	0.00	0.04	0.00	0.00	0.04	1.14	.	0.04	0.00	1.75
810630	265	1	0	0	1	4	22	0	0	1	298
	10.80	0.04	0.00	0.00	0.04	0.16	0.90	.	0.00	0.04	12.14
810707	35	0	4	0	0	4	4	0	0	1	50
	1.43	0.00	0.16	0.00	0.00	0.16	0.16	.	0.00	0.04	2.04
810714	336	39	0	0	0	1	1	0	0	0	388
	13.69	1.59	0.00	0.00	0.00	0.04	0.04	.	0.00	0.00	15.81
810722	21	0	20	1	0	0	2	0	0	0	50
	0.86	0.00	0.81	0.04	0.00	0.00	0.08	.	0.00	0.00	2.04
810728	195	0	110	0	0	0	3	0	0	0	317
	7.95	0.00	4.48	0.00	0.00	0.00	0.12	.	0.00	0.00	12.92
TOTAL	1773	48	505	1	1	14	69	.	1	3	2454
	72.25	1.96	20.58	0.04	0.04	0.57	2.81	.	0.04	0.12	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF J

DATE SPECIES

FREQUENCY / PERCENT	CENTRARC HIDAE SP	BLUEGILL	LONGEAR SUNFISH	LARGEMOU TH BASS	WHITE CR APPIE	FRESHWAT ER DRUM	ATHERINI DAE-SILV	BROOK SI LVERSIDE	MISSISSI PPI SILV	TOTAL
810610	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810611	0	0	0	0	0	0	0	0	0	2
	0.00	.	.	.	.	0.00	0.00	.	0.00	0.08
810615	0	0	0	0	0	0	0	0	0	29
	0.00	.	.	.	.	0.00	0.00	.	0.00	1.18
810623	2	0	0	0	0	0	0	0	0	43
	0.08	.	.	.	.	0.00	0.00	.	0.00	1.75
810630	2	0	0	0	0	2	0	0	0	298
	0.08	.	.	.	.	0.08	0.00	.	0.00	12.14
810707	0	0	0	0	0	1	1	0	0	50
	0.00	.	.	.	.	0.04	0.04	.	0.00	2.04
810714	9	0	0	0	0	0	2	0	0	388
	0.37	.	.	.	.	0.00	0.08	.	0.00	15.81
810722	5	0	0	0	0	0	1	0	0	50
	0.20	.	.	.	.	0.00	0.04	.	0.00	2.04
810725	3	0	0	0	0	1	4	0	1	317
	0.12	.	.	.	.	0.04	0.16	.	0.04	12.92
TOTAL	21	.	.	.	.	4	12	.	2	2454
	0.86	.	.	.	.	0.16	0.49	.	0.08	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL 2

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CYPRINIDAE	ICTALURIDAE	CHANNEL CATFISH	BLUE CATFISH	MORONE SP.	WHITE BASS	STRIPED BASS	TOTAL
810804	200	1	6	0	0	0	0	0	0	0	210
	8.15	0.04	0.24	0.00	0.00	0.00	0.00	.	0.00	0.00	8.56
810811	236	3	71	0	0	0	1	0	0	0	311
	9.62	0.12	2.89	0.00	0.00	0.00	0.04	.	0.00	0.00	12.67
810818	215	3	186	0	0	0	0	0	0	0	404
	8.76	0.12	7.58	0.00	0.00	0.00	0.00	.	0.00	0.00	16.46
810825	119	1	36	0	0	0	0	0	0	0	156
	4.85	0.04	1.47	0.00	0.00	0.00	0.00	.	0.00	0.00	6.36
810901	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	0.00
810902	112	0	45	0	0	3	3	0	0	0	163
	4.56	0.00	1.83	0.00	0.00	0.12	0.12	.	0.00	0.00	6.64
810907	6	0	18	0	0	1	0	0	0	0	25
	0.24	0.00	0.73	0.00	0.00	0.04	0.00	.	0.00	0.00	1.02
810916	1	0	3	0	0	0	0	0	0	0	4
	0.04	0.00	0.12	0.00	0.00	0.00	0.00	.	0.00	0.00	0.16
TOTAL	1773	48	505	1	1	14	69	.	1	3	2454
	72.25	1.96	20.58	0.04	0.04	0.57	2.81	.	0.04	0.12	100.00

(CONTINUED)

Table 25

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR MID WATER TRAWL

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	CENTRARCHIDAE SP	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	WHITE CRAPPIE	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810804	0	0	0	0	0	0	3	0	0	210
	0.00	.	.	.	.	0.00	0.12	.	0.00	8.56
810811	0	0	0	0	0	0	0	0	0	311
	0.00	.	.	.	.	0.00	0.00	.	0.00	12.67
810818	0	0	0	0	0	0	0	0	0	406
	0.00	.	.	.	.	0.00	0.00	.	0.00	16.54
810825	0	0	0	0	0	0	1	0	1	158
	0.00	.	.	.	.	0.00	0.04	.	0.04	6.44
810901	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810902	0	0	0	0	0	0	0	0	0	163
	0.00	.	.	.	.	0.00	0.00	.	0.00	6.64
810907	0	0	0	0	0	0	0	0	0	25
	0.00	.	.	.	.	0.00	0.00	.	0.00	1.02
810916	0	0	0	0	0	0	0	0	0	4
	0.00	.	.	.	.	0.00	0.00	.	0.00	0.16
TOTAL	21	.	.	.	.	4	12	.	2	2454
	0.86	.	.	.	.	0.16	0.49	.	0.08	100.00

Table 26

NUMBER OF FISH PER S ION BY DATE FOR BAG SEINE 1981 1

TABLE OF DATE BY STATION

DATE / FREQUENCY / PERCENT	STATION: CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
810327	16	13	0	168	197
	0.06	0.05	0.00	0.63	0.74
810410	96	54	117	25	292
	0.36	0.20	0.44	0.09	1.09
810424	40	19	29	37	125
	0.15	0.07	0.11	0.14	0.47
810509	0	0	81	0	81
	0.00	0.00	0.30	0.00	0.30
810512	54	43	0	149	246
	0.20	0.16	0.00	0.56	0.92
810523	59	27	157	305	548
	0.22	0.10	0.59	1.14	2.04
810605	116	12	165	394	687
	0.43	0.04	0.62	1.47	2.56
810619	60	13	11	6	90
	0.22	0.05	0.04	0.02	0.34
810703	301	126	10	17	454
	1.12	0.47	0.04	0.06	1.69
810717	258	143	9	69	479
	0.96	0.53	0.03	0.26	1.79
810731	3327	282	570	2	4181
	12.41	1.05	2.13	0.01	15.60
810814	3657	6663	351	27	10708
	13.64	24.85	1.31	0.10	39.96
810828	2077	21	496	352	2946
	7.75	0.08	1.85	1.31	10.99
810918	2116	36	2937	677	5766
	7.90	0.13	10.96	2.53	21.51
TOTAL	12187	7452	4933	2228	26800
	45.47	27.81	18.41	8.31	100.00

Table 27

WEIGHT IN GRAMS OF FISH PER STATION BY DATE FOR MAR-SEPT 1981

NOTE: SEVERAL FISH WEIGHED LESS THAN ONE GRAM

TABLE OF DATE BY STATION

DATE / FREQUENCY / PERCENT	CHANNEL (REF D)	BACKWATER (REF A)	INTAKE (REF B)	DISCHARGE (REF C)	TOTAL
810327	186	204	0	297	687
	0.87	0.95	0.00	1.39	3.19
810410	372	165	604	23	1164
	1.74	0.77	2.82	0.11	5.44
810424	217	974	144	297	1632
	1.01	4.52	0.67	1.39	7.58
810508	0	0	741	0	741
	0.00	0.00	3.44	0.00	3.44
810512	358	323	0	215	896
	1.66	1.50	0.00	1.00	4.16
810523	748	545	4252	362	5907
	3.47	2.53	19.74	1.68	27.42
810605	515	125	740	570	1950
	2.39	0.58	3.44	2.65	9.05
810619	338	204	155	15	712
	1.57	0.95	0.72	0.07	3.31
810703	96	90	60	30	276
	0.45	0.42	0.28	0.14	1.28
810717	119	47	60	108	334
	0.55	0.22	0.28	0.50	1.55
810731	1258	182	107	2	1549
	5.84	0.84	0.50	0.01	7.19
810814	665	1258	97	12	2032
	3.09	5.84	0.45	0.06	9.43
810828	596	32	120	149	897
	2.79	0.15	0.56	0.70	4.17
810912	1015	171	1153	285	2624
	4.71	0.79	5.35	1.32	12.18
TOTAL	5364	4345	6559	2384	21541
	24.90	20.17	30.45	11.07	100.00

Table 28

SPECIES NUMBERS PER STATION FOR BAG SEINE 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION — FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
CLUPEIDAE	5408 20.18	6482 24.19	5 0.02	135 0.50	12030 44.89
GIZZARD SHAD	896 3.34	75 0.28	140 0.52	25 0.09	1136 4.24
THREADFIN SHAD	271 1.01	618 2.31	0 0.00	14 0.05	903 3.37
CAMPOSTOMA SP.	1 0.00	0 0.00	0 0.00	0 0.00	1 0.00
STONEROLLER	1 0.00	0 0.00	0 0.00	0 0.00	1 0.00
CARP	0 0.00	0 0.00	2 0.01	0 0.00	2 0.01
GOLDEN SHINER	1 0.00	0 0.00	0 0.00	3 0.01	4 0.01
EMERALD SHINER	11 0.04	0 0.00	4 0.01	36 0.13	51 0.19
MIMIC SHINER	0 0.00	0 0.00	0 0.00	11 0.04	11 0.04
RED SHINER	53 0.20	2 0.01	24 0.09	80 0.30	159 0.59
SILVERBAND SHINE	0 0.00	0 0.00	0 0.00	2 0.01	2 0.01
BLACKTAIL SHINER	0 0.00	0 0.00	0 0.00	1 0.00	1 0.00
BULLHEAD MINNOW	73 0.27	32 0.12	54 0.13	93 0.35	252 0.94
CYPRINIDAE	794 2.96	43 0.16	35 0.13	123 0.46	995 3.71
STEELCOLOR SHINE	0 0.00	0 0.00	2 0.01	0 0.00	2 0.01
RIVER CARPSUCKER	0 0.00	2 0.01	0 0.00	1 0.00	3 0.01
TOTAL	12187 45.47	7452 27.81	4933 18.41	2228 8.31	26800 100.00

(continued)

Table 28

SPECIES NUMBERS PER STATION FOR BAG SEINE 1981

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
CHANNEL CATFISH	0 0.00	1 0.00	0 0.00	0 0.00	1 0.00
MOSQUITOFISH	5 0.02	0 0.00	0 0.00	1 0.00	6 0.02
WHITE BASS	1 0.00	1 0.00	0 0.00	0 0.00	2 0.01
STRIPED BASS	0 0.00	1 0.00	0 0.00	0 0.00	1 0.00
CENTRARCHIDAE SP	10 0.04	28 0.10	3 0.01	70 0.26	111 0.41
LEPOMIS SP.	0 0.00	0 0.00	3 0.01	12 0.04	15 0.06
GREEN SUNFISH	1 0.00	1 0.00	1 0.00	1 0.00	4 0.01
ORANGESPOTTED SU	2 0.01	7 0.03	0 0.00	0 0.00	9 0.03
BLUEGILL	20 0.07	47 0.18	10 0.04	52 0.19	129 0.48
LONGEAR SUNFISH	35 0.13	19 0.07	15 0.06	33 0.12	102 0.38
LARGEMOUTH BASS	8 0.03	4 0.01	1 0.00	8 0.03	21 0.08
FRESHWATER DRUM	0 0.00	1 0.00	0 0.00	1 0.00	2 0.01
ATHERINIDAE-SILV	2779 10.37	18 0.07	1650 6.16	615 2.29	5062 18.89
BROOK SILVERSIDE	3 0.01	7 0.03	5 0.02	0 0.00	15 0.06
MISSISSIPPI SILV	1814 6.77	63 0.24	2999 11.19	911 3.40	5787 21.59
TOTAL	12187 45.47	7452 27.81	4933 18.41	2228 8.31	26800 100.00

Table 29

SPECIES WEIGHT IN GRAMS PER STATION FOR BAG SEINE 1981

NOTE: SEVERAL FISH WEIGHED LESS THAN ONE GRAM

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
CLUPEIDAE	966 4.52	1054 4.93	0 0.00	23 0.11	2043 9.55
GIZZARD SHAD	1316 6.15	649 3.03	3577 16.72	525 2.45	6067 28.36
THREADFIN SHAD	112 0.52	333 1.56	0 0.00	41 0.19	486 2.27
CAMPOSTOMA SP.	1 0.00	0 0.00	0 0.00	0 0.00	1 0.00
STONEROLLER	1 0.00	0 0.00	0 0.00	0 0.00	1 0.00
CARP	0 0.00	0 0.00	450 2.10	0 0.00	450 2.10
GOLDEN SHINER	1 0.00	0 0.00	0 0.00	10 0.05	11 0.05
EMERALD SHINER	10 0.05	0 0.00	12 0.06	98 0.46	120 0.56
MIMIC SHINER	0 0.00	0 0.00	0 0.00	5 0.02	5 0.02
RED SHINER	50 0.23	2 0.01	16 0.07	94 0.44	162 0.76
SILVERBAND SHINER	0 0.00	0 0.00	0 0.00	3 0.01	3 0.01
TOTAL	6378 29.80	4318 20.19	8331 38.95	2368 11.07	21391 100.00

(CONTINUED)

Table 29

SPECIES WEIGHT IN GRAMS PER STATION FOR BAG SEINE 1981

NOTE: SEVERAL FISH WEIGHED LESS THAN ONE GRAM

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
BLACKTAIL SHINER	0 0.00	0 0.00	0 0.00	1 0.00	1 0.00
BULLHEAD MINNOW	44 0.21	39 0.18	24 0.11	179 0.84	286 1.34
CYPRINIDAE	131 0.61	7 0.03	8 0.04	31 0.14	177 0.83
STEELCOLOR SHINE	0 0.00	0 0.00	3 0.01	0 0.00	3 0.01
RIVER CARPSUCKER	0 0.00	635 2.97	0 0.00	1 0.00	636 2.97
CHANNEL CATFISH	0 0.00	89 0.42	0 0.00	0 0.00	89 0.42
MOSQUITOFISH	1 0.00	0 0.00	0 0.00	0 0.00	1 0.00
WHITE BASS	27 0.13	23 0.11	0 0.00	0 0.00	50 0.23
STRIPED BASS	0 0.00	28 0.13	0 0.00	0 0.00	28 0.13
CENTRARCHIDAE SP	3 0.01	2 0.01	2 0.01	16 0.07	23 0.11
LEPOMIS SP.	0 0.00	0 0.00	1 0.00	2 0.01	3 0.01
TOTAL	6374 29.80	4318 20.19	8331 38.95	2368 11.07	21391 100.00

(CONTINUED)

Table 29

SPECIES WEIGHT IN GRAMS PER STATION FOR BAG SEINE 1981

NOTE: SEVERAL FISH WEIGHED LESS THAN ONE GRAM

TABLE OF SPECIES BY STATION

SPECIES / STATION FREQUENCY PERCENT	CHANNEL REF D	BACKWATER REF A	INTAKE REF B	DISCHARGE REF C	TOTAL
GREEN SUNFISH	26 0.12	17 0.08	2 0.01	21 0.10	66 0.31
ORANGESPOTTED SU	25 0.12	43 0.20	0 0.00	0 0.00	68 0.32
BLUEGILL	165 0.77	710 3.32	528 2.47	94 0.44	1497 7.00
LONGEAR SUNFISH	803 3.75	274 1.28	381 1.78	198 0.93	1656 7.74
LARGEMOUTH BASS	209 0.98	118 0.55	12 0.06	20 0.09	359 1.68
FRESHWATER DRUM	0 0.00	46 0.22	0 0.00	6 0.03	52 0.24
ATHERINIDAE-SILV	328 1.53	0 0.00	215 1.01	121 0.57	664 3.10
BROOK SILVERSIDE	6 0.03	27 0.13	11 0.05	0 0.00	44 0.21
MISSISSIPPI SILV	2149 10.05	222 1.04	3089 14.44	874 4.11	6339 29.63
TOTAL	6374 29.80	4318 20.19	8331 38.95	2366 11.07	21391 100.00

BAR CHART COMPARISON OF ALL FISH PER REPLICATE FOR BAG SEINE 1981

BAR CHART OF NUMBER

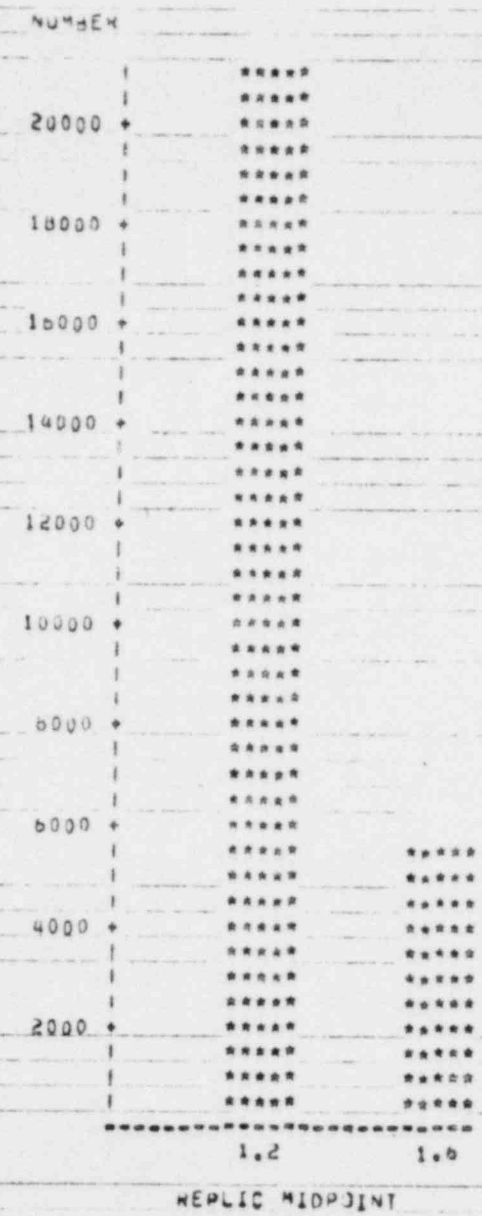


Figure 4

Table 30

ABNORMALITIES BY SPECIES AND STATION FOR SAG SPRING 1981

TABLE OF STATION BY DISEASEP
CONTROLLING FOR SPECIES=CAMPOSTOMA SP.

STATION DISEASEP

FREQUENCY PERCENT		PARASITIC COPEPOD	ARGULUS	HUMPBACK	TOTAL
CHANNEL REF D	0 .	0 .	1 100.00	0 .	1 100.00
BACKWATER REF A	0 .	0 .	0 .	0 .	0 0.00
INTAKE REF B	0 .	0 .	0 .	0 .	0 0.00
DISCHARGE REF C	0 .	0 .	0 .	0 .	0 0.00
TOTAL	. .	. .	1 100.00	. .	1 100.00

TABLE OF STATION BY DISEASEP
CONTROLLING FOR SPECIES=STONEROLLER

STATION DISEASEP

FREQUENCY PERCENT		PARASITIC COPEPOD	ARGULUS	HUMPBACK	TOTAL
CHANNEL REF D	0 .	1 100.00	0 .	0 .	1 100.00
BACKWATER REF A	0 .	0 .	0 .	0 .	0 0.00
INTAKE REF B	0 .	0 .	0 .	0 .	0 0.00
DISCHARGE REF C	0 .	0 .	0 .	0 .	0 0.00
TOTAL	. .	1 100.00	. .	. .	1 100.00

Table 30

ABNORMALITIES BY SPECIES AND STATION FOR BAG SEINE 1981

TABLE OF STATION BY DISEASEP
CONTROLLING FOR SPECIES=MISSISSIPPI SILV

STATION DISEASEP

FREQUENCY PERCENT		PARASITIC COPEPOD	ARGULUS	HUMPBACK	TOTAL
CHANNEL REF D	0	0	0	1	1
	.	.	.	100.00	100.00
BACKWATER REF A	0	0	0	0	0
	.	.	.	.	0.00
INTAKE REF B	0	0	0	0	0
	.	.	.	.	0.00
DISCHARGE REF C	0	0	0	0	0
	.	.	.	.	0.00
TOTAL	.	.	.	1	1
	.	.	.	100.00	100.00

TABLE OF STATION BY DISEASEP
CONTROLLING FOR SPECIES=ATHERINIDAE-SILV

STATION DISEASEP

FREQUENCY PERCENT		PARASITIC COPEPOD	ARGULUS	HUMPBACK	TOTAL
CHANNEL REF D	0	1	0	0	1
	.	33.33	.	0.00	33.33
BACKWATER REF A	0	0	0	0	0
	.	.	.	.	0.00
INTAKE REF B	0	0	0	2	2
	.	0.00	.	66.67	66.67
DISCHARGE REF C	0	0	0	0	0
	.	.	.	.	0.00
TOTAL	.	1	.	2	3
	.	33.33	.	66.67	100.00

Table 30

ABNORMALITIES BY SPECIES AND STATION FOR BAG SEINE 1981

TABLE OF STATION BY DISEASEP
CONTROLLING FOR SPECIES=EMERALD SHINER

STATION / DISEASEP (FREQUENCY, PERCENT)		PARASITIC COPEPOD	ANGULUS	HUMPBACK	TOTAL
CHANNEL REF D	0 .	0 .	0 .	0 .	0 0.00
BACKWATER REF A	0 .	0 .	0 .	0 .	0 0.00
INTAKE REF B	0 .	0 .	0 .	0 .	0 0.00
DISCHARGE REF C	0 .	1 100.00	0 .	0 .	1 100.00
TOTAL	. .	1 100.00	. .	. .	1 100.00

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CAMPOSTOMA SP.	STONEROLLER	CARP	GOLDEN SHINER	EMERALD SHINER	MIMIC SHINER	SHINER	SILVERBAND SHINER	TOTAL
810327	0	0	0	0	0	0	0	0	0	0	0	13
	0.00	0.00	0.00	.	.	.	.	.	.	0.00	.	0.17
810410	0	0	0	0	0	0	0	0	0	0	0	54
	0.00	0.00	0.00	.	.	.	.	.	.	0.00	.	0.72
810429	0	5	0	0	0	0	0	0	0	0	0	19
	0.00	0.07	0.00	.	.	.	.	.	.	0.00	.	0.25
810509	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810512	1	1	0	0	0	0	0	0	0	2	0	43
	0.01	0.01	0.00	.	.	.	.	.	.	0.03	.	0.58
810523	0	13	1	0	0	0	0	0	0	0	0	27
	0.00	0.17	0.01	.	.	.	.	.	.	0.00	.	0.36
810605	0	0	0	0	0	0	0	0	0	0	0	12
	0.00	0.00	0.00	.	.	.	.	.	.	0.00	.	0.16
810619	2	1	0	0	0	0	0	0	0	0	0	13
	0.03	0.01	0.00	.	.	.	.	.	.	0.00	.	0.17
810703	119	1	0	0	0	0	0	0	0	0	0	126
	1.60	0.01	0.00	.	.	.	.	.	.	0.00	.	1.69
810717	135	0	0	0	0	0	0	0	0	0	0	143
	1.81	0.00	0.00	.	.	.	.	.	.	0.00	.	1.92
810731	70	50	150	0	0	0	0	0	0	0	0	282
	0.94	0.67	2.01	.	.	.	.	.	.	0.00	.	3.78
810814	6154	4	467	0	0	0	0	0	0	0	0	6663
	82.58	0.05	6.27	.	.	.	.	.	.	0.00	.	89.41
810828	0	0	0	0	0	0	0	0	0	0	0	21
	0.00	0.00	0.00	.	.	.	.	.	.	0.00	.	0.28
810912	1	0	0	0	0	0	0	0	0	0	0	36
	0.01	0.00	0.00	.	.	.	.	.	.	0.00	.	0.48
TOTAL	6482	75	618	.	.	.	.	.	.	2	.	7452
	86.98	1.01	8.29	.	.	.	.	.	.	0.03	.	100.00

(CONTINUED)

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

5

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE / FREQUENCY / PERCENT	BLACKTAIL SHINER	BULLHEAD MINNOW	CYPRINIDAE	STEELCOLOR SHINER	RIVER CARPSUCKER	CHANNEL CATFISH	MOSQUITOFISH	WHITE BASS	STRIPED BASS	CENTRARCHIDAE	LEPOMIS SP.	TOTAL
810327	0	3	3	0	0	1	0	0	0	1	0	13
	.	0.04	0.04	.	0.00	0.01	.	0.00	0.00	0.01	.	0.17
810410	0	9	8	0	0	0	0	0	0	4	0	54
	.	0.12	0.11	.	0.00	0.00	.	0.00	0.00	0.05	.	0.72
810424	0	0	0	0	1	0	0	0	0	0	0	19
	.	0.00	0.00	.	0.01	0.00	.	0.00	0.00	0.00	.	0.25
810509	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810512	0	4	3	0	1	0	0	0	0	0	0	43
	.	0.05	0.04	.	0.01	0.00	.	0.00	0.00	0.00	.	0.58
810523	0	2	0	0	0	0	0	1	0	0	0	27
	.	0.03	0.00	.	0.00	0.00	.	0.01	0.00	0.00	.	0.36
810605	0	1	0	0	0	0	0	0	1	0	0	12
	.	0.01	0.00	.	0.00	0.00	.	0.00	0.01	0.00	.	0.16
810619	0	1	0	0	0	0	0	0	0	0	0	13
	.	0.01	0.00	.	0.00	0.00	.	0.00	0.00	0.00	.	0.17
810703	0	0	0	0	0	0	0	0	0	4	0	126
	.	0.00	0.00	.	0.00	0.00	.	0.00	0.00	0.05	.	1.69
810717	0	0	2	0	0	0	0	0	0	5	0	143
	.	0.00	0.03	.	0.00	0.00	.	0.00	0.00	0.07	.	1.92
810731	0	1	4	0	0	0	0	0	0	2	0	282
	.	0.01	0.05	.	0.00	0.00	.	0.00	0.00	0.03	.	3.78
810814	0	7	19	0	0	0	0	0	0	9	0	6663
	.	0.09	0.25	.	0.00	0.00	.	0.00	0.00	0.12	.	89.41
810828	0	1	3	0	0	0	0	0	0	0	0	21
	.	0.01	0.04	.	0.00	0.00	.	0.00	0.00	0.00	.	0.28
810912	0	3	1	0	0	0	0	0	0	3	0	36
	.	0.04	0.01	.	0.00	0.00	.	0.00	0.00	0.04	.	0.48
TOTAL	.	32	43	.	2	1	.	1	1	28	.	7452
	.	0.43	0.58	.	0.03	0.01	.	0.01	0.01	0.38	.	100.00

(CONTINUED)

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=BACKWATER REF A

DATE SPECIES

FREQUENCY / PERCENT	GREEN SUNFISH	ORANGESPOTTED SUN	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810327	0	0	3	0	1	1	0	0	0	13
	0.00	0.00	0.04	0.00	0.01	0.01	0.00	0.00	0.00	0.17
810410	0	7	22	0	1	0	0	3	0	54
	0.00	0.09	0.30	0.00	0.01	0.00	0.00	0.04	0.00	0.72
810424	0	0	5	0	1	0	0	4	3	19
	0.00	0.00	0.07	0.00	0.01	0.00	0.00	0.05	0.04	0.25
810509	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810512	1	0	7	5	0	0	0	0	18	43
	0.01	0.00	0.09	0.07	0.00	0.00	0.00	0.00	0.24	0.58
810523	0	0	2	3	0	0	0	0	5	27
	0.00	0.00	0.03	0.04	0.00	0.00	0.00	0.00	0.07	0.36
810605	0	0	0	6	0	0	0	0	4	12
	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.05	0.16
810619	0	0	2	1	0	0	4	0	2	13
	0.00	0.00	0.03	0.01	0.00	0.00	0.05	0.00	0.03	0.17
810703	0	0	1	0	0	0	0	0	1	126
	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	1.69
810717	0	0	1	0	0	0	0	0	0	143
	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.92
810731	0	0	0	1	0	0	4	0	0	282
	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.00	0.00	3.78
810814	0	0	0	1	0	0	1	0	1	6663
	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.01	89.41
810828	0	0	0	0	0	0	1	0	16	21
	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.21	0.28
810912	0	0	4	2	1	0	8	0	13	36
	0.00	0.00	0.05	0.03	0.01	0.00	0.11	0.00	0.17	0.48
TOTAL	1	7	47	19	4	1	18	7	63	7452
	0.01	0.09	0.63	0.25	0.05	0.01	0.24	0.09	0.85	100.00

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CAMPOSTOMA SP.	STONEROLLER	CARP	GOLDEN SHINER	EMERALD SHINER	MIMIC SHINER	SHINED SHINER	SILVERBAND SHINE	TOTAL
810327	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810410	0	0	0	0	0	0	0	2	0	0	0	117
	0.00	0.00	.	.	.	0.00	.	0.04	.	0.00	.	2.37
810424	0	0	0	0	0	0	0	1	0	1	0	29
	0.00	0.00	.	.	.	0.00	.	0.02	.	0.02	.	0.59
810509	0	0	0	0	0	0	0	1	0	0	0	81
	0.00	0.00	.	.	.	0.00	.	0.02	.	0.00	.	1.64
810512	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810523	0	139	0	0	0	2	0	0	0	0	0	157
	0.00	2.82	.	.	.	0.04	.	0.00	.	0.00	.	3.18
810605	1	1	0	0	0	0	0	0	0	0	0	165
	0.02	0.02	.	.	.	0.00	.	0.00	.	0.00	.	3.34
810619	0	0	0	0	0	0	0	0	0	0	0	11
	0.00	0.00	.	.	.	0.00	.	0.00	.	0.00	.	0.22
810703	0	0	0	0	0	0	0	0	0	0	0	10
	0.00	0.00	.	.	.	0.00	.	0.00	.	0.00	.	0.20
810717	1	0	0	0	0	0	0	0	0	0	0	9
	0.02	0.00	.	.	.	0.00	.	0.00	.	0.00	.	0.18
810731	1	0	0	0	0	0	0	0	0	0	0	570
	0.02	0.00	.	.	.	0.00	.	0.00	.	0.00	.	11.55
810814	1	0	0	0	0	0	0	0	0	11	0	351
	0.02	0.00	.	.	.	0.00	.	0.00	.	0.22	.	7.12
810828	1	0	0	0	0	0	0	0	0	6	0	496
	0.02	0.00	.	.	.	0.00	.	0.00	.	0.12	.	10.05
810912	0	0	0	0	0	0	0	0	0	6	0	2937
	0.00	0.00	.	.	.	0.00	.	0.00	.	0.12	.	59.54
TOTAL	5	140	.	.	.	2	.	4	.	24	.	4933
	0.10	2.84	.	.	.	0.04	.	0.08	.	0.49	.	100.00

(CONTINUED)

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE 8

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	BLACKTAIL SHINER	BULLHEAD MINNOW	CYPRINIDAE	STEELCOLOR SHINE	RIVER CARPSUCKER	CHANNEL CATFISH	MOSQUITOFISH	WHITE BASS	STRIPED BASS	CENTRARCHIDAE SP	LEPOMIS SP.	TOTAL
810327	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810410	0	0	0	0	0	0	0	0	0	0	0	117
	.	0.00	0.00	0.00	.	.	.	.	.	0.00	0.00	2.37
810424	0	0	0	0	0	0	0	0	0	0	0	29
	.	0.00	0.00	0.00	.	.	.	.	.	0.00	0.00	0.59
810509	0	0	0	0	0	0	0	0	0	0	0	81
	.	0.00	0.00	0.00	.	.	.	.	.	0.00	0.00	1.64
810512	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810523	0	0	0	0	0	0	0	0	0	0	0	157
	.	0.00	0.00	0.00	.	.	.	.	.	0.00	0.00	3.18
810605	0	0	0	0	0	0	0	0	0	0	0	165
	.	0.00	0.00	0.00	.	.	.	.	.	0.00	0.00	3.34
810619	0	0	0	0	0	0	0	0	0	0	0	11
	.	0.00	0.00	0.00	.	.	.	.	.	0.00	0.00	0.22
810703	0	0	0	0	0	0	0	0	0	0	0	10
	.	0.00	0.00	0.00	.	.	.	.	.	0.00	0.00	0.20
810717	0	0	0	0	0	0	0	0	0	0	0	9
	.	0.00	0.00	0.00	.	.	.	.	.	0.00	0.00	0.18
810731	0	0	9	0	0	0	0	0	0	0	1	570
	.	0.00	0.18	0.00	.	.	.	.	.	0.00	0.02	11.55
810814	0	16	9	0	0	0	0	0	0	1	0	351
	.	0.32	0.18	0.00	.	.	.	.	.	0.02	0.00	7.12
810828	0	15	13	0	0	0	0	0	0	1	2	496
	.	0.30	0.26	0.00	.	.	.	.	.	0.02	0.04	10.05
810912	0	3	4	2	0	0	0	0	0	1	0	2937
	.	0.06	0.08	0.04	.	.	.	.	.	0.02	0.00	59.54
TOTAL	.	34	35	2	.	.	.	.	.	3	3	4933
	.	0.69	0.71	0.04	.	.	.	.	.	0.06	0.06	100.00

(CONTINUED)

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=INTAKE REF B

DATE / FREQUENCY / PERCENT	GREEN SUNFISH	ORANGESPOTTED SUN	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810327	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810410	0	0	0	0	0	0	0	2	113	117
	0.00	.	0.00	0.00	0.00	.	0.00	0.04	2.29	2.37
810424	0	0	0	0	0	0	0	0	[illegible]	29
	0.00	.	0.00	0.00	0.00	.	0.00	0.00	0.	0.59
810509	0	0	7	2	0	0	1	0	70	81
	0.00	.	0.14	0.04	0.00	.	0.02	0.00	1.42	1.64
810512	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810523	0	0	1	2	0	0	0	0	13	157
	0.00	.	0.02	0.04	0.00	.	0.00	0.00	0.26	3.18
810605	0	0	0	1	0	0	0	1	161	165
	0.00	.	0.00	0.02	0.00	.	0.00	0.02	3.26	3.34
810619	0	0	0	4	0	0	1	0	6	11
	0.00	.	0.00	0.08	0.00	.	0.02	0.00	0.12	0.22
810703	0	0	0	2	0	0	8	0	0	10
	0.00	.	0.00	0.04	0.00	.	0.16	0.00	0.00	0.20
810717	0	0	1	0	0	0	0	0	7	9
	0.00	.	0.02	0.00	0.00	.	0.00	0.00	0.14	0.18
810731	0	0	0	0	1	0	486	0	72	570
	0.00	.	0.00	0.00	0.02	.	9.85	0.00	1.46	11.55
810814	0	0	0	2	0	0	191	0	120	351
	0.00	.	0.00	0.04	0.00	.	3.87	0.00	2.43	7.12
810828	1	0	1	1	0	0	307	0	148	496
	0.02	.	0.02	0.02	0.00	.	6.22	0.00	3.00	10.05
810912	0	0	0	1	0	0	656	2	2262	2937
	0.00	.	0.00	0.02	0.00	.	13.30	0.04	45.85	59.54
TOTAL	1	.	10	15	1	.	1650	5	2999	4933
	0.02	.	0.20	0.30	0.02	.	33.45	0.10	60.79	100.00

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CAMPOSTOMA SP.	STONEROLLER	CARP	GOLDEN SHINER	EMERALD SHINER	MIMIC SHINER	SHINER	SILVERBAND SHINER	TOTAL
810327	0	6	0	0	0	0	1	11	0	50	0	168
	0.00	0.27	0.00	.	.	.	0.04	0.49	0.00	2.24	0.00	7.54
810410	0	0	0	0	0	0	0	0	0	9	0	25
	0.00	0.00	0.00	.	.	.	0.00	0.00	0.00	0.40	0.00	1.12
810424	0	7	0	0	0	0	1	8	0	2	0	37
	0.00	0.31	0.00	.	.	.	0.04	0.36	0.00	0.09	0.00	1.66
810509	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810512	14	0	0	0	0	0	0	0	0	3	0	149
	0.63	0.00	0.00	.	.	.	0.00	0.00	0.00	0.13	0.00	6.69
810523	65	5	2	0	0	0	0	2	1	5	1	305
	2.92	0.22	0.09	.	.	.	0.00	0.09	0.04	0.22	0.04	13.69
810605	2	5	2	0	0	0	0	15	0	4	0	394
	0.09	0.22	0.09	.	.	.	0.00	0.67	0.00	0.18	0.00	17.68
81061[illegible]	0	0	0	0	0	0	0	0	0	2	0	6
	0.00	0.00	0.00	.	.	.	0.00	0.00	0.00	0.09	0.00	0.27
810703	0	0	0	0	0	0	0	0	0	0	0	17
	0.00	0.00	0.00	.	.	.	0.00	0.00	0.00	0.00	0.00	0.76
810717	2	1	0	0	0	0	0	0	0	0	0	69
	0.09	0.04	0.00	.	.	.	0.00	0.00	0.00	0.00	0.00	3.10
810731	0	0	0	0	0	0	0	0	0	0	0	2
	0.00	0.00	0.00	.	.	.	0.00	0.00	0.00	0.00	0.00	0.09
810814	0	0	0	0	0	0	0	0	0	0	0	27
	0.00	0.00	0.00	.	.	.	0.00	0.00	0.00	0.00	0.00	1.21
810828	50	1	5	0	0	0	1	0	3	3	1	352
	2.24	0.04	0.22	.	.	.	0.04	0.00	0.13	0.13	0.04	15.80
810912	2	0	5	0	0	0	0	0	7	2	0	677
	0.09	0.00	0.22	.	.	.	0.00	0.00	0.31	0.09	0.00	30.39
TOTAL	135	25	14	.	.	.	3	36	11	80	2	2228
	6.06	1.12	0.63	.	.	.	0.13	1.62	0.49	3.59	0.09	100.00

(CONTINUED)

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE 11

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	BLACKTAIL SHINER	BULLHEAD MINNOW	CYPRINIDAE	STEELCOLOR SHINER	RIVER CARPSUCKER	CHANNEL CATFISH	MOSQUITOFISH	WHITE BASS	STRIPED BASS	CENTRARCHIDAE SP	LEPOMIS SP.	TOTAL
810327	1	11	31	0	0	0	0	0	0	0	0	168
	0.04	0.49	1.39	.	0.00	.	0.00	.	.	0.00	0.00	7.54
810410	0	3	10	0	0	0	0	0	0	1	0	25
	0.00	0.13	0.45	.	0.00	.	0.00	.	.	0.04	0.00	1.12
810424	0	10	0	0	0	0	0	0	0	0	0	37
	0.00	0.45	0.00	.	0.00	.	0.00	.	.	0.00	0.00	1.66
810509	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810512	0	18	1	0	0	0	0	0	0	0	0	149
	0.00	0.81	0.04	.	0.00	.	0.00	.	.	0.00	0.00	6.69
810523	0	20	0	0	0	0	0	0	0	0	0	305
	0.00	0.90	0.00	.	0.00	.	0.00	.	.	0.00	0.00	13.69
810605	0	8	0	0	0	0	0	0	0	0	0	394
	0.00	0.36	0.00	.	0.00	.	0.00	.	.	0.00	0.00	17.68
810619	0	0	1	0	0	0	0	0	0	0	0	6
	0.00	0.00	0.04	.	0.00	.	0.00	.	.	0.00	0.00	0.27
810703	0	0	4	0	0	0	0	0	0	12	0	17
	0.00	0.00	0.18	.	0.00	.	0.00	.	.	0.54	0.00	0.76
810717	0	1	2	0	0	0	0	0	0	38	0	69
	0.00	0.04	0.09	.	0.00	.	0.00	.	.	1.71	0.00	3.10
810731	0	0	0	0	0	0	0	0	0	0	0	2
	0.00	0.00	0.00	.	0.00	.	0.00	.	.	0.00	0.00	0.09
810814	0	1	0	0	1	0	0	0	0	0	0	27
	0.00	0.04	0.00	.	0.04	.	0.00	.	.	0.00	0.00	1.21
810828	0	18	23	0	0	0	1	0	0	18	12	352
	0.00	0.81	1.03	.	0.00	.	0.04	.	.	0.81	0.54	15.80
810912	0	3	51	0	0	0	0	0	0	1	0	677
	0.00	0.13	2.29	.	0.00	.	0.00	.	.	0.04	0.00	30.39
TOTAL	1	93	123	.	1	.	1	.	.	70	12	2228
	0.04	4.17	5.52	.	0.04	.	0.04	.	.	3.14	0.54	100.00

(CONTINUED)

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=DISCHARGE REF C

DATE / FREQUENCY / PERCENT	GREEN SUNFISH	ORANGESPOTTED SUN	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810327	0	0	1	0	0	0	0	0	56	158
	0.00	.	0.04	0.00	0.00	0.00	0.00	.	2.51	7.09
810410	0	0	0	0	0	0	0	0	2	25
	0.00	.	0.00	0.00	0.00	0.00	0.00	.	0.09	1.12
810424	0	0	0	0	0	0	1	0	8	57
	0.00	.	0.00	0.00	0.00	0.00	0.04	.	0.36	1.56
810509	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810512	1	0	1	0	6	0	37	0	68	149
	0.04	.	0.04	0.00	0.27	0.00	1.66	.	3.05	6.69
810523	0	0	0	1	1	0	65	0	137	305
	0.00	.	0.00	0.04	0.04	0.00	2.92	.	6.15	13.69
810605	0	0	1	2	0	0	15	0	340	394
	0.00	.	0.04	0.09	0.00	0.00	0.67	.	15.26	17.68
810619	0	0	0	1	0	0	2	0	0	6
	0.00	.	0.00	0.04	0.00	0.00	0.09	.	0.00	0.27
810703	0	0	0	1	0	0	0	0	0	17
	0.00	.	0.00	0.04	0.00	0.00	0.00	.	0.00	0.76
810717	0	0	10	12	1	0	1	0	1	69
	0.00	.	0.45	0.54	0.04	0.00	0.04	.	0.04	3.10
810731	0	0	2	0	0	0	0	0	0	2
	0.00	.	0.09	0.00	0.00	0.00	0.00	.	0.00	0.09
810814	0	0	0	1	0	0	4	0	20	27
	0.00	.	0.00	0.04	0.00	0.00	0.18	.	0.90	1.21
810828	0	0	33	10	0	1	144	0	28	352
	0.00	.	1.48	0.45	0.00	0.04	6.46	.	1.26	15.80
810912	0	0	4	5	0	0	346	0	251	677
	0.00	.	0.18	0.22	0.00	0.00	15.53	.	11.27	30.39
TOTAL	1	.	52	33	8	1	615	.	911	2228
	0.04	.	2.33	1.48	0.36	0.04	27.60	.	40.89	100.00

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

1

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF D

DATE / FREQUENCY / PERCENT	CLUPEIDAE	GIZZARD SHAD	THREADFIN SHAD	CAMPOSTOMA SP.	STONEROLLER	CARP	GOLDEN SHINER	EMERALD SHINER	MIMIC SHINER	SHIRED SHINER	SILVERBAND SHINE	TOTAL
810327	0	0	0	0	0	0	0	0	0	0	0	16
	0.00	0.00	0.00	0.00	0.00	.	0.00	0.00	.	0.00	.	0.13
810410	0	0	0	0	0	0	0	0	0	9	0	96
	0.00	0.00	0.00	0.00	0.00	.	0.00	0.00	.	0.07	.	0.79
810424	0	1	0	0	0	0	0	1	0	0	0	40
	0.00	0.01	0.00	0.00	0.00	.	0.00	0.01	.	0.00	.	0.33
810509	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810512	0	4	0	0	0	0	1	1	0	4	0	54
	0.00	0.03	0.00	0.00	0.00	.	0.01	0.01	.	0.03	.	0.44
810523	0	12	0	0	0	0	0	0	0	4	0	59
	0.00	0.10	0.00	0.00	0.00	.	0.00	0.00	.	0.03	.	0.48
810605	0	0	0	0	0	0	0	0	0	0	0	116
	0.00	0.00	0.00	0.00	0.00	.	0.00	0.00	.	0.00	.	0.95
810619	1	1	0	0	0	0	0	0	0	7	0	60
	0.01	0.01	0.00	0.00	0.00	.	0.00	0.00	.	0.06	.	0.49
810703	1	0	0	0	1	0	0	0	0	0	0	301
	0.01	0.00	0.00	0.00	0.01	.	0.00	0.00	.	0.00	.	2.47
810717	188	0	0	1	0	0	0	0	0	0	0	258
	1.54	0.00	0.00	0.01	0.00	.	0.00	0.00	.	0.00	.	2.12
810731	1340	778	8	0	0	0	0	1	0	3	0	3327
	11.00	6.38	0.07	0.00	0.00	.	0.00	0.01	.	0.02	.	27.30
810814	2845	12	6	0	0	0	0	0	0	1	0	3667
	23.35	0.10	0.05	0.00	0.00	.	0.00	0.00	.	0.01	.	30.09
810828	1031	88	257	0	0	0	0	8	0	15	0	2077
	8.46	0.72	2.11	0.00	0.00	.	0.00	0.07	.	0.12	.	17.04
810912	1	0	0	0	0	0	0	0	0	11	0	2116
	0.01	0.00	0.00	0.00	0.00	.	0.00	0.00	.	0.09	.	17.36
TOTAL	5408	896	271	1	1	.	1	11	.	53	.	12187
	44.38	7.35	2.22	0.01	0.01	.	0.01	0.09	.	0.43	.	100.00

(CONTINUED)

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL HEP D

DATE SPECIES

FREQUENCY / PERCENT	BLACKTAIL SHINER	BULLHEAD MINNOW	CYPRINIDAE	STEELCOLOR SHINER	RIVER CARPSUCKER	CHANNEL CATFISH	MOSQUITOFISH	WHITE BASS	STRIPED BASS	CENTRARCHIDAE SP	LEPOMIS SP.	TOTAL
810327	0	2	2	0	0	0	0	0	0	0	0	16
	.	0.02	0.02	.	.	.	0.00	0.00	.	0.00	.	0.13
810410	0	2	8	0	0	0	0	0	0	0	0	96
	.	0.02	0.07	.	.	.	0.00	0.00	.	0.00	.	0.79
810424	0	0	0	0	0	0	0	0	0	0	0	40
	.	0.00	0.00	.	.	.	0.00	0.00	.	0.00	.	0.33
810509	0	0	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	.	.	0.00
810512	0	0	0	0	0	0	0	0	0	0	0	54
	.	0.00	0.00	.	.	.	0.00	0.00	.	0.00	.	0.44
810523	0	0	0	0	0	0	0	0	0	0	0	59
	.	0.00	0.00	.	.	.	0.00	0.00	.	0.00	.	0.48
810605	0	0	0	0	0	0	0	0	0	0	0	116
	.	0.00	0.00	.	.	.	0.00	0.00	.	0.00	.	0.95
810619	0	0	1	0	0	0	0	1	0	0	0	60
	.	0.00	0.01	.	.	.	0.00	0.01	.	0.00	.	0.49
810703	0	0	2	0	0	0	0	0	0	0	0	301
	.	0.00	0.02	.	.	.	0.00	0.00	.	0.00	.	2.47
810717	0	2	8	0	0	0	0	0	0	1	0	258
	.	0.02	0.07	.	.	.	0.00	0.00	.	0.01	.	2.12
810731	0	2	75	0	0	0	0	0	0	1	0	3327
	.	0.02	0.62	.	.	.	0.00	0.00	.	0.01	.	27.30
810814	0	18	333	0	0	0	0	0	0	8	0	3667
	.	0.15	2.73	.	.	.	0.00	0.00	.	0.07	.	30.09
810828	0	41	257	0	0	0	4	0	0	0	0	2077
	.	0.34	2.11	.	.	.	0.03	0.00	.	0.00	.	17.04
810912	0	6	107	0	0	0	1	0	0	0	0	2116
	.	0.05	0.88	.	.	.	0.01	0.00	.	0.00	.	17.36
TOTAL	.	73	798	.	.	.	5	1	.	10	.	12187
	.	0.60	6.52	.	.	.	0.04	0.01	.	0.08	.	100.00

(CONTINUED)

Table 31

SPECIES NUMBERS OF FISH PER DATE BY STATION FOR 1981 FOR SHORELINE SEINE

TABLE OF DATE BY SPECIES
CONTROLLING FOR STATION=CHANNEL REF 0

DATE / FREQUENCY / PERCENT	GREEN SUNFISH	ORANGESPOTTED SUN	BLUEGILL	LONGEAR SUNFISH	LARGEMOUTH BASS	FRESHWATER DRUM	ATHERINIDAE-SILV	BROOK SILVERSIDE	MISSISSIPPI SILV	TOTAL
810327	1	0	10	0	1	0	0	0	0	16
	0.01	0.00	0.08	0.00	0.01	.	0.00	0.00	0.00	0.13
810410	0	1	0	0	1	0	0	0	76	96
	0.00	0.01	0.00	0.00	0.01	.	0.00	0.00	0.62	0.79
810424	0	1	1	0	0	0	0	0	36	40
	0.00	0.01	0.01	0.00	0.00	.	0.00	0.00	0.30	0.33
810508	0	0	0	0	0	0	0	0	0	0
	.	.	.	.	.	.	.	.	.	0.00
810512	0	0	3	2	0	0	0	0	39	54
	0.00	0.00	0.02	0.02	0.00	.	0.00	0.00	0.32	0.44
810523	0	0	3	9	0	0	0	1	30	59
	0.00	0.00	0.02	0.07	0.00	.	0.00	0.01	0.25	0.48
810605	0	0	0	3	0	0	14	0	99	116
	0.00	0.00	0.00	0.02	0.00	.	0.11	0.00	0.81	0.95
810619	0	0	0	7	2	0	34	0	6	60
	0.00	0.00	0.00	0.06	0.02	.	0.28	0.00	0.05	0.49
810703	0	0	1	1	0	0	274	0	21	301
	0.00	0.00	0.01	0.01	0.00	.	2.25	0.00	0.17	2.47
810717	0	0	0	3	0	0	26	0	28	258
	0.00	0.00	0.00	0.02	0.00	.	0.21	0.00	0.23	2.12
810731	0	0	1	2	0	0	995	0	121	3327
	0.00	0.00	0.01	0.02	0.00	.	8.16	0.00	0.99	27.30
810814	0	0	0	1	1	0	384	2	55	3667
	0.00	0.00	0.00	0.01	0.01	.	3.15	0.02	0.45	30.09
810828	0	0	1	5	0	0	361	0	9	2077
	0.00	0.00	0.01	0.04	0.00	.	2.96	0.00	0.07	17.04
810912	0	0	0	2	3	0	691	0	1294	2116
	0.00	0.00	0.00	0.02	0.02	.	5.67	0.00	10.62	17.36
TOTAL	1	2	20	35	8	.	2779	3	1814	12187
	0.01	0.02	0.16	0.29	0.07	.	22.80	0.02	14.88	100.00

TABLE 32

SPECIES NUMBERS AND WEIGHTS PER STATION FOR ROTENONE 1981

OBS	STATION	SPECIES	NUMBER	WEIGHT
1	DISCHARGE REF C	SPOTTED GAR	1	0.4
2	BACKWATER REF A	GIZZARD SHAD	11115	819.3
3	DISCHARGE REF C	GIZZARD SHAD	4185	459.4
4	BACKWATER REF A	SKIPJACK HERRING	17	4.8
5	DISCHARGE REF C	SKIPJACK HERRING	2	1.0
6	BACKWATER REF A	THREADFIN SHAD	15326	155.1
7	DISCHARGE REF C	THREADFIN SHAD	415	0.7
8	BACKWATER REF A	GRASS CARP	1	15.4
9	BACKWATER REF A	CARP	144	349.5
10	DISCHARGE REF C	CARP	67	124.6
11	BACKWATER REF A	CYPRINIDAE	1139	4.6
12	DISCHARGE REF C	CYPRINIDAE	588	1.8
13	BACKWATER REF A	RIVER CARPSUCKER	176	264.8
14	DISCHARGE REF C	RIVER CARPSUCKER	159	253.9
15	BACKWATER REF A	SMALLMOUTH BUFFALO	269	579.5
16	DISCHARGE REF C	SMALLMOUTH BUFFALO	504	1261.6
17	BACKWATER REF A	BIGMOUTH BUFFALO	2	5.3
18	DISCHARGE REF C	BIGMOUTH BUFFALO	5	15.2
19	BACKWATER REF A	BLACK BUFFALO	19	75.3
20	DISCHARGE REF C	BLACK BUFFALO	6	20.9
21	BACKWATER REF A	GOLDEN REDHORSE	2	3.1
22	BACKWATER REF A	YELLOW BULLHEAD	1	0.4
23	BACKWATER REF A	CHANNEL CATFISH	1082	172.6
24	DISCHARGE REF C	CHANNEL CATFISH	1504	226.7
25	BACKWATER REF A	BLUE CATFISH	176	35.8
26	DISCHARGE REF C	BLUE CATFISH	27	6.1
27	BACKWATER REF A	FLATHEAD CATFISH	12	22.5
28	DISCHARGE REF C	FLATHEAD CATFISH	8	10.3
29	BACKWATER REF A	AMERICAN EEL	2	4.3
30	BACKWATER REF A	WHITE BASS	67	34.0
31	DISCHARGE REF C	WHITE BASS	16	2.1
32	BACKWATER REF A	STRIPED BASS	68	45.7
33	BACKWATER REF A	WARMOUTH	179	8.7
34	DISCHARGE REF C	WARMOUTH	171	9.3
35	BACKWATER REF A	GREEN SUNFISH	262	11.1
36	DISCHARGE REF C	GREEN SUNFISH	361	10.8
37	BACKWATER REF A	ORANGESPOTTED SUNFISH	857	4.4
38	DISCHARGE REF C	ORANGESPOTTED SUNFISH	123	1.0
39	BACKWATER REF A	BLUEGILL	1924	74.1
40	DISCHARGE REF C	BLUEGILL	4622	162.1
41	BACKWATER REF A	LONGEAR SUNFISH	1133	29.6
42	DISCHARGE REF C	LONGEAR SUNFISH	2742	79.0
43	BACKWATER REF A	SPOTTED BASS	2	0.1
44	BACKWATER REF A	LARGEMOUTH BASS	67	22.4
45	DISCHARGE REF C	LARGEMOUTH BASS	227	61.9
46	BACKWATER REF A	WHITE CRAPPIE	71	7.6
47	BACKWATER REF A	BLACK CRAPPIE	14	2.7
48	DISCHARGE REF C	BLACK CRAPPIE	1	0.5
49	BACKWATER REF A	FRESHWATER DRUM	3373	388.1
50	DISCHARGE REF C	FRESHWATER DRUM	3794	205.7

TABLE 33

NUMBER OF FISH PER ACRE BY STATION FOR ROTENONE 1981 14:43 FRIDAY, JANUARY 8, 1982 2

BACKWATER AREA=4.1 ACRES DISCHARGE AREA=6.75 ACRES

OBS	STATION	NUM_ACRE	LB_ACRE
1	BACKWATER REF A	4158,54	776,244
2	DISCHARGE REF C	2900,44	431,852

BAR CHART COMPARISON OF NUMBERS OF GIZZARD AND THREADFIN SHAD CAUGHT IN ROTENONE 1981 4

14:03 FRIDAY, JANUARY 8, 1982

FIGURE 5

BAR CHART COMPARISON OF WEIGHTS IN POUNDS OF GIZZARD AND THREADFIN SHAD CAUGHT IN ROTENONE 1981 5
14:43 FRIDAY, JANUARY 8, 1982

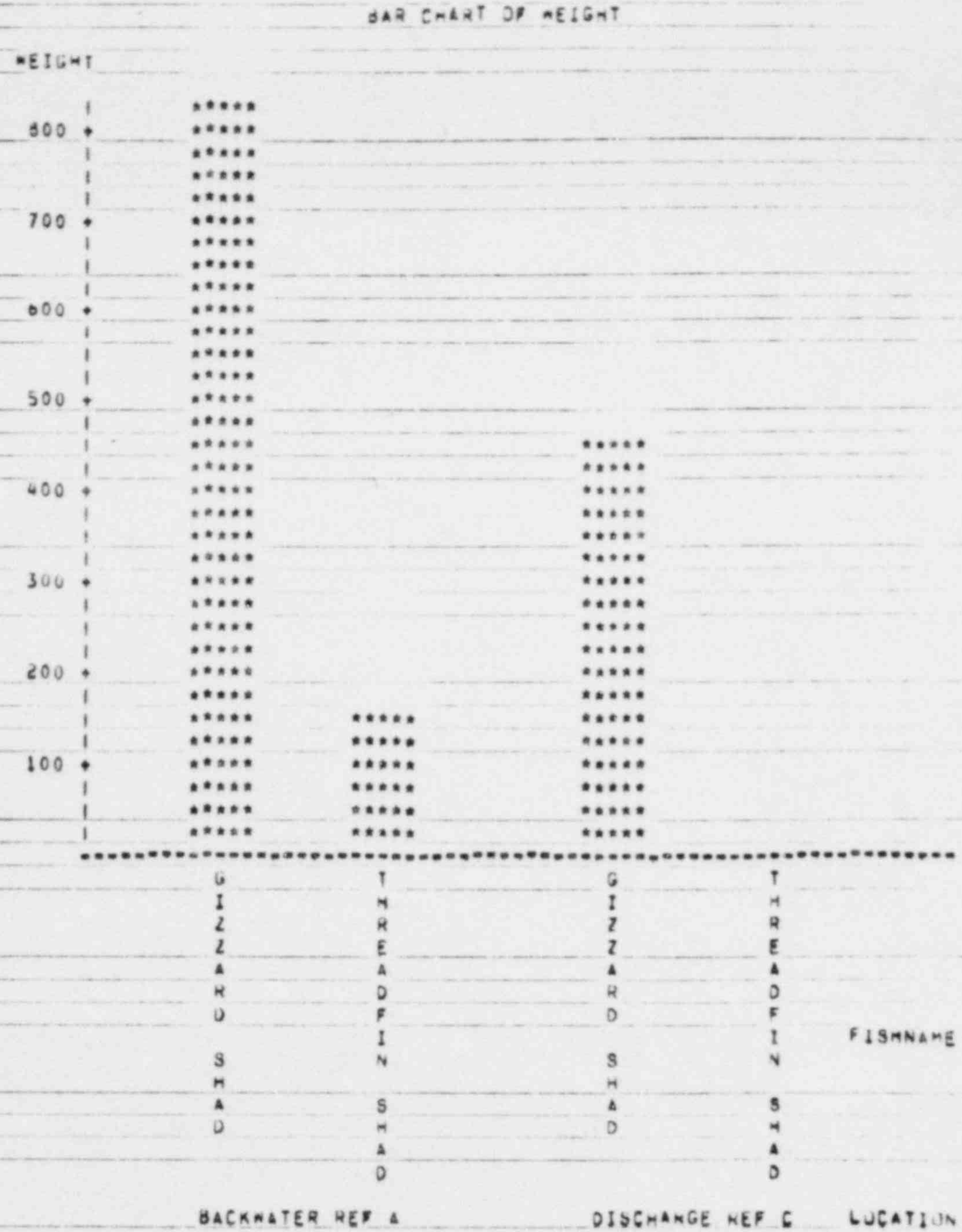


FIGURE 6

TABLE 34

DAILY AVERAGE DISSOLVED OXYGEN, WATER TEMPERATURE (C) AND OTHER PARAMETERS BY STATION FOR 1981
DARDANELLE RESERVOIR

DATE	STATION	SECCHI (INCHES)	AMBIENT AIR TEMPERATURE (C)	LAKE LEVEL (PLUS 336.00) (FEET)	DAILY AVERAGE DISSOLVED OXYGEN (PPM)	DAILY AVERAGE WATER TEMPERATURE (C)
810519	BACKWATER REF A	9	16	1.57	12.40	17.50
810519	INTAKE REF B	14	15	1.57	10.30	20.50
810519	DISCHARGE REF C	15	15	1.57	10.40	24.00
810520	CHANNEL REF D	9	18	1.57	8.95	19.00
810520	BACKWATER REF A	9	20	1.57	10.05	18.50
810520	INTAKE REF B	14	20	1.57	9.10	18.00
810520	DISCHARGE REF C	11	25	1.57	8.90	23.50
810521	CHANNEL REF D	11	26	1.49	9.65	21.00
810521	BACKWATER REF A	10	18	1.49	9.05	19.50
810521	INTAKE REF B	13	26	1.49	8.60	21.50
810521	DISCHARGE REF C	11	22	1.49	8.00	24.50
810522	CHANNEL REF D	9	27	1.61	9.85	21.50
810522	BACKWATER REF A	10	27	1.61	9.35	22.00
810522	INTAKE REF B	11	26	1.61	10.60	21.50
810522	DISCHARGE REF C	10	27	1.61	9.95	24.00
810523	CHANNEL REF D	11	27	1.79	9.55	21.00
810523	BACKWATER REF A	11	22	1.79	9.15	20.50
810523	INTAKE REF B	14	23	1.79	7.65	20.50
810523	DISCHARGE REF C	10	27	1.79	8.65	26.00
810529	CHANNEL REF D	13	26	2.15	6.80	24.00
810529	BACKWATER REF A	16	26	2.15	5.55	23.50
810529	INTAKE REF B	6	26	2.15	4.00	22.50
810529	DISCHARGE REF C	14	27	2.15	6.40	27.50
810605	CHANNEL REF D	10	24	1.70	4.80	24.50
810605	BACKWATER REF A	12	25	1.70	5.70	24.50
810605	INTAKE REF B	23	25	1.70	3.30	24.50
810605	DISCHARGE REF C	16	24	1.70	5.50	26.50
810610	BACKWATER REF A	.	31	2.11	6.55	25.50
810611	CHANNEL REF D	21	31	1.45	9.45	27.50
810611	BACKWATER REF A	14	31	1.45	9.10	27.50
810611	INTAKE REF B	29	28	1.45	9.25	26.00
810611	DISCHARGE REF C	21	31	1.45	8.65	31.50
810612	CHANNEL REF D	17	31	1.52	5.95	24.50
810612	BACKWATER REF A	15	31	1.52	6.15	27.50
810612	INTAKE REF B	27	29	1.52	6.35	26.50
810612	DISCHARGE REF C	22	31	1.52	.	.
810616	CHANNEL REF D	.	20	2.22	6.15	27.00
810616	BACKWATER REF A	.	20	2.22	9.30	26.00
810616	INTAKE REF B	.	19	2.22	9.20	26.50
810616	DISCHARGE REF C	.	20	2.22	8.10	31.00
810619	CHANNEL REF D	11	31	1.90	8.15	30.00
810619	BACKWATER REF A	10	29	1.90	8.15	26.50
810619	INTAKE REF B	30	30	1.90	9.65	29.00
810619	DISCHARGE REF C	18	33	1.90	7.05	33.00
810623	CHANNEL REF D	.	28	1.44	8.35	30.00
810623	BACKWATER REF A	.	33	1.44	8.95	29.50
810623	INTAKE REF B	.	28	1.44	9.15	29.50
810623	DISCHARGE REF C	.	28	1.44	8.05	33.00
810626	CHANNEL REF D	18	34	1.90	9.45	31.00

TABLE 34

DAILY AVERAGE DISSOLVED OXYGEN, WATER TEMPERATURE (C) AND OTHER PARAMETERS BY STATION FOR 1981
DARDANELLE RESERVOIR

DATE	STATION	SECCHI (INCHES)	AMBIENT AIR TEMPERATURE (C)	LAKE LEVEL (PLUS 336.00) (FEET)	DAILY AVERAGE DISSOLVED OXYGEN (PPM)	DAILY AVERAGE WATER TEMPERATURE (C)
810224	CHANNEL REF D	32	20	1.56	11.90	9.50
810224	BACKWATER REF A	21	13	1.56	12.10	10.00
810224	DISCHARGE REF C	29	19	1.56	11.50	10.50
810312	CHANNEL REF D	27	20	1.33	11.00	12.00
810312	BACKWATER REF A	21	17	1.33	12.95	12.50
810312	INTAKE REF B	30	20	1.33	12.30	12.50
810312	DISCHARGE REF C	30	19	1.33	12.10	12.50
810313	CHANNEL REF D	30	18	1.48	10.20	11.50
810313	BACKWATER REF A	25	20	1.48	11.50	12.50
810313	INTAKE REF B	30	9	1.48	10.15	9.75
810313	DISCHARGE REF C	27	19	1.48	11.40	12.50
810314	CHANNEL REF D	26	14	1.50	10.10	11.00
810314	BACKWATER REF A	21	15	1.50	11.50	12.50
810314	INTAKE REF B	33	11	1.50	9.40	10.50
810314	DISCHARGE REF C	25	16	1.50	10.00	11.25
810327	CHANNEL REF D	19	20	1.70	9.40	15.00
810327	BACKWATER REF A	18	25	1.70	9.70	14.50
810327	INTAKE REF B	39	23	1.70	4.60	14.00
810327	DISCHARGE REF C	24	24	1.70	11.80	20.00
810404	CHANNEL REF D	17	22	1.74	5.70	17.00
810404	BACKWATER REF A	23	21	1.74	7.15	17.00
810404	INTAKE REF B	24	23	1.74	6.15	17.50
810404	DISCHARGE REF C	18	24	1.74	8.35	23.50
810410	CHANNEL REF D	22	29	1.26	6.90	20.50
810410	BACKWATER REF A	19	28	1.26	10.30	21.50
810410	INTAKE REF B	32	28	1.26	10.60	20.00
810410	DISCHARGE REF C	22	28	1.26	9.00	25.00
810417	CHANNEL REF D	22	25	0.99	10.20	20.50
810417	BACKWATER REF A	23	25	0.99	9.85	20.50
810417	INTAKE REF B	25	25	0.99	9.00	19.50
810417	DISCHARGE REF C	20	27	0.99	9.30	24.50
810424	CHANNEL REF D	17	27	1.92	8.50	23.00
810424	BACKWATER REF A	17	27	1.92	11.70	20.50
810424	INTAKE REF B	20	28	1.92	7.55	21.50
810424	DISCHARGE REF C	18	28	1.92	9.05	26.00
810501	BACKWATER REF A	24	25	1.90	8.00	23.50
810509	INTAKE REF B	18	21	1.85	10.45	21.00
810512	CHANNEL REF D	12	25	1.95	5.90	20.50
810512	BACKWATER REF A	12	24	1.95	7.35	20.50
810512	DISCHARGE REF C	12	25	1.95	6.70	25.50
810515	CHANNEL REF D	13	19	1.55	5.30	20.50
810515	BACKWATER REF A	11	15	1.55	5.15	18.00
810515	INTAKE REF B	15	22	1.55	6.80	20.00
810515	DISCHARGE REF C	14	23	1.55	5.65	24.00
810518	CHANNEL REF D	12	26	1.40	9.05	23.00
810518	BACKWATER REF A	11	30	1.40	7.75	21.00
810518	INTAKE REF B	15	28	1.40	8.15	21.00
810518	DISCHARGE REF C	13	25	1.40	8.40	25.50
810519	CHANNEL REF D	9	15	1.57	9.10	21.50

TABLE 34

DAILY AVERAGE DISSOLVED OXYGEN, WATER TEMPERATURE (C) AND OTHER PARAMETERS BY STATION FOR 1981
DARDANELLE RESERVOIR

DATE	STATION	SECCHI (INCHES)	AMBIENT AIR TEMPERATURE (C)	LAKE LEVEL (PLUS 336.00) (FEET)	DAILY AVERAGE DISSOLVED OXYGEN (PPM)	DAILY AVERAGE WATER TEMPERATURE (C)
810626	BACKWATER REF A	21	32	1.90	8.35	31.50
810626	INTAKE REF B	26	34	1.90	8.10	30.00
810626	DISCHARGE REF C	18	34	1.90	7.55	34.50
810630	CHANNEL REF D	.	26	0.79	5.10	28.50
810630	BACKWATER REF A	.	26	0.79	5.30	29.50
810630	INTAKE REF B	.	26	0.79	4.15	28.50
810630	DISCHARGE REF C	.	26	0.79	6.45	31.50
810703	CHANNEL REF D	15	31	1.84	6.15	30.00
810703	BACKWATER REF A	16	32	1.84	7.10	30.00
810703	INTAKE REF B	13	31	1.84	7.35	30.00
810703	DISCHARGE REF C	16	31	1.84	7.25	33.00
810707	CHANNEL REF D	.	26	1.03	6.90	29.00
810707	BACKWATER REF A	.	27	1.03	7.15	29.00
810707	INTAKE REF B	.	26	1.03	5.65	29.00
810707	DISCHARGE REF C	.	27	1.03	7.70	33.50
810710	CHANNEL REF D	29	35	1.82	7.40	32.00
810710	BACKWATER REF A	25	35	1.82	7.10	31.25
810710	INTAKE REF B	60	36	1.82	7.10	31.00
810710	DISCHARGE REF C	18	36	1.82	5.65	33.50
810714	CHANNEL REF D	.	29	1.29	4.25	32.00
810714	BACKWATER REF A	.	30	1.29	4.30	31.50
810714	INTAKE REF B	.	30	1.29	5.55	30.50
810714	DISCHARGE REF C	.	30	1.29	6.40	34.00
810717	CHANNEL REF D	36	35	1.40	7.05	33.50
810717	BACKWATER REF A	24	33	1.40	7.15	32.50
810717	INTAKE REF B	45	35	1.40	7.00	33.00
810717	DISCHARGE REF C	28	36	1.40	7.00	33.50
810722	CHANNEL REF D	.	30	1.20	5.45	32.00
810722	BACKWATER REF A	.	32	1.20	6.95	31.50
810722	INTAKE REF B	.	31	1.20	5.50	32.00
810722	DISCHARGE REF C	.	30	1.20	6.30	32.00
810724	CHANNEL REF D	30	36	1.38	5.70	33.00
810724	BACKWATER REF A	22	36	1.38	7.10	33.50
810724	INTAKE REF B	41	35	1.38	6.40	34.00
810724	DISCHARGE REF C	27	37	1.38	5.60	32.50
810728	CHANNEL REF D	.	27	1.40	3.05	31.00
810728	BACKWATER REF A	.	29	1.40	7.35	31.00
810728	INTAKE REF B	.	28	1.40	6.35	30.50
810728	DISCHARGE REF C	.	27	1.40	4.20	33.50
810731	CHANNEL REF D	21	33	1.68	5.50	30.50
810731	BACKWATER REF A	20	31	1.68	5.55	28.50
810731	INTAKE REF B	31	31	1.68	6.65	30.50
810731	DISCHARGE REF C	24	33	1.68	5.35	33.00
810804	CHANNEL REF D	.	29	1.39	3.10	29.00
810804	BACKWATER REF A	.	31	1.39	5.25	30.50
810804	INTAKE REF B	.	29	1.39	4.35	29.50
810804	DISCHARGE REF C	.	31	1.39	4.55	31.50
810811	CHANNEL REF D	.	25	1.87	6.15	28.00
810811	BACKWATER REF A	.	25	1.87	6.40	29.00

TABLE 34

DAILY AVERAGE DISSOLVED OXYGEN, WATER TEMPERATURE (C) AND OTHER PARAMETERS BY STATION FOR 1981
DARDANELLE RESERVOIR

DATE	STATION	SECCHI (INCHES)	AMBIENT AIR TEMPERATURE (C)	LAKE LEVEL (PLUS 336,00) (FEET)	DAILY AVERAGE DISSOLVED OXYGEN (PPM)	DAILY AVERAGE WATER TEMPERATURE (C)
810811	INTAKE REF B	.	27	1.87	10.20	30.00
810811	DISCHARGE REF C	.	26	1.87	6.00	31.00
810812	CHANNEL REF D	23	30	1.88	5.00	28.00
810812	BACKWATER REF A	24	30	1.88	6.15	26.50
810812	INTAKE REF B	33	29	1.88	7.40	27.50
810812	DISCHARGE REF C	24	30	1.88	7.15	33.00
810813	CHANNEL REF D	24	25	1.36	7.35	28.00
810813	BACKWATER REF A	20	30	1.36	6.00	29.50
810813	INTAKE REF B	32	26	1.36	8.95	26.50
810813	DISCHARGE REF C	23	29	1.36	7.55	32.00
810814	CHANNEL REF D	26	33	1.56	7.60	30.50
810814	BACKWATER REF A	22	32	1.56	6.50	30.50
810814	INTAKE REF B	35	33	1.56	10.65	31.00
810814	DISCHARGE REF C	26	32	1.56	6.10	33.50
810818	CHANNEL REF D	.	25	1.80	5.45	27.50
810818	BACKWATER REF A	.	25	1.80	6.70	28.00
810818	INTAKE REF B	.	25	1.80	6.20	27.00
810818	DISCHARGE REF C	.	25	1.80	5.40	29.50
810825	CHANNEL REF D	.	27	1.16	9.70	29.00
810825	BACKWATER REF A	.	30	1.16	8.50	29.00
810825	INTAKE REF B	.	29	1.16	9.70	29.00
810825	DISCHARGE REF C	.	28	1.16	8.15	29.00
810828	CHANNEL REF D	21	29	1.44	6.65	28.00
810828	BACKWATER REF A	20	29	1.44	6.20	28.00
810828	INTAKE REF B	29	30	1.44	9.00	28.50
810828	DISCHARGE REF C	22	28	1.44	6.85	28.00
810829	CHANNEL REF D	19	26	1.25	6.35	27.00
810829	BACKWATER REF A	22	28	1.25	6.10	27.50
810829	INTAKE REF B	19	26	1.25	6.95	27.50
810829	DISCHARGE REF C	21	26	1.25	6.90	27.00
810830	CHANNEL REF D	20	27	1.33	7.70	28.00
810830	BACKWATER REF A	21	30	1.33	7.95	26.50
810830	INTAKE REF B	28	28	1.33	8.80	27.50
810830	DISCHARGE REF C	22	33	1.33	6.95	30.50
810901	BACKWATER REF A	.	26	1.58	7.15	29.00
810902	CHANNEL REF D	.	27	1.58	5.30	26.00
810902	INTAKE REF B	.	26	1.58	8.20	28.00
810902	DISCHARGE REF C	.	27	1.58	6.55	30.00
810907	CHANNEL REF D	.	27	1.30	6.30	28.00
810907	BACKWATER REF A	.	25	1.30	7.65	27.00
810907	INTAKE REF B	.	24	1.30	6.15	26.50
810907	DISCHARGE REF C	.	25	1.30	6.10	31.00
810912	CHANNEL REF D	18	24	1.66	7.00	26.50
810912	BACKWATER REF A	27	24	1.66	7.50	26.50
810912	INTAKE REF B	29	22	1.66	7.95	26.00
810912	DISCHARGE REF C	21	25	1.66	6.90	29.50
810915	CHANNEL REF D	.	18	1.40	7.35	24.00
810916	BACKWATER REF A	.	19	1.40	6.10	24.00
810916	INTAKE REF B	.	18	1.40	6.85	23.50

TABLE 34

DAILY AVERAGE DISSOLVED OXYGEN, WATER TEMPERATURE (C) AND OTHER PARAMETERS BY STATION FOR 1981
DARDANELLE RESERVOIR

DATE	STATION	SECCHI (INCHES)	AMBIENT AIR TEMPERATURE (C)	LAKE LEVEL (PLUS 336.00) (FEET)	DAILY AVERAGE DISSOLVED OXYGEN (PPM)	DAILY AVERAGE WATER TEMPERATURE (C)
810916	DISCHARGE REF C	.	17	1.40	4.60	24.50
810925	CHANNEL REF D	24	30	1.45	9.00	26.00
810925	BACKWATER REF A	21	30	1.45	6.50	24.50
810925	INTAKE REF B	24	30	1.45	6.60	25.00
810925	DISCHARGE REF C	19	30	1.45	6.30	24.00
811009	CHANNEL REF D	20	20	1.98	6.15	21.50
811009	BACKWATER REF A	22	21	1.98	9.00	21.00
811009	INTAKE REF B	22	21	1.98	6.65	22.00
811009	DISCHARGE REF C	20	21	1.98	7.50	23.50
811030	CHANNEL REF D	10	22	1.57	9.15	17.50
811030	BACKWATER REF A	9	22	1.57	9.00	16.00
811030	INTAKE REF B	21	23	1.57	9.45	17.00
811030	DISCHARGE REF C	19	22	1.57	10.20	19.50
811031	CHANNEL REF D	20	17	1.64	7.95	15.50
811031	BACKWATER REF A	13	17	1.64	8.50	15.50
811031	INTAKE REF B	24	17	1.64	7.60	16.00
811031	DISCHARGE REF C	22	19	1.64	9.60	18.50
811101	CHANNEL REF D	16	20	1.59	10.00	16.00
811101	BACKWATER REF A	13	19	1.59	9.70	16.50
811101	INTAKE REF B	16	18	1.59	9.15	15.50
811101	DISCHARGE REF C	16	19	1.59	10.00	21.50
811110	CHANNEL REF D	19	12	1.99	10.35	14.50
811110	BACKWATER REF A	16	14	1.99	7.55	14.00
811110	INTAKE REF B	25	11	1.99	7.35	14.00
811110	DISCHARGE REF C	19	12	1.99	9.65	16.50
811111	CHANNEL REF D	22	15	2.10	9.65	14.50
811111	BACKWATER REF A	18	15	2.10	7.15	13.50
811111	INTAKE REF B	22	15	2.10	6.10	14.50
811111	DISCHARGE REF C	20	15	2.10	6.85	20.00
811112	CHANNEL REF D	18	18	1.83	13.75	15.00
811112	BACKWATER REF A	16	17	1.83	12.45	14.50
811112	INTAKE REF B	20	17	1.83	11.50	14.50
811112	DISCHARGE REF C	19	17	1.83	10.90	17.50
811113	CHANNEL REF D	22	19	1.89	12.40	14.50
811113	BACKWATER REF A	14	15	1.89	12.40	13.50
811113	INTAKE REF B	25	18	1.89	11.65	14.50
811113	DISCHARGE REF C	21	19	1.89	12.50	17.50
811114	CHANNEL REF D	15	13	2.11	11.00	12.50
811114	BACKWATER REF A	16	17	2.11	13.75	14.50
811114	INTAKE REF B	24	16	2.11	8.85	12.50
811114	DISCHARGE REF C	22	15	2.11	10.95	17.00
811115	CHANNEL REF D	15	14	2.20	12.70	15.00
811115	BACKWATER REF A	16	17	2.20	12.85	13.00
811115	INTAKE REF B	25	12	2.20	7.30	13.50
811115	DISCHARGE REF C	24	13	2.20	11.50	16.00

TABLE 35

MONTHLY AVERAGE DISSOLVED OXYGEN, WATER TEMPERATURE (C), AND OTHER PARAMETERS BY STATION FOR 1981
DARDANELLE RESERVOIR

MONTH	STATION	MONTHLY DISSOLVED OXYGEN MEAN (PPM)	MONTHLY WATER TEMPERATURE MEAN (C)	MONTHLY SECCHI MEAN (INCHES)	MONTHLY AMBIENT AIR TEMPERATURE MEAN (C)	MONTHLY LAKE LEVEL MEAN (PLUS 336.00) (FEET)
02 FEBRUARY	CHANNEL REF D	11.90	9.50	32.00	20.00	1.56
02 FEBRUARY	BACKWATER REF A	12.10	10.00	21.00	13.00	1.56
02 FEBRUARY	DISCHARGE REF C	11.50	10.50	29.00	19.00	1.56
03 MARCH	CHANNEL REF D	10.17	12.38	25.50	18.00	1.50
03 MARCH	BACKWATER REF A	11.41	13.00	21.25	19.25	1.50
03 MARCH	INTAKE REF B	9.11	11.69	33.00	15.75	1.50
03 MARCH	DISCHARGE REF C	11.32	14.06	26.50	19.50	1.50
04 APRIL	CHANNEL REF D	8.32	20.25	19.50	25.75	1.48
04 APRIL	BACKWATER REF A	9.75	19.88	20.50	25.25	1.48
04 APRIL	INTAKE REF B	8.37	19.63	25.25	26.00	1.48
04 APRIL	DISCHARGE REF C	8.92	24.75	19.50	26.75	1.48
05 MAY	CHANNEL REF D	8.24	21.33	11.00	23.22	1.68
05 MAY	BACKWATER REF A	8.42	20.45	12.30	22.30	1.70
05 MAY	INTAKE REF B	8.98	20.72	14.44	23.00	1.68
05 MAY	DISCHARGE REF C	8.36	24.94	12.22	24.00	1.68
06 JUNE	CHANNEL REF D	7.42	27.88	15.40	28.13	1.61
06 JUNE	BACKWATER REF A	7.51	27.78	14.40	28.67	1.67
06 JUNE	INTAKE REF B	8.04	27.56	27.00	27.38	1.61
06 JUNE	DISCHARGE REF C	7.34	31.57	19.00	26.38	1.61
07 JULY	CHANNEL REF D	5.88	31.44	26.20	31.33	1.45
07 JULY	BACKWATER REF A	6.64	30.97	21.40	31.67	1.45
07 JULY	INTAKE REF B	6.39	31.17	39.00	31.44	1.45
07 JULY	DISCHARGE REF C	6.16	33.17	22.60	31.89	1.45
08 AUGUST	CHANNEL REF D	6.50	28.30	22.17	27.60	1.50
08 AUGUST	BACKWATER REF A	7.57	28.90	21.50	29.00	1.50
08 AUGUST	INTAKE REF B	8.44	28.60	29.33	28.20	1.50
08 AUGUST	DISCHARGE REF C	7.16	30.50	23.00	28.80	1.50
09 SEPTEMBER	CHANNEL REF D	6.99	26.50	21.00	25.20	1.48
09 SEPTEMBER	BACKWATER REF A	7.78	26.20	24.00	24.80	1.48
09 SEPTEMBER	INTAKE REF B	7.95	25.80	26.50	24.00	1.48
09 SEPTEMBER	DISCHARGE REF C	6.49	28.80	20.00	24.80	1.48
10 OCTOBER	CHANNEL REF D	8.42	18.17	16.67	19.67	1.73
10 OCTOBER	BACKWATER REF A	8.83	17.50	14.67	20.00	1.73
10 OCTOBER	INTAKE REF B	8.57	18.33	22.33	20.33	1.73
10 OCTOBER	DISCHARGE REF C	9.10	20.50	20.33	20.67	1.73
11 NOVEMBER	CHANNEL REF D	11.41	14.57	18.14	15.86	1.96
11 NOVEMBER	BACKWATER REF A	10.84	14.21	15.57	16.29	1.96
11 NOVEMBER	INTAKE REF B	9.16	14.14	22.43	15.29	1.96
11 NOVEMBER	DISCHARGE REF C	10.62	18.29	20.14	15.71	1.96

Table 36

Average Growth Rates in Length of Blue Catfish with Slowest and Fastest Rates Recorded for Areas A,B,C, and D and for the Entire Lake

Area	Growth Rate	I	II	III	IV	V	VI	VII	VIII	IX	X
A	Fastest	6.2	9.1	10.7	12.4						
A	Average	4.4	7.3	8.9	10.6						
A	Slowest	2.9	5.6	6.9	10.0						
B	Fastest	6.3	8.6	11.0	13.0	14.0	15.5				
B	Average	4.7	7.4	9.4	10.8	12.2	13.5				
B	Slowest	3.6	6.1	7.8	9.8	11.1	12.3				
C	Fastest	6.0	9.0	11.6	11.1						
C	Average	4.6	7.3	9.7	11.1						
C	Slowest	2.9	5.9	8.8	11.1						
D	Fastest	6.2	9.3	11.7	13.0	15.4	18.5	17.1	20.0		
D	Average	4.6	7.2	8.9	10.4	12.0	14.3	16.2	19.6		
D	Slowest	3.1	6.1	7.6	9.1	10.5	11.7	15.6	19.0		
Entire Lake	Fastest	6.3	9.3	11.7	13.0	15.4	18.5	17.1	20.0		
Entire Lake	Average	4.6	7.3	9.1	10.6	12.1	14.4	16.2	19.6		
Entire Lake	Slowest	2.9	5.6	6.9	9.1	10.5	11.7	15.6	19.0		

2800/6-70/F11238 [illegible]

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

13:09 WEDNESDAY, JANUARY 6, 1982 43

SPECIES=BLUE CATFISH AREA=BACKWATER

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

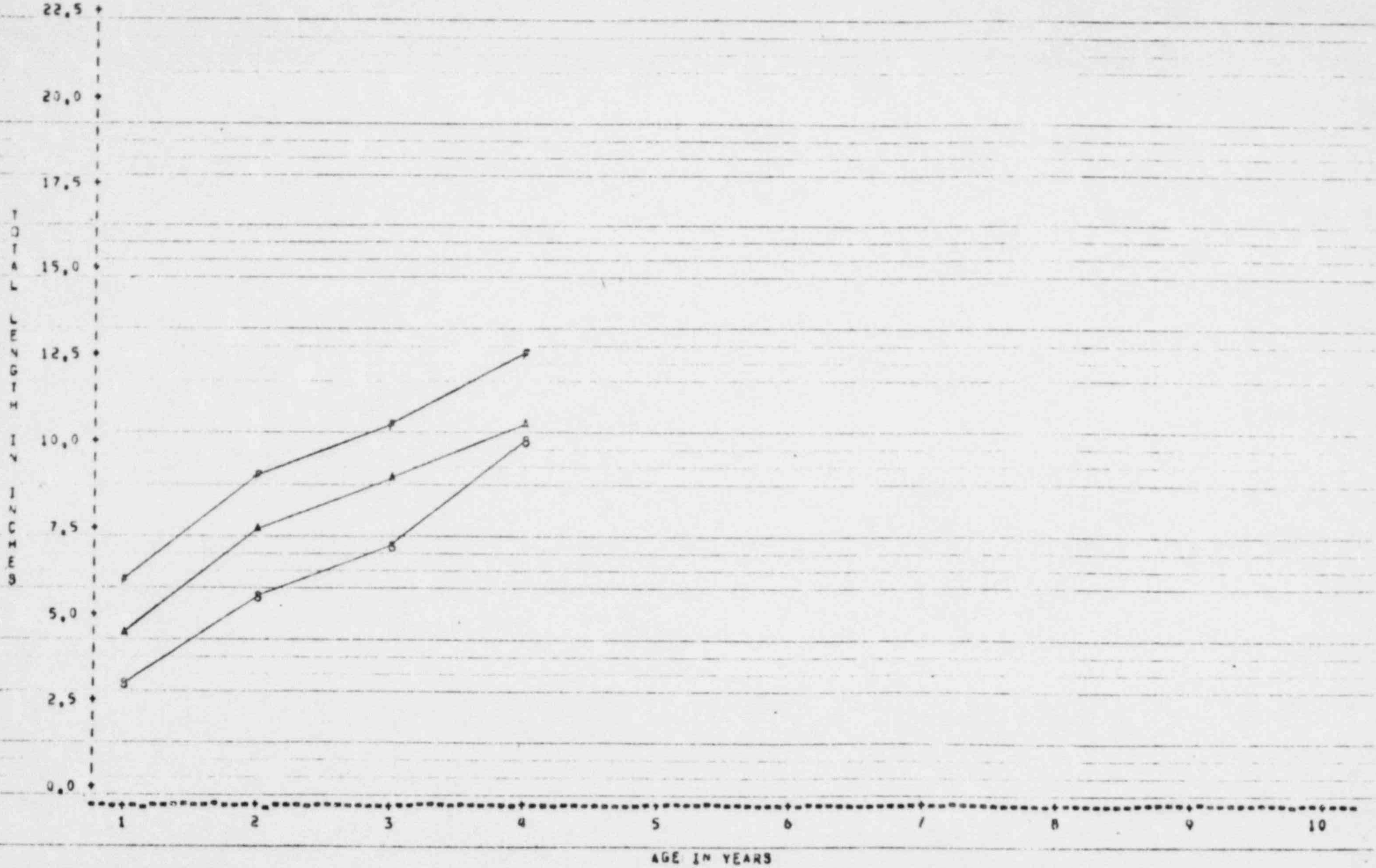
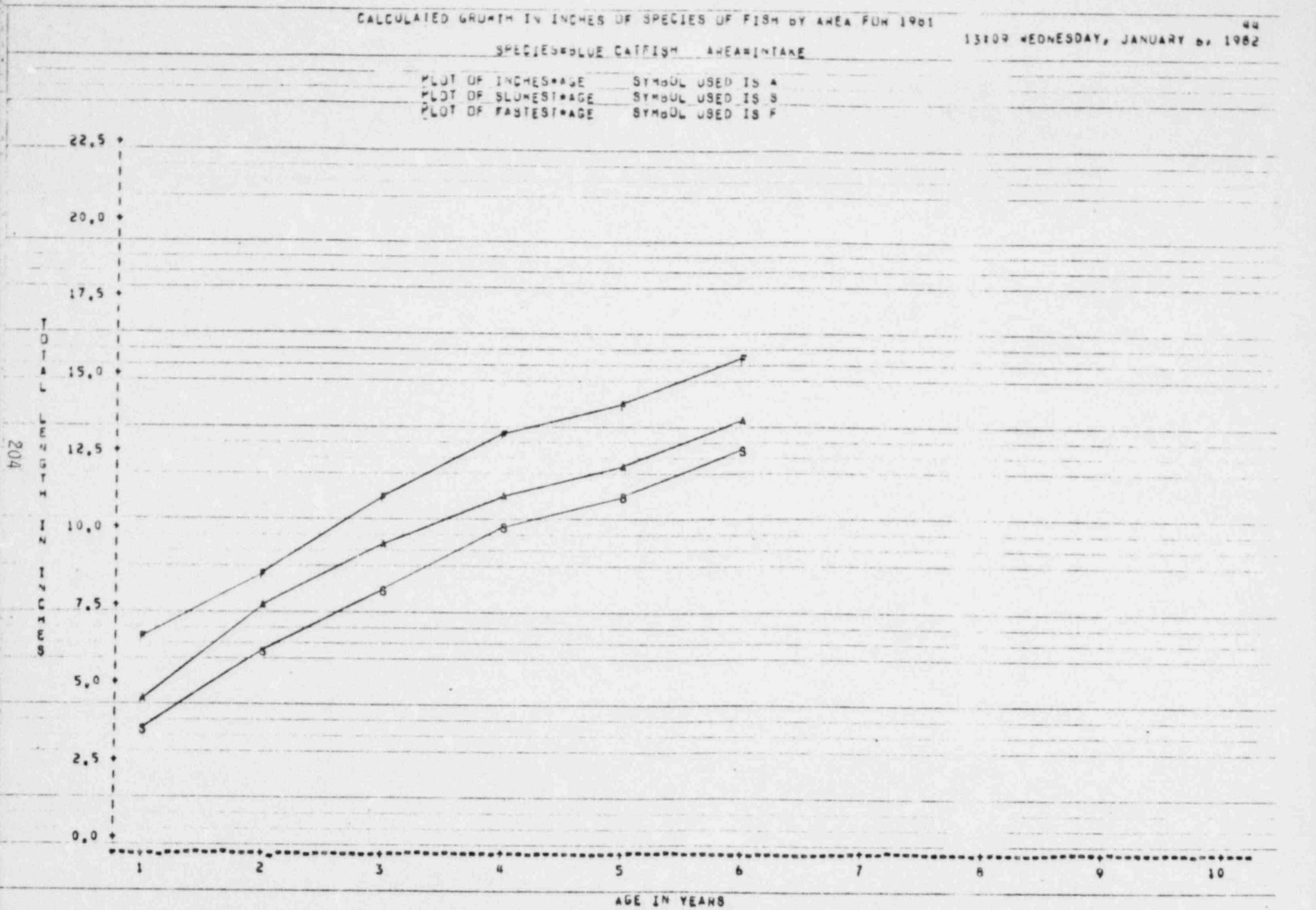


Figure 7


CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981
13:09 WEDNESDAY, JANUARY 6, 1982
44
SPECIES=BLUE CATFISH AREA=INTAKE
PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F
TOTAL LENGTH IN INCHES
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
1
2
3
4
5
6
7
8
9
10
AGE IN YEARS

204

Figure 8

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981 45

13:09 WEDNESDAY, JANUARY 6, 1982

SPECIES=BLUE CATFISH AREA=DISCHARGE

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

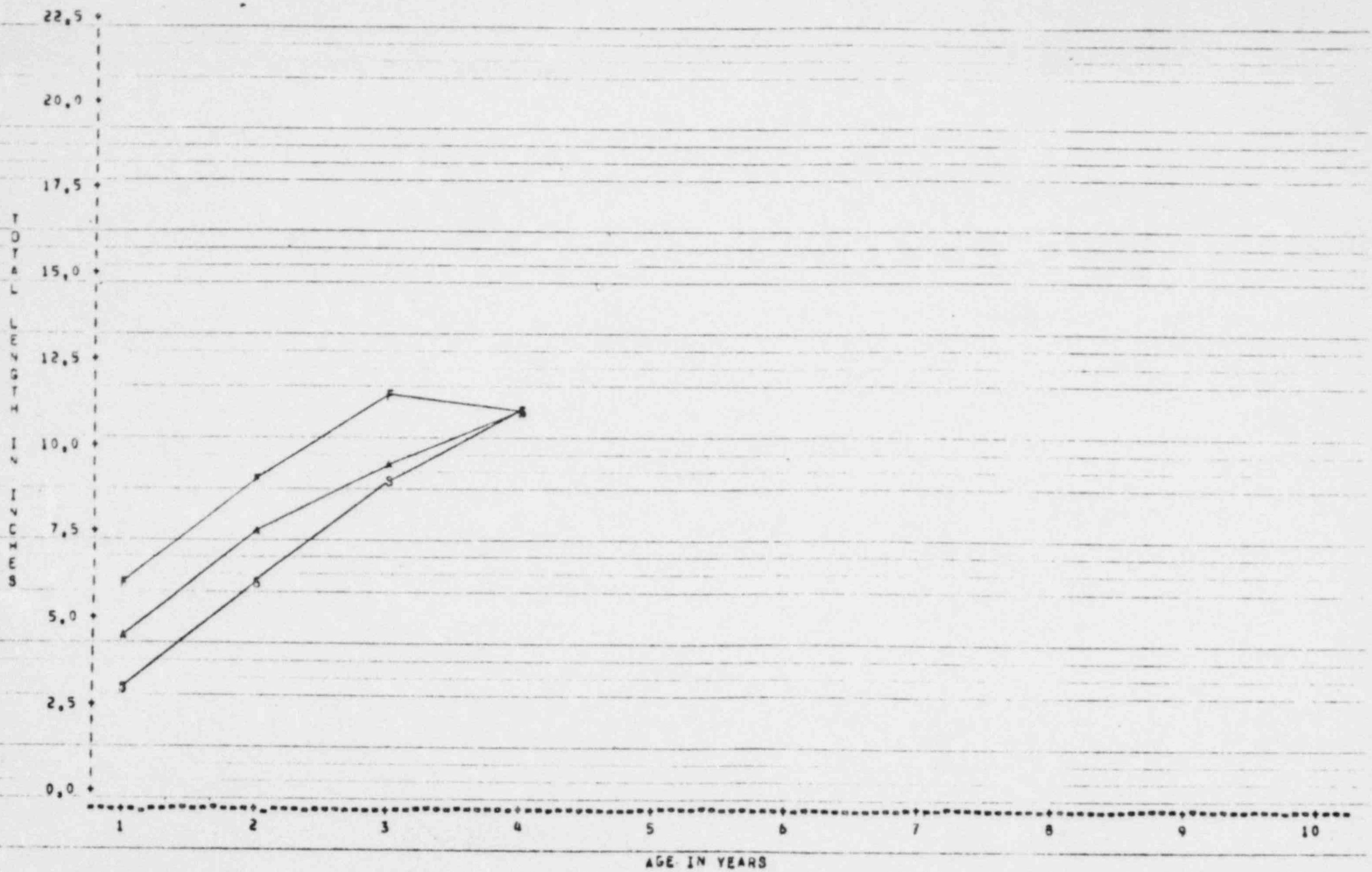
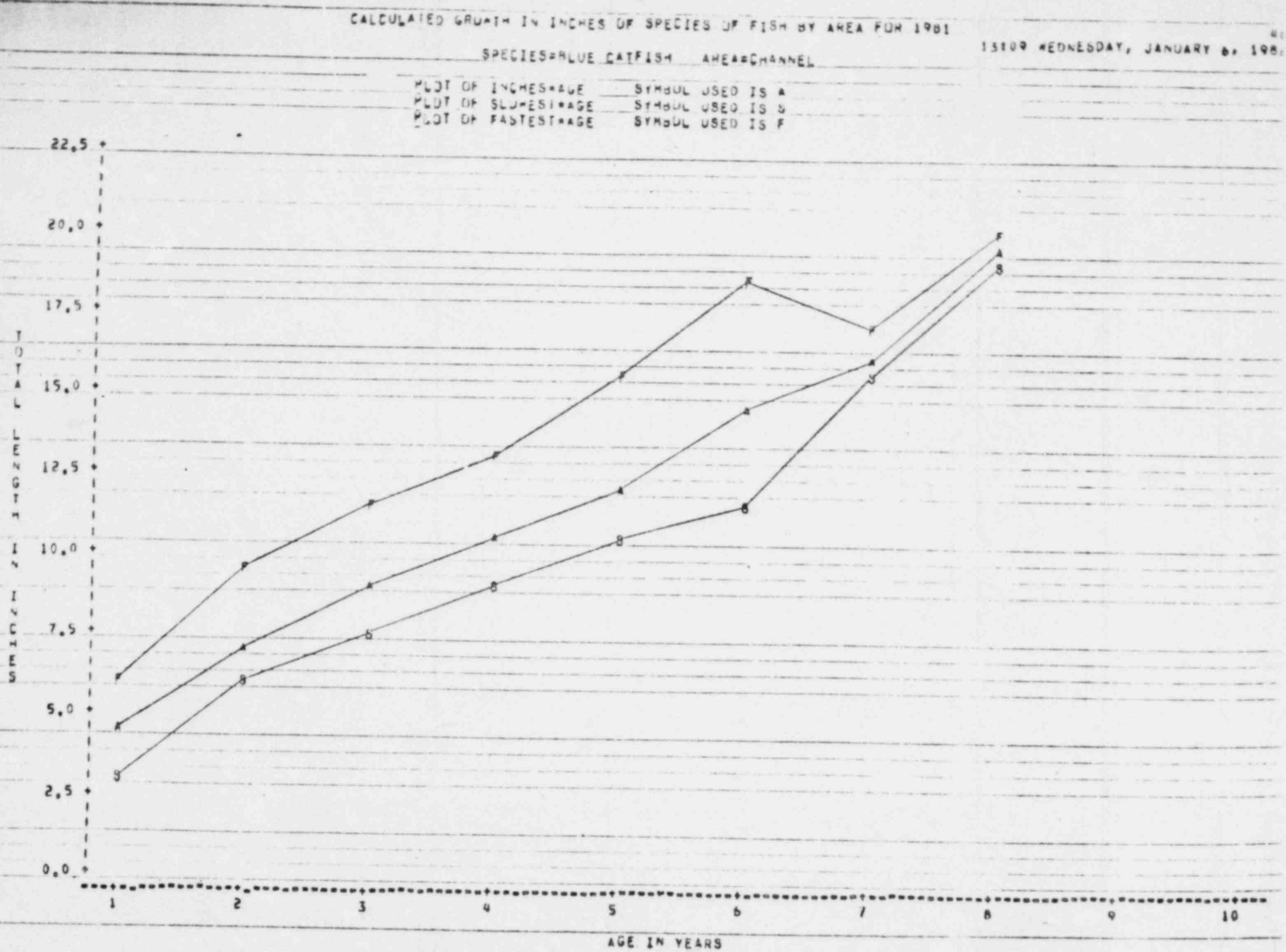


Figure 9



CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981
13:09 WEDNESDAY, JANUARY 6, 198
SPECIES=BLUE CATFISH AREA=CHANNEL
PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F
TOTAL LENGTH IN INCHES
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
1
2
3
4
5
6
7
8
9
10
AGE IN YEARS

Figure 10

Table 37

Average Growth Rates in Length of Channel Catfish with Slowest and Fastest Rates Recorded for Areas A,B,C, and D and for the Entire Lake

Area	Growth Rate	I	II	III	IV	V	VI	VII	VIII	IX	X
A	Fastest	6.0	7.7	9.8	11.1	11.9	13.0	13.5			
A	Average	3.5	6.1	7.9	9.4	10.8	12.0	12.9			
A	Slowest	2.1	4.1	6.2	7.6	8.9	10.7	12.2			
B	Fastest	4.6	7.5	9.6	11.4	12.9	15.6	11.0			
B	Average	3.7	6.3	8.0	9.7	11.5	13.3	11.0			
B	Slowest	2.8	4.9	6.1	7.7	9.4	10.1	11.0			
C	Fastest	4.9	8.3	9.7	10.9	12.2	13.3	14.2	15.1	17.7	
C	Average	3.5	6.2	8.2	9.4	11.0	12.4	14.2	15.1	17.7	
C	Slowest	2.1	4.2	6.6	8.2	9.2	11.1	14.2	15.1	17.7	
D	Fastest	4.7	8.6	9.9	11.2	12.4	13.7	15.2	14.9		
D	Average	3.4	6.4	8.3	9.8	11.1	12.4	14.1	14.8		
D	Slowest	2.6	4.7	6.3	7.9	8.8	10.5	13.3	14.7		
Entire Lake	Fastest	6.0	8.6	9.9	11.4	12.9	15.6	15.2	15.1	17.7	
Entire Lake	Average	3.5	6.2	8.1	9.6	11.1	12.5	13.5	14.9	17.7	
Entire Lake	Slowest	2.1	4.1	6.1	7.6	8.8	10.1	11.0	14.7	17.7	

2800/8-76/F11238 IGI

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

39

13:09 WEDNESDAY, JANUARY 6, 1982

SPECIES=CHANNEL CATFISH   AREA=BACKWATER

PLOT OF INCHES*AGE   SYMBOL USED IS A
PLOT OF SLOWEST*AGE   SYMBOL USED IS S
PLOT OF FASTEST*AGE   SYMBOL USED IS F

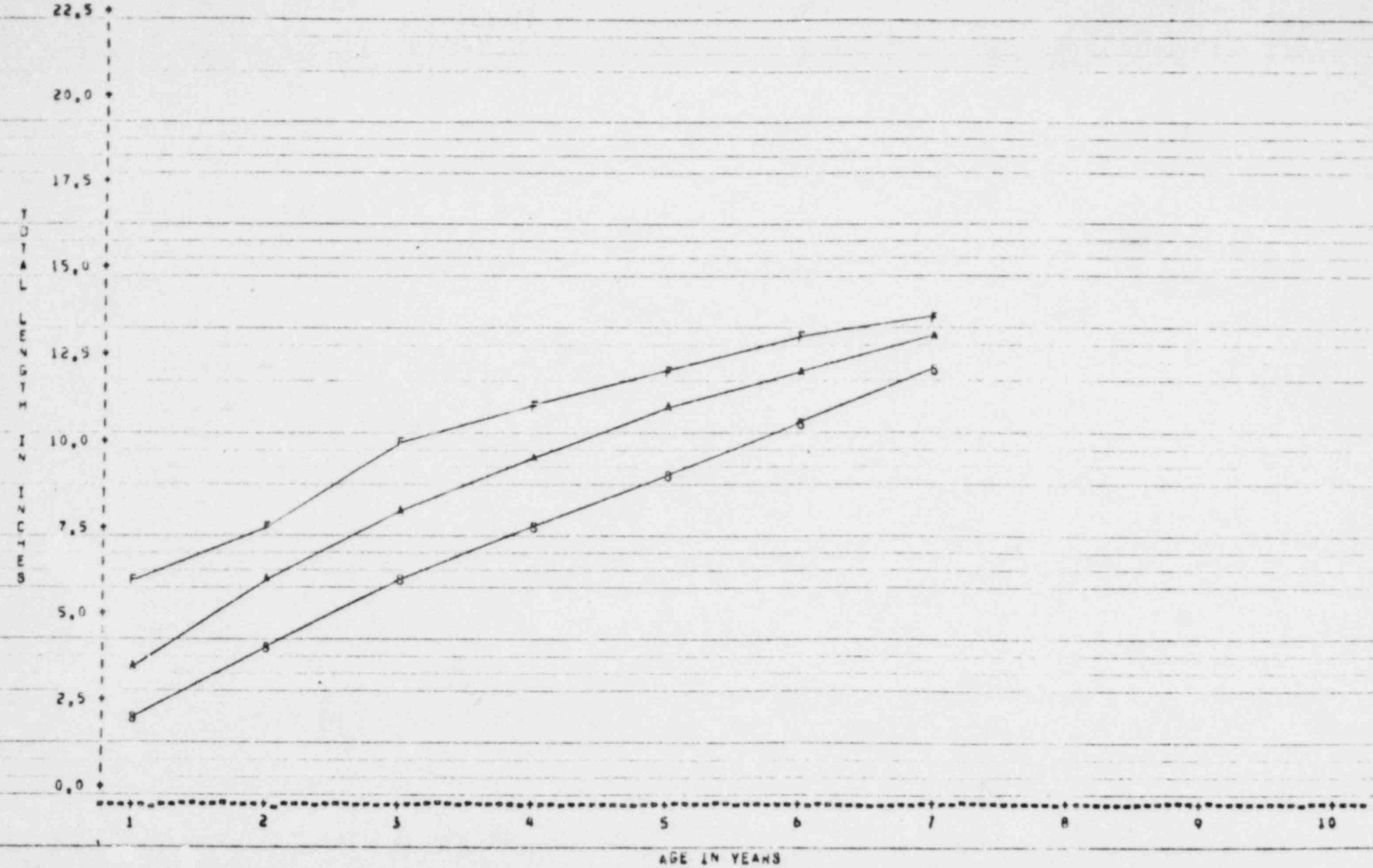


Figure 11

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

13:09 WEDNESDAY, JANUARY 6, 1982

SPECIES=CHANNEL CATFISH AREA=INTAKE

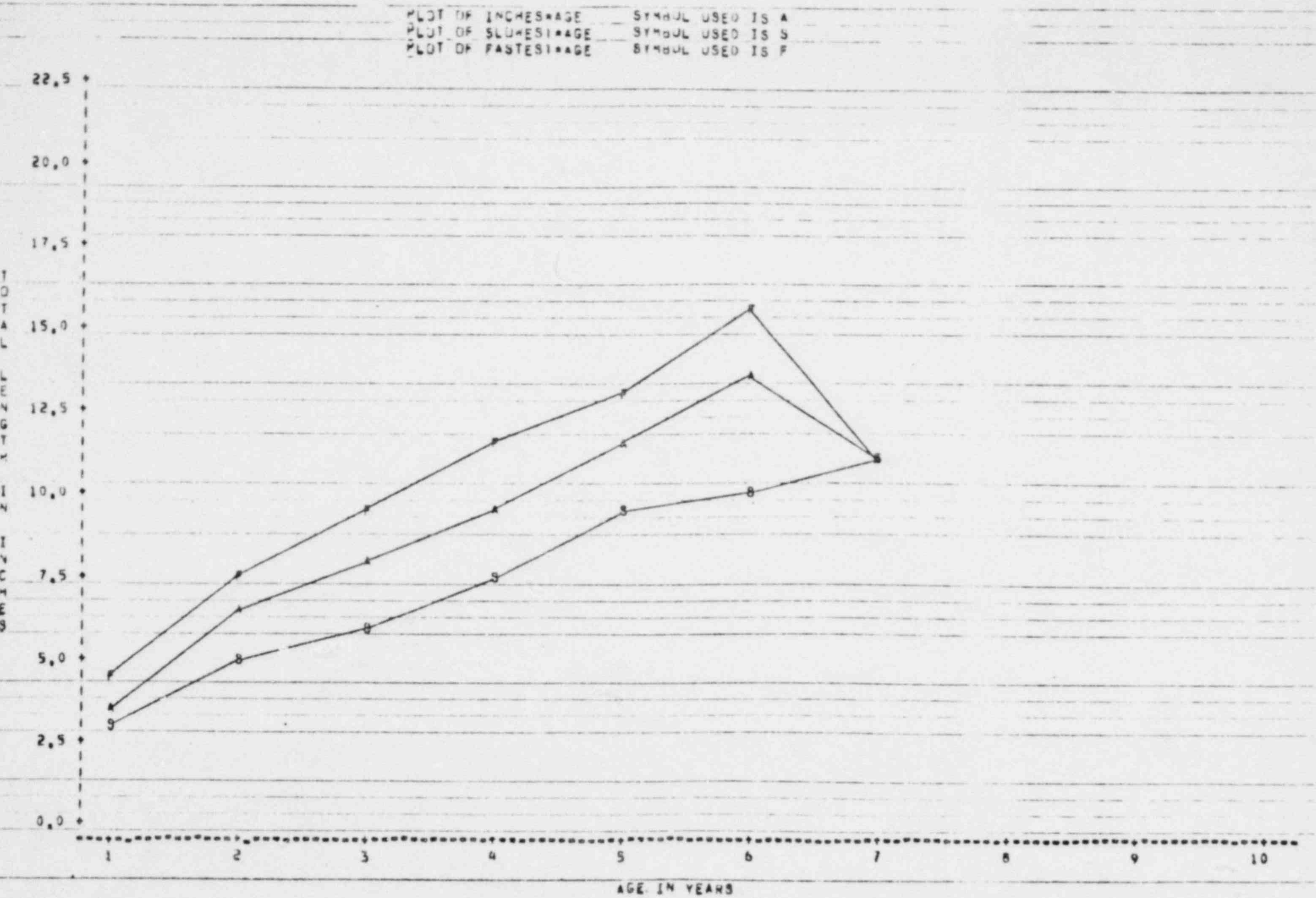


Figure 12

SPECIES=CHANNEL CATFISH AREA=DISCHARGE

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

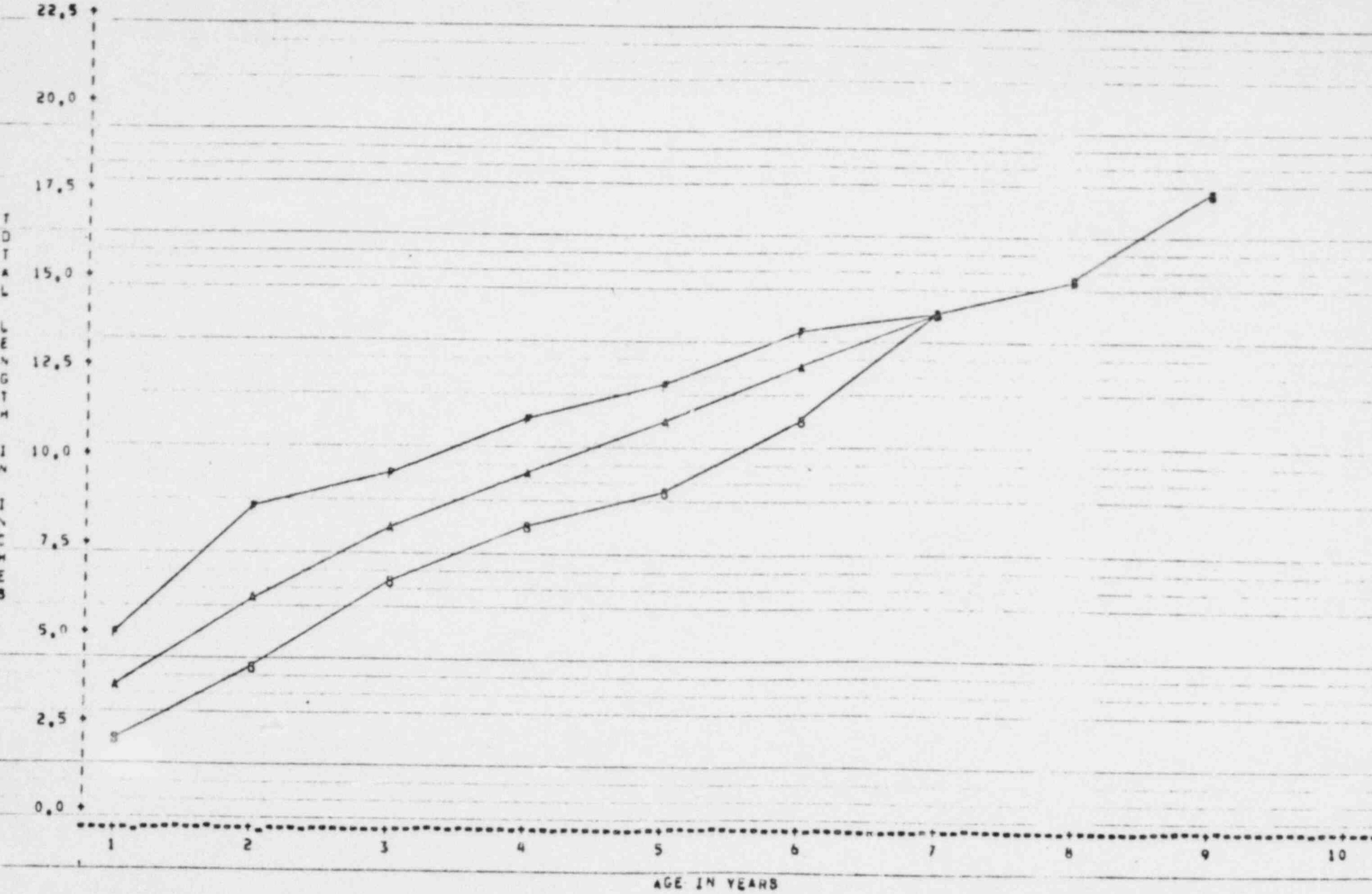


Figure 13

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

15:09 WEDNESDAY, JANUARY 6, 1982

SPECIES=CHANNEL CATFISH AREA=CHANNEL

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

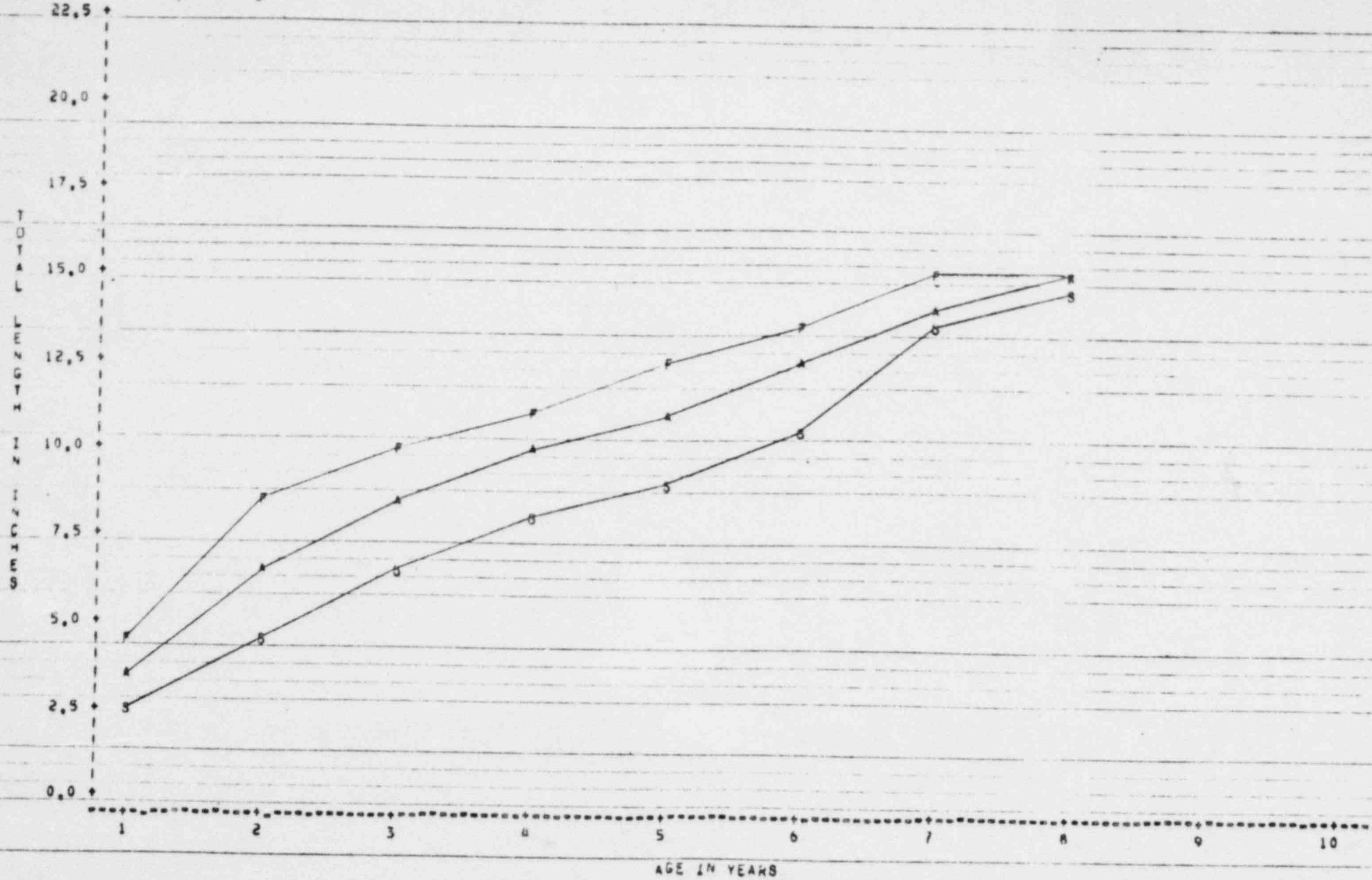


Figure 14

Table 38

Average Growth Rates in Length of Flathead Catfish with Slowest and Fastest Rates Recorded for Areas A, B, C, and D and for the Entire Lake

Area	Growth Rate	I	II	III	IV	V	VI	VII	VIII	IX	X
A	Fastest	12.5	15.9	16.6							
A	Average	9.8	15.6	16.6							
A	Slowest	7.7	15.5	16.6							
B	Fastest	7.9									
B	Average	7.9									
B	Slowest	7.9									
C	Fastest	7.7									
C	Average	6.7									
C	Slowest	5.8									
D	Fastest	9.7									
D	Average	9.7									
D	Slowest	9.7									
Entire Lake	Fastest	12.5	15.9	16.6							
Entire Lake	Average	9.1	15.6	16.6							
Entire Lake	Slowest	5.8	15.5	16.6							

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

13:09 WEDNESDAY, JANUARY 6, 1982

SPECIES=FLATHEAD CATFISH AREA=BACKWATER

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

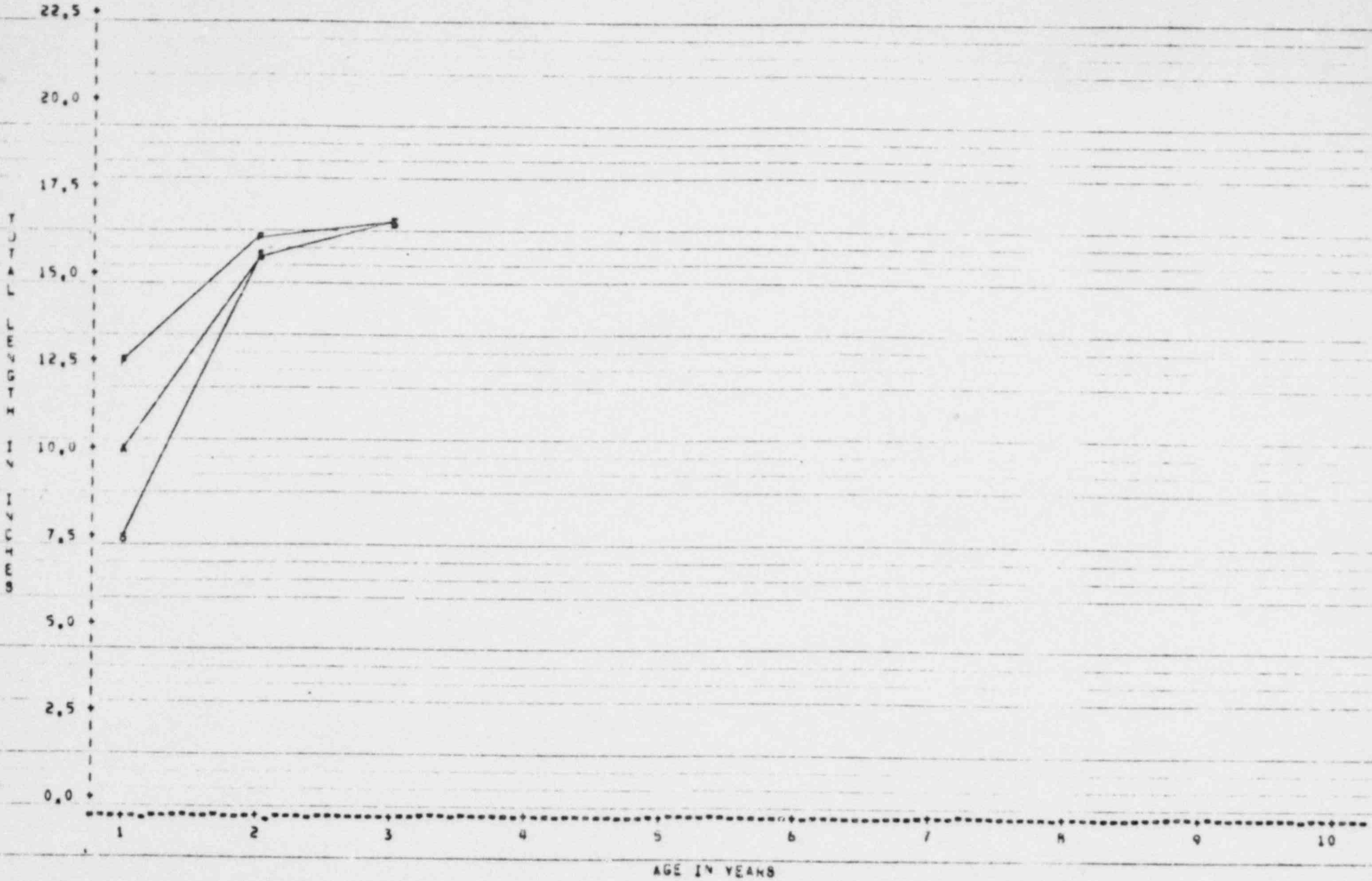


Figure 15

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SPECIES=FLATHEAD CATFISH AREA=INTAKE

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

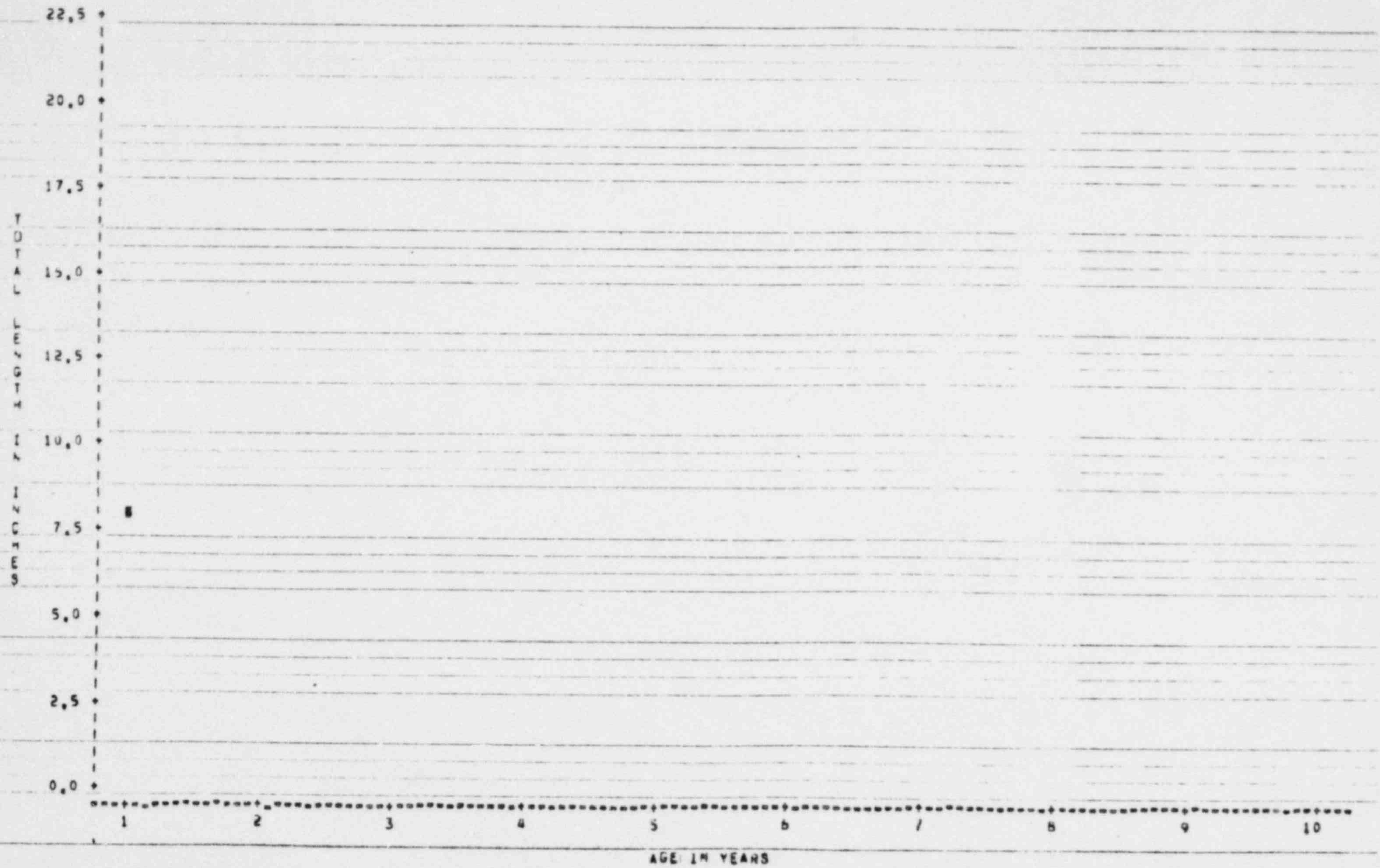


Figure 16

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SPECIES=FLATHEAD CATFISH AREA=DISCHARGE

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

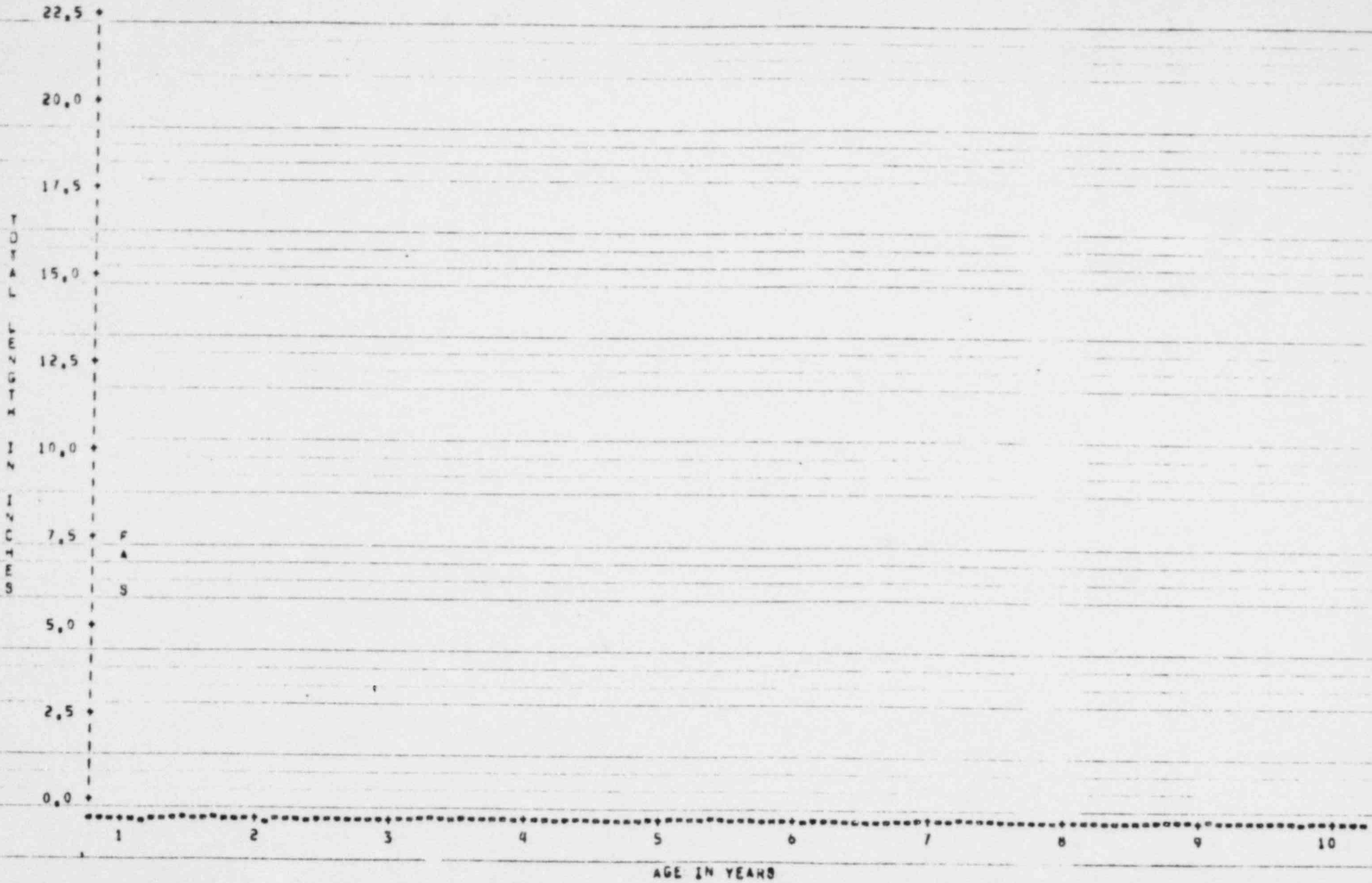


Figure 17

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SPECIES=FLATHEAD CATFISH AREA=CHANNEL

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

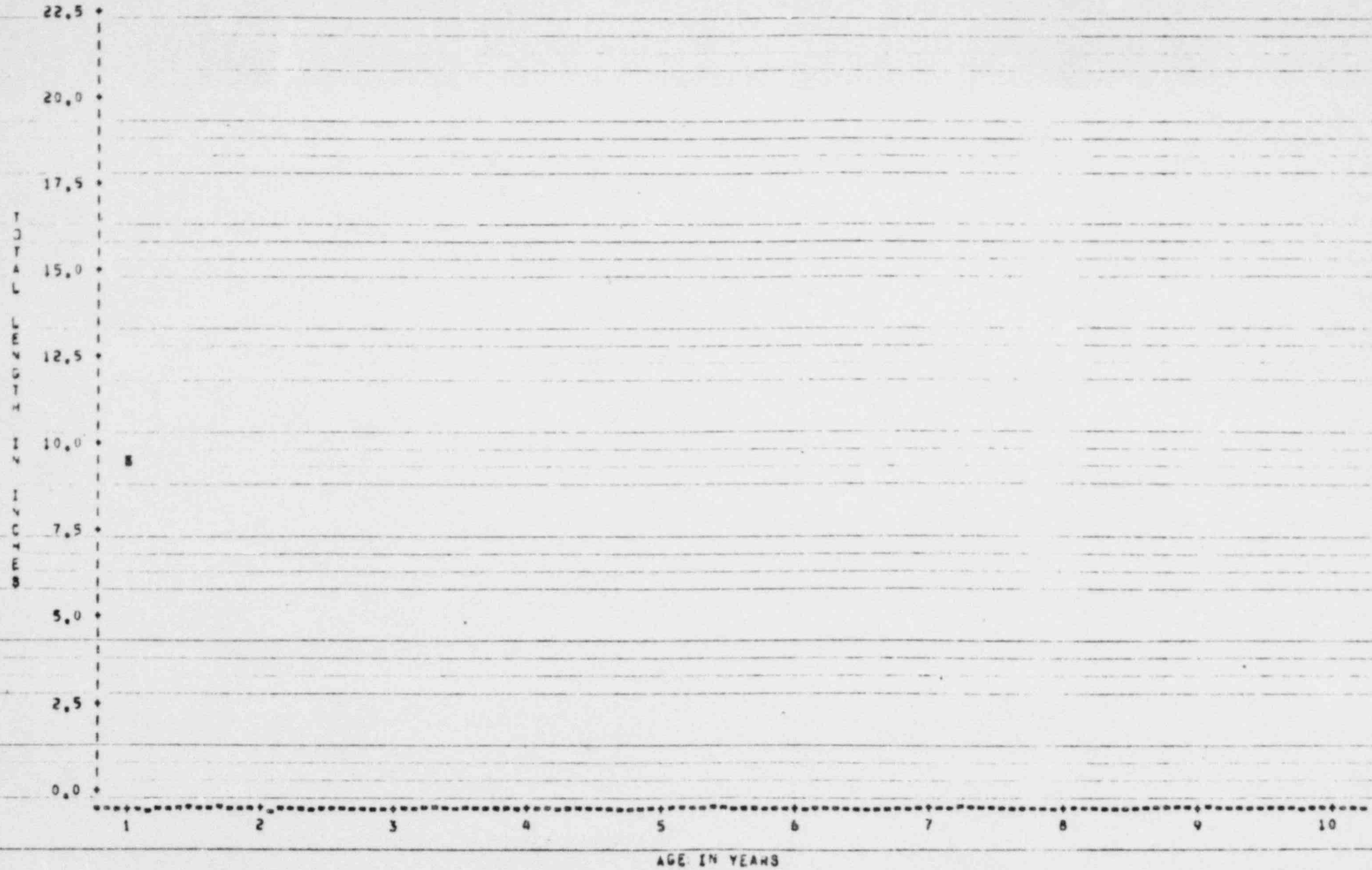


Figure 18

Table 39

Average Growth Rates in Length of Drum with Slowest and Fastest Rates Recorded for Areas A,B,C, and D and for the Entire Lake

Area	Growth Rate	I	II	III	IV	V	VI	VII	VIII	IX	X
A	Fastest	5.3	7.4	8.4	10.2	11.6	13.5	15.1	17.4	19.3	
A	Average	3.3	5.3	7.0	8.6	10.3	12.1	14.1	16.2	19.3	
A	Slowest	2.2	3.9	5.4	6.9	8.6	10.7	12.2	15.1	19.3	
B	Fastest	3.7	5.8	8.0	9.0	10.7	11.3	12.6	12.4		
B	Average	2.8	5.3	7.1	8.5	9.8	10.8	12.0	12.4		
B	Slowest	2.2	4.2	5.3	8.0	9.1	10.2	11.3	12.4		
C	Fastest	4.0	5.1	6.3							
C	Average	3.1	4.7	6.3							
C	Slowest	2.0	4.0	6.3							
D	Fastest	4.1	6.2	8.3	9.8	10.5	11.6				
D	Average	2.7	5.0	6.6	8.1	9.3	10.8				
D	Slowest	1.8	3.0	5.5	7.1	8.4	9.8				
Entire Lake	Fastest	5.3	7.4	8.4	10.2	11.6	13.5	15.1	17.4	19.3	
Entire Lake	Average	3.0	5.1	6.9	8.4	9.9	11.4	13.6	15.4	19.3	
Entire Lake	Slowest	1.8	3.0	5.3	6.9	8.4	9.8	11.3	12.4	19.3	

2500/8-76/F11238 1GI

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SPECIES=DRUM AREA=BACKWATER

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

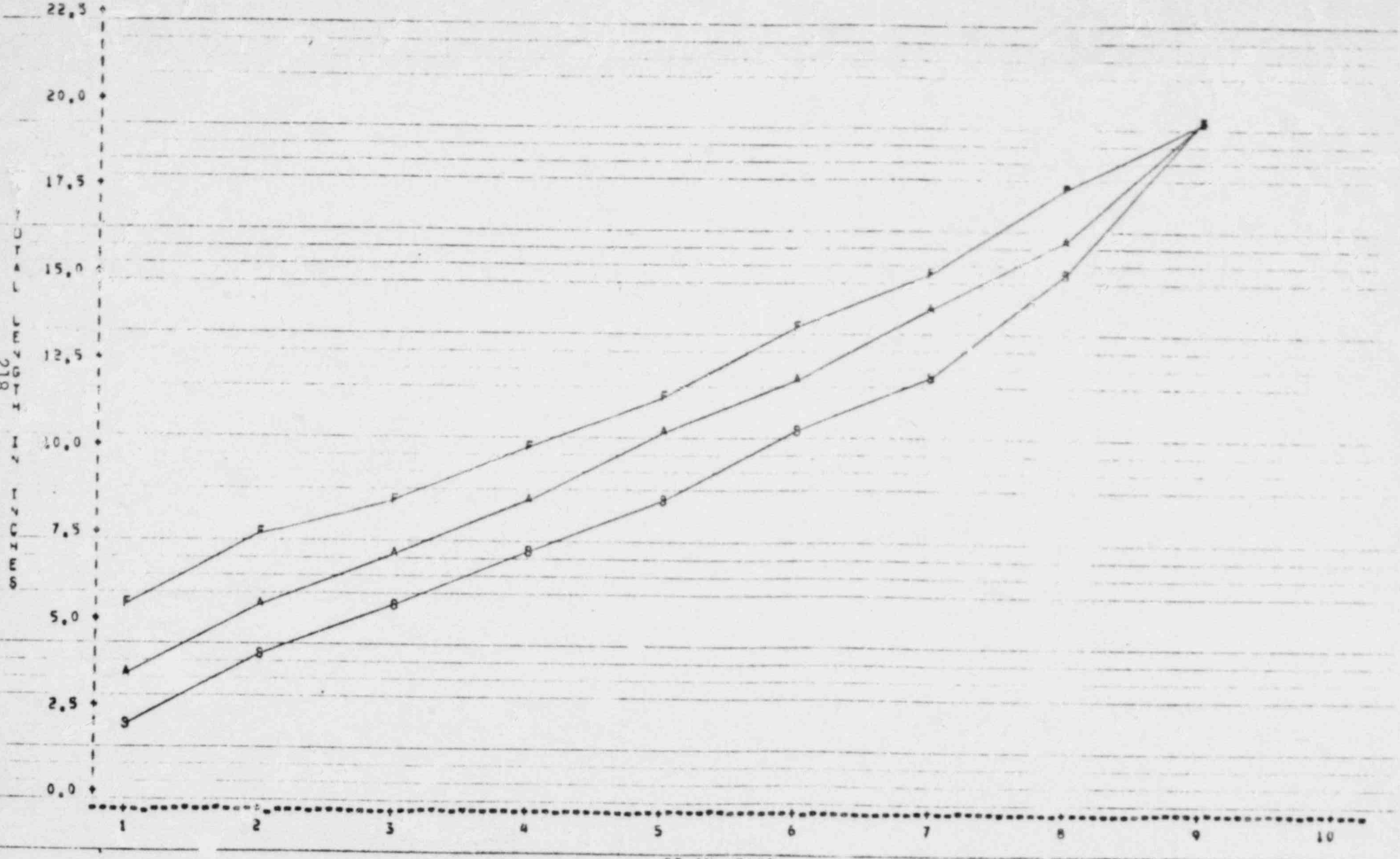


Figure 19

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SPECIES=DRUM AREA=INTAKE

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

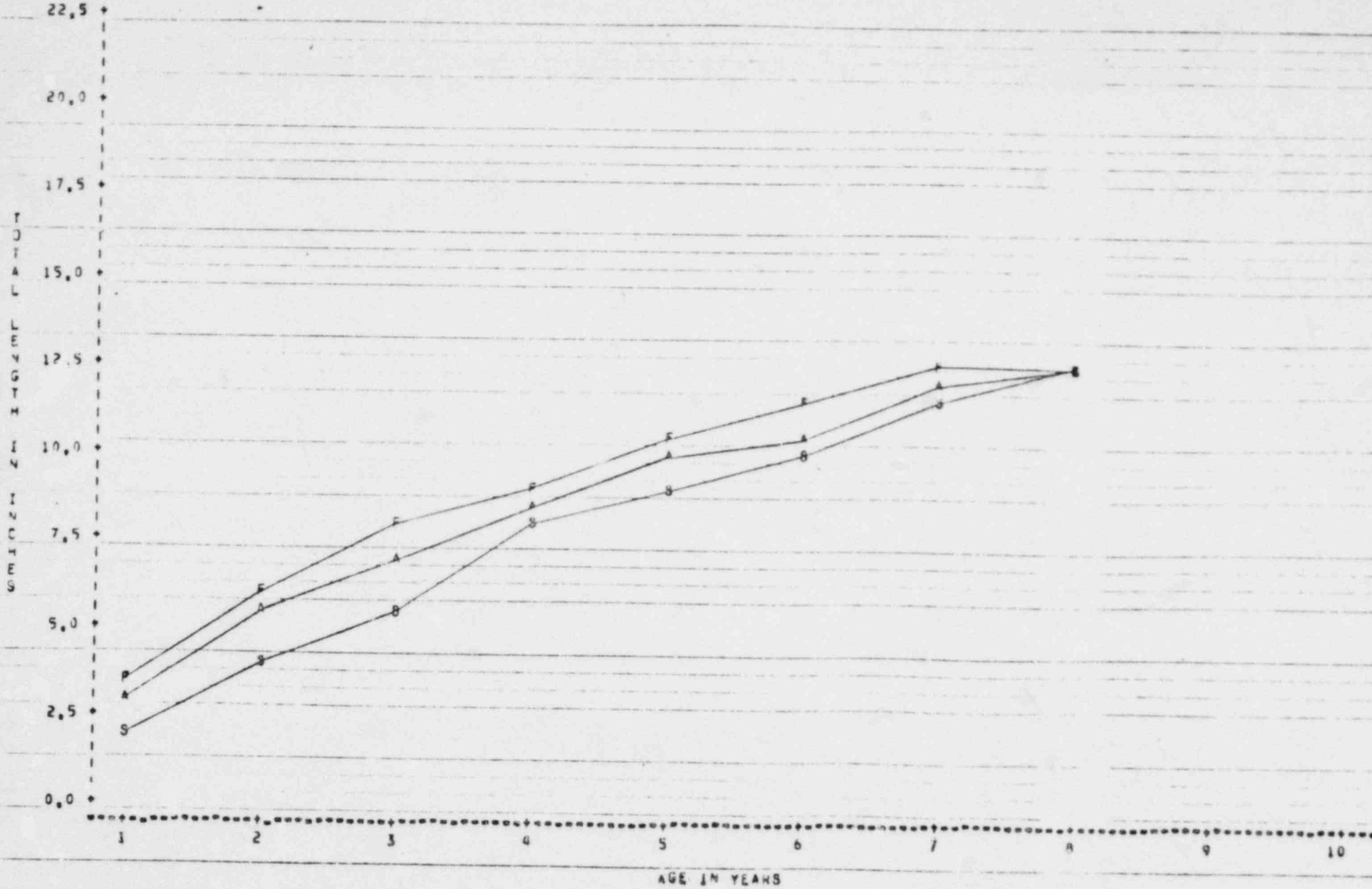


Figure 20

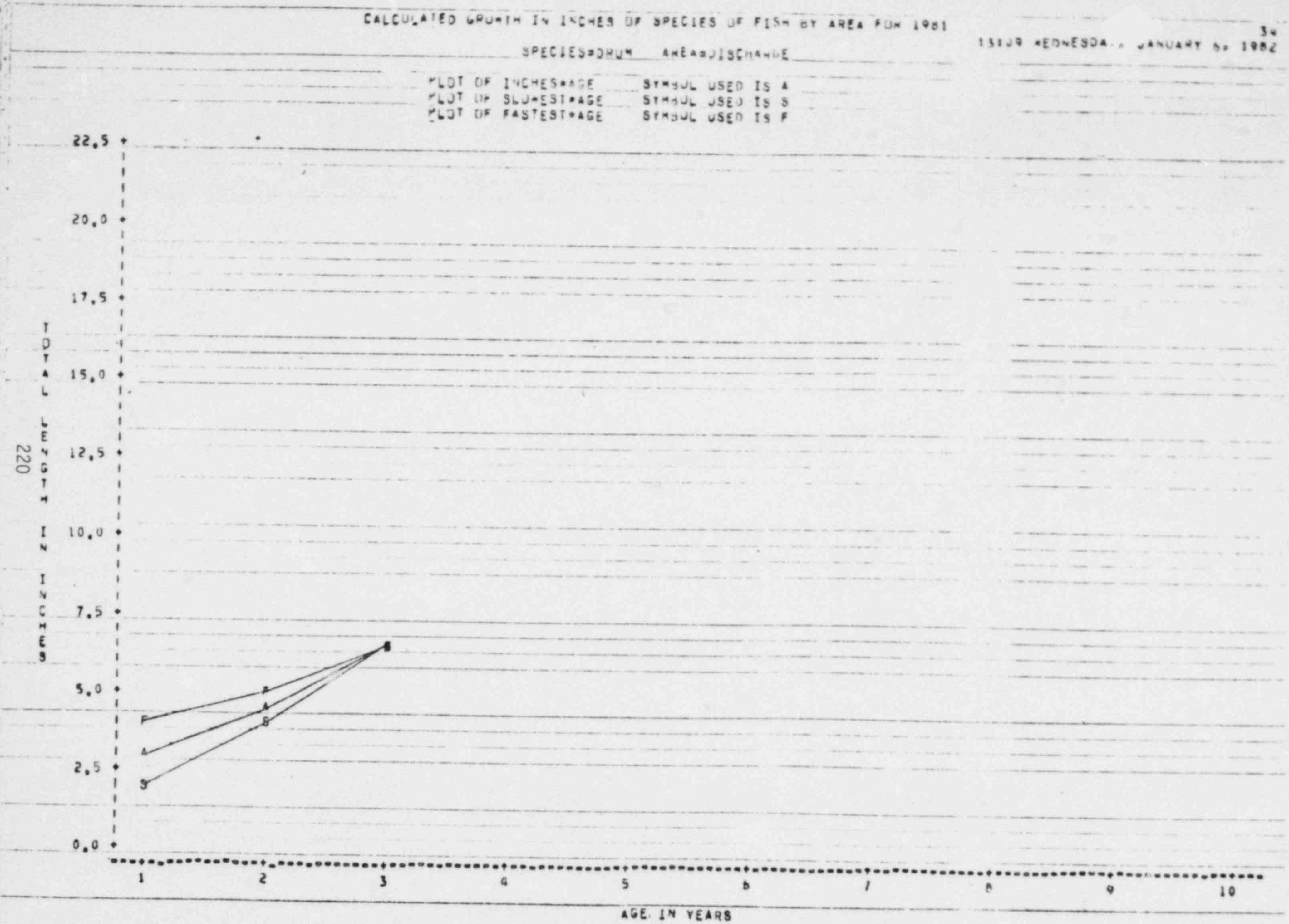

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981
13:39 WEDNESDAY, JANUARY 6, 1982
SPECIES=DRUM AREA=DISCHARGE
PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F
TOTAL LENGTH IN INCHES
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
1
2
3
4
5
6
7
8
9
10
AGE IN YEARS

Figure 21

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981 35

13:39 WEDNESDAY, JANUARY 6, 1982

SPECIES=DRUM AREA=CHANNEL

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

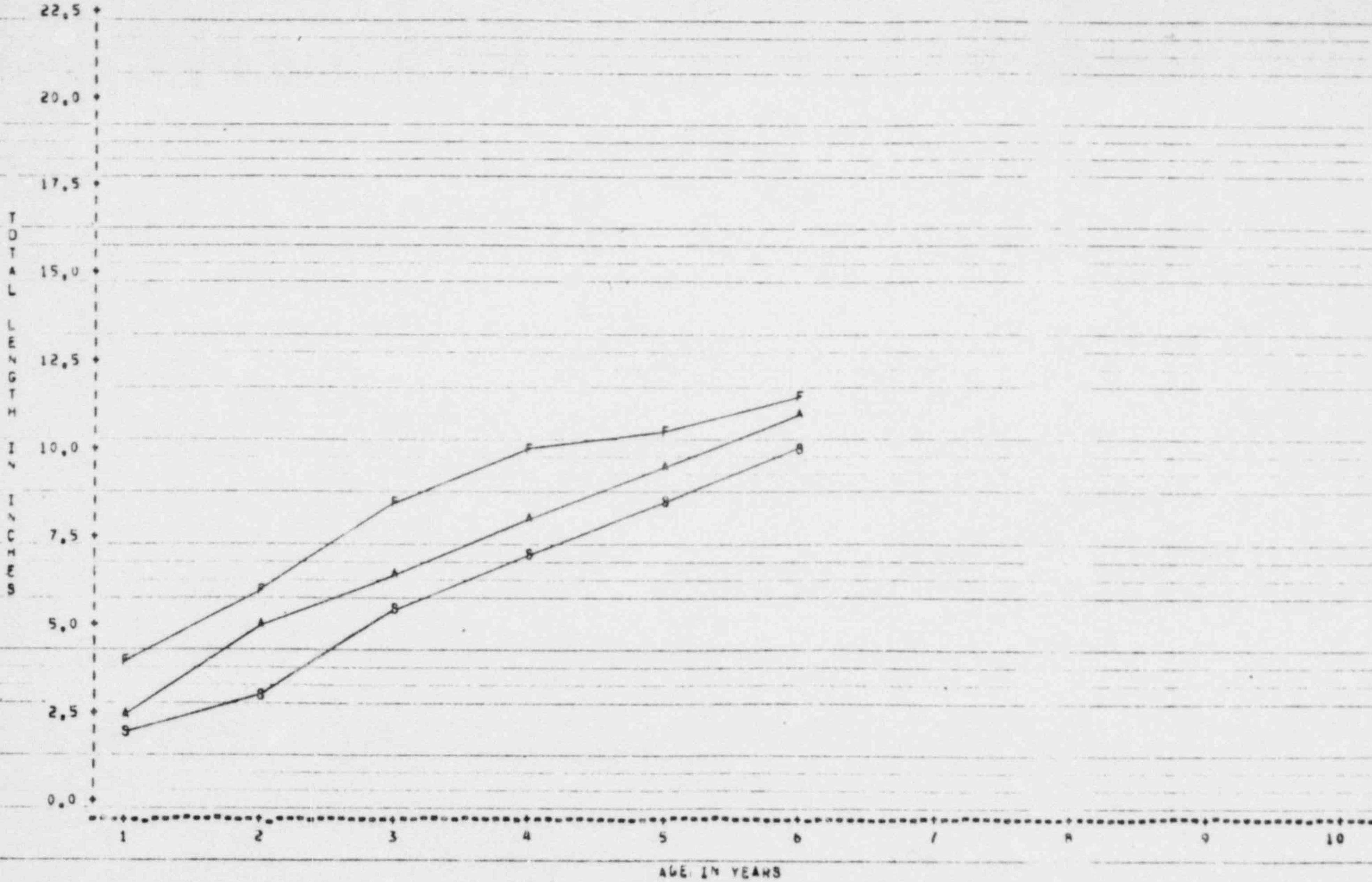


Figure 22

Table 40

Average Growth Rates in Length of Largemouth Bass with Slowest and Fastest Rates Recorded for Areas A, B, C, and D and for the Entire Lake

Area	Growth Rate	I	II	III	IV	V	VI	VII	VIII	IX	X
A	Fastest	7.0	9.1	11.3							
A	Average	4.9	7.9	10.0							
A	Slowest	3.2	6.3	9.2							
B	Fastest	8.0									
B	Average	8.0									
B	Slowest	8.0									
C	Fastest	7.9	12.1	14.7							
C	Average	5.2	9.5	13.2							
C	Slowest	3.8	7.2	11.7							
D	Fastest										
D	Average										
D	Slowest										
Entire Lake	Fastest	8.0	12.1	14.7							
Entire Lake	Average	5.2	8.9	11.3							
Entire Lake	Slowest	3.2	6.3	9.2							

2800/6-78/F11238 1G1

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

13:09 WEDNESDAY, JANUARY 6, 1982

26

SPECIES=LARGEMOUTH BASS AREA=BACKWATER

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

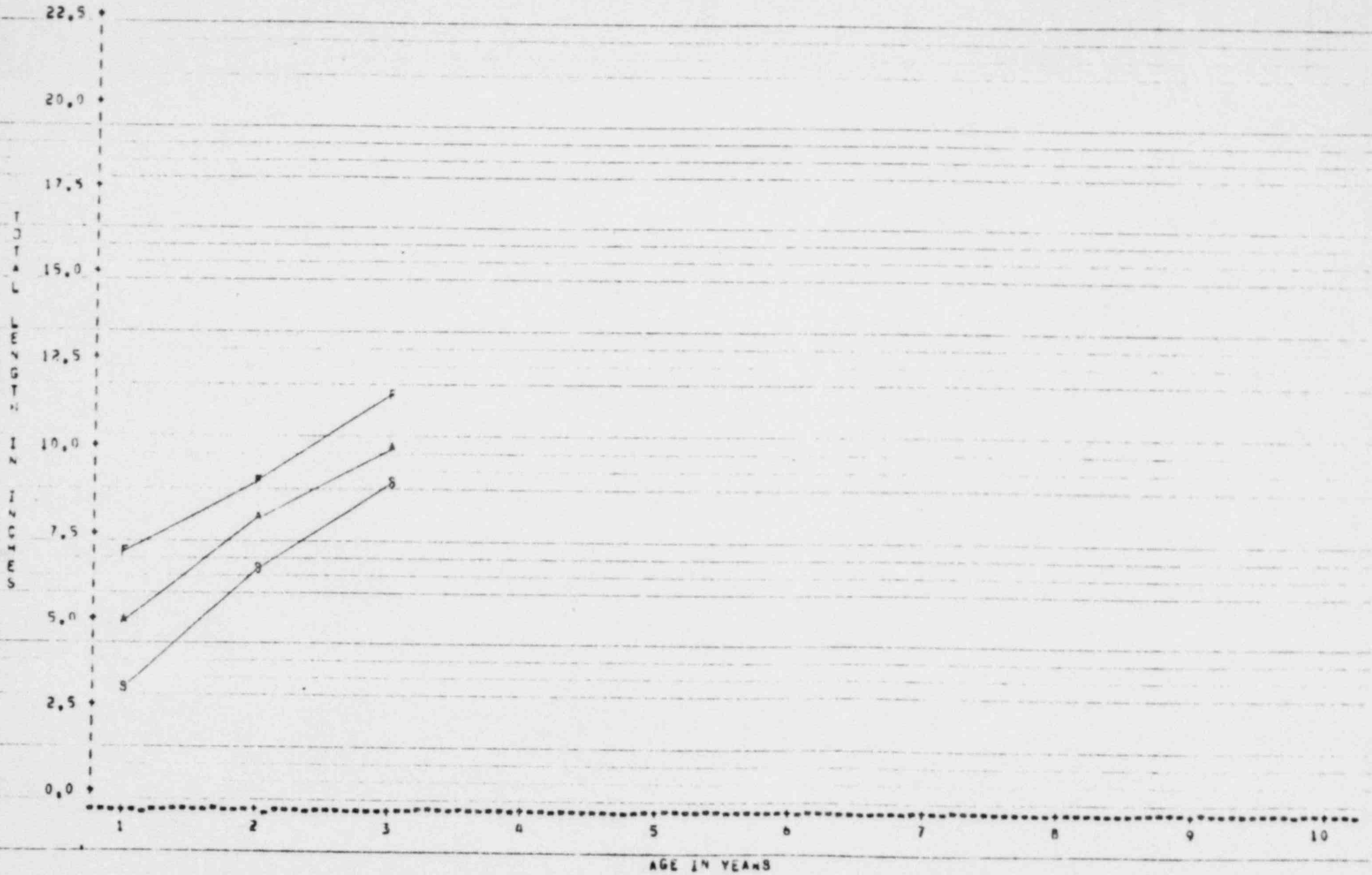


Figure 23

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

13:09 WEDNESDAY, JANUARY 6, 1982

SPECIES=LARGEMOUTH BASS AREA=INTAKE

PLOT OF INCHES*AGE SYMBOL USED IS *
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

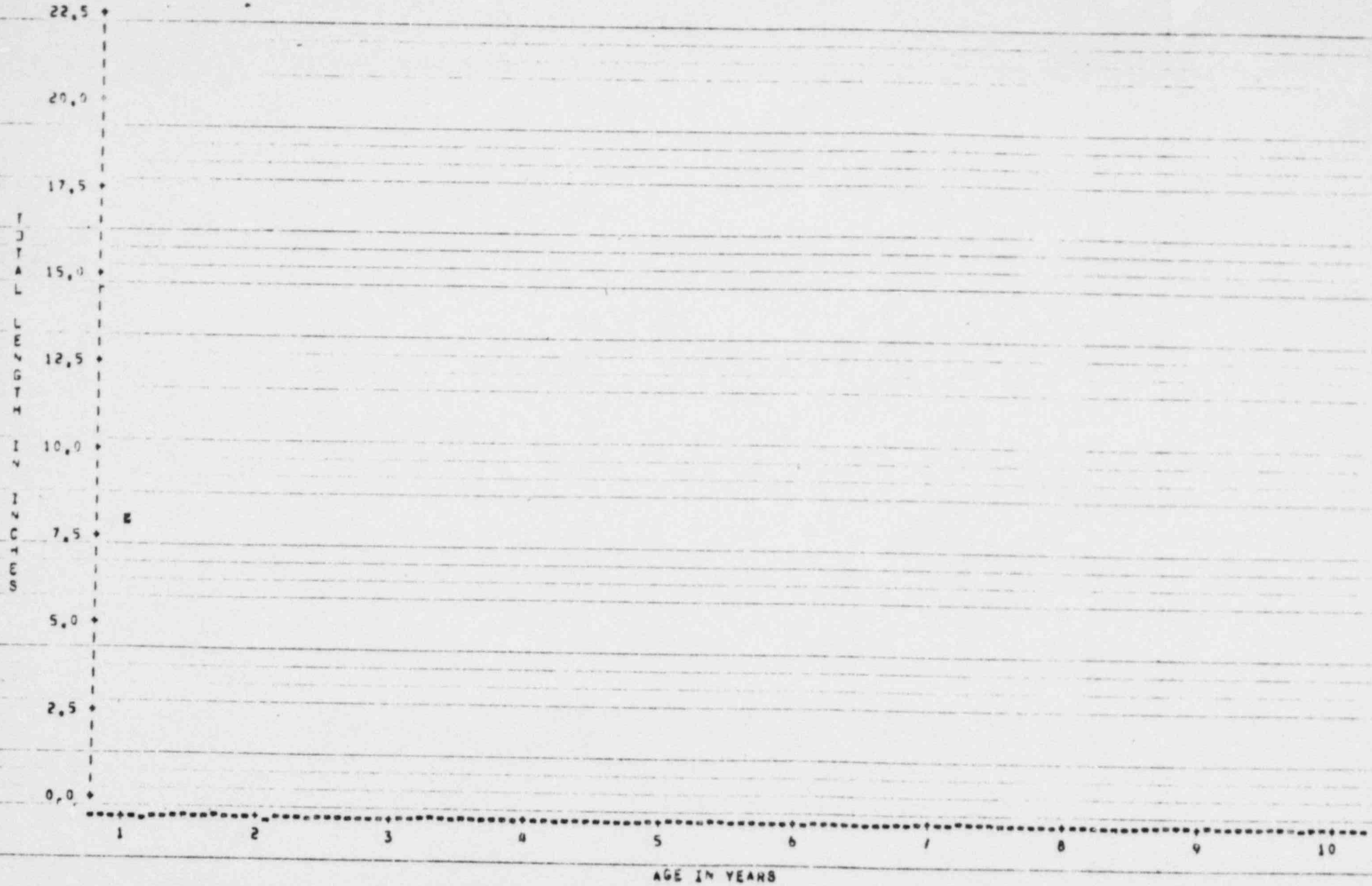


Figure 24

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SPECIES=LARGEMOUTH BASS   AREA=DISCHARGE

PLOT OF INCHES*AGE   SYMBOL USED IS A
PLOT OF SLOWEST*AGE   SYMBOL USED IS S
PLOT OF FASTEST*AGE   SYMBOL USED IS F

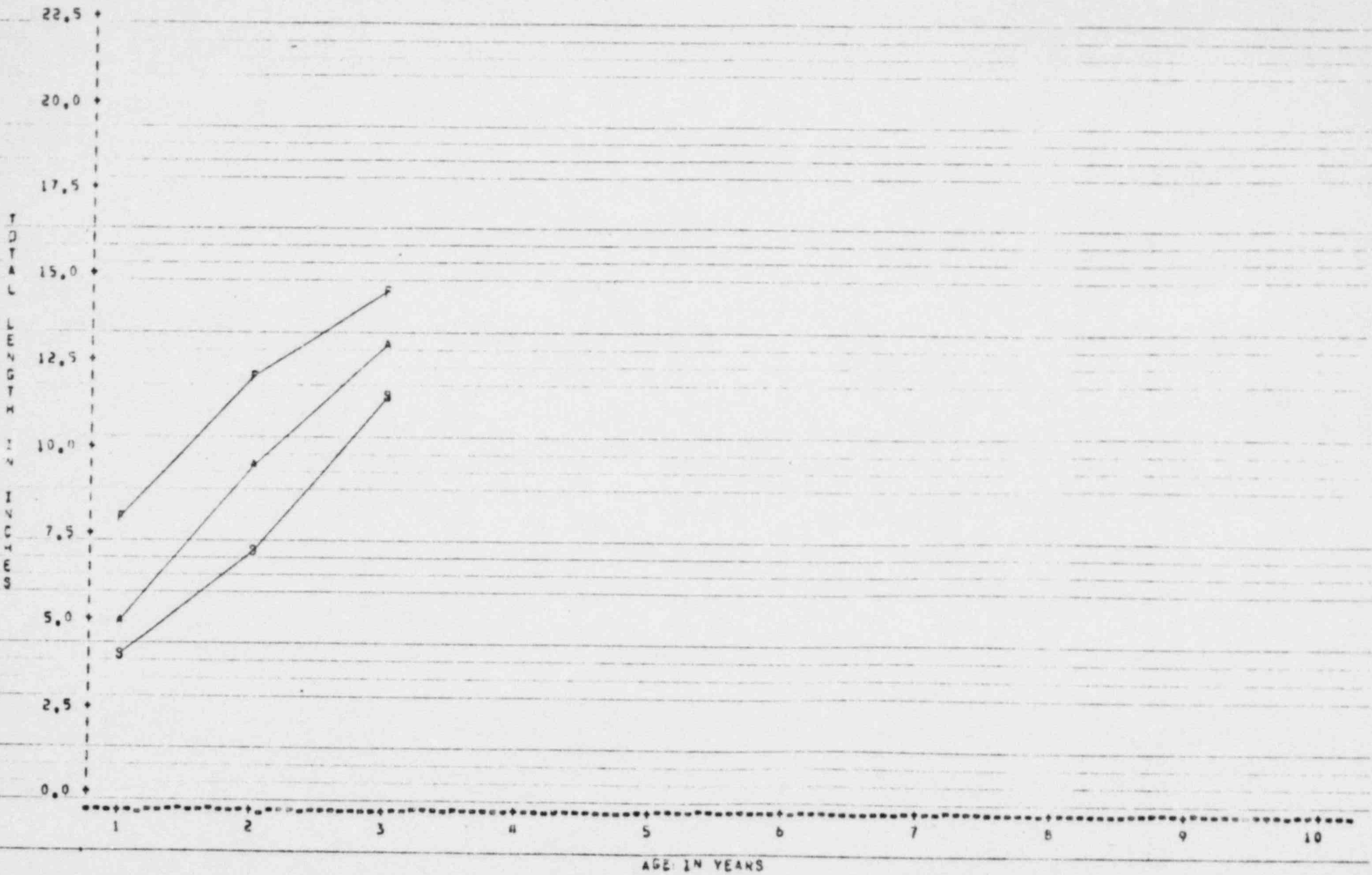


Figure 25

Table 41

Average Growth Rates in Length of White Bass with Slowest and Fastest Rates Recorded for Areas A, B, C, and D and for the Entire Lake

Area	Growth Rate	I	II	III	IV	V	VI	VII	VIII	IX	X
A	Fastest	4.1	9.6								
A	Average	3.4	8.0								
A	Slowest	2.5	6.4								
B	Fastest	5.3	9.9	12.6	13.4	14.9	16.4				
B	Average	3.8	7.7	10.1	12.8	14.8	16.4				
B	Slowest	2.6	5.6	8.8	12.2	14.6	16.4				
C	Fastest	3.5	6.7								
C	Average	3.5	6.7								
C	Slowest	3.5	6.7								
D	Fastest										
D	Average										
D	Slowest										
Entire Lake	Fastest	5.3	9.9	12.6	13.4	14.9	16.4				
Entire Lake	Average	3.7	7.7	10.1	12.8	14.8	16.4				
Entire Lake	Slowest	2.5	5.6	8.8	12.2	14.6	16.4				

2800/6-78/F11238 (G)

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SPECIES=WHITE BASS AREA=BACKWATER

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

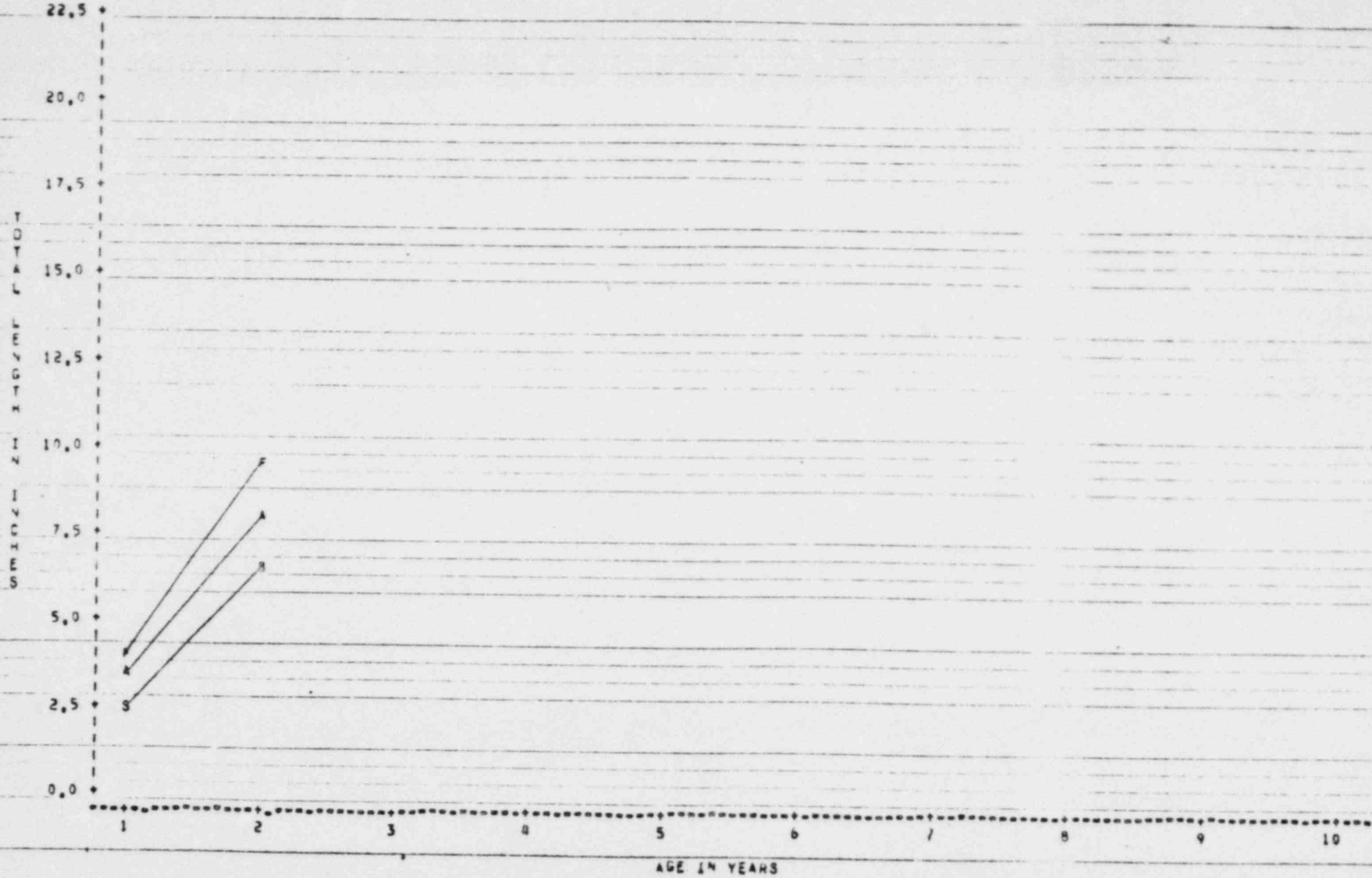


Figure 26

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981 — 37

13:09 WEDNESDAY, JANUARY 6, 1982

SPECIES=WHITE BASS AREA=INTAKE

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

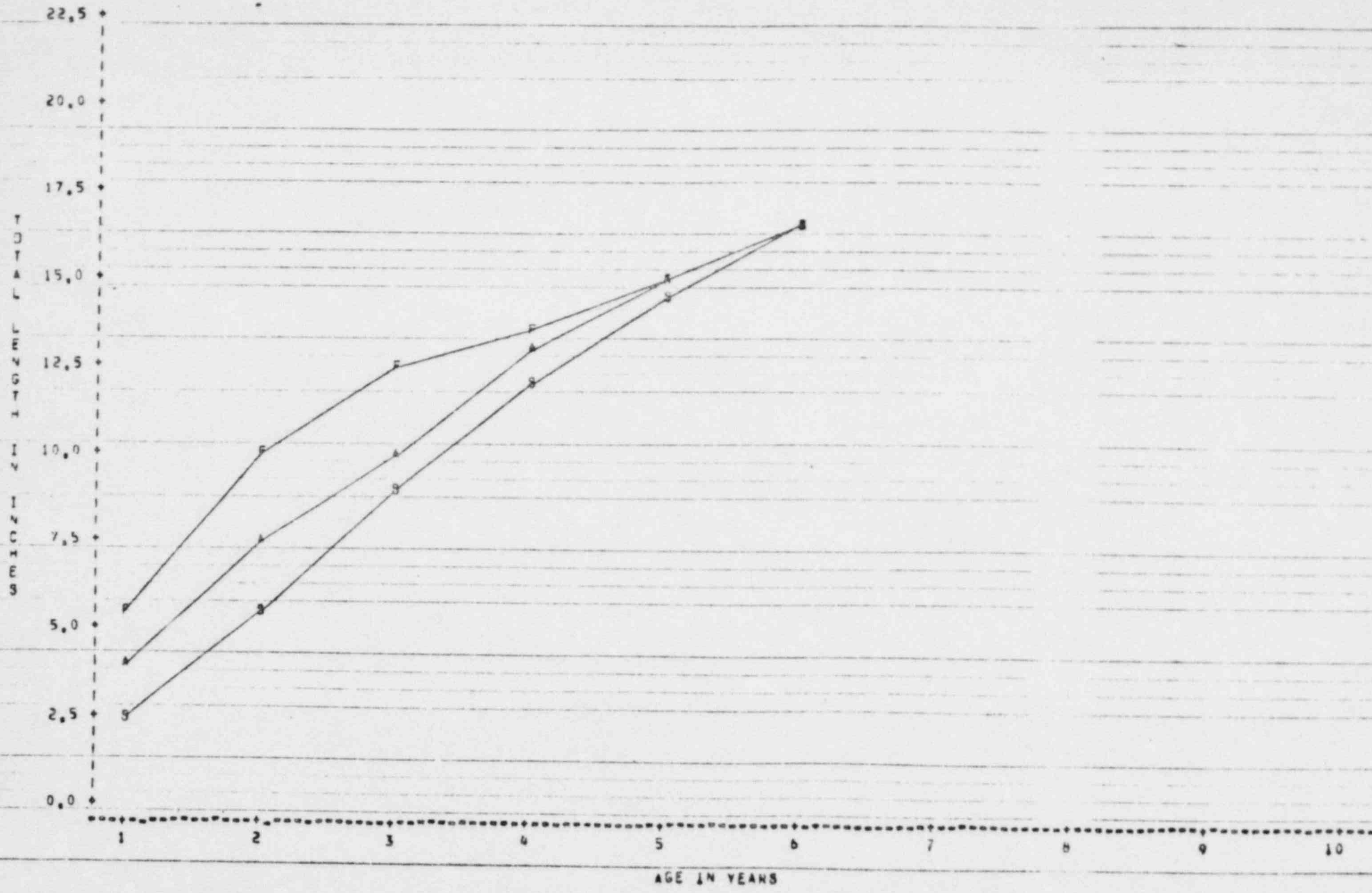


Figure 27

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SPECIES=WHITE BASS AREA=DISCHARGE

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

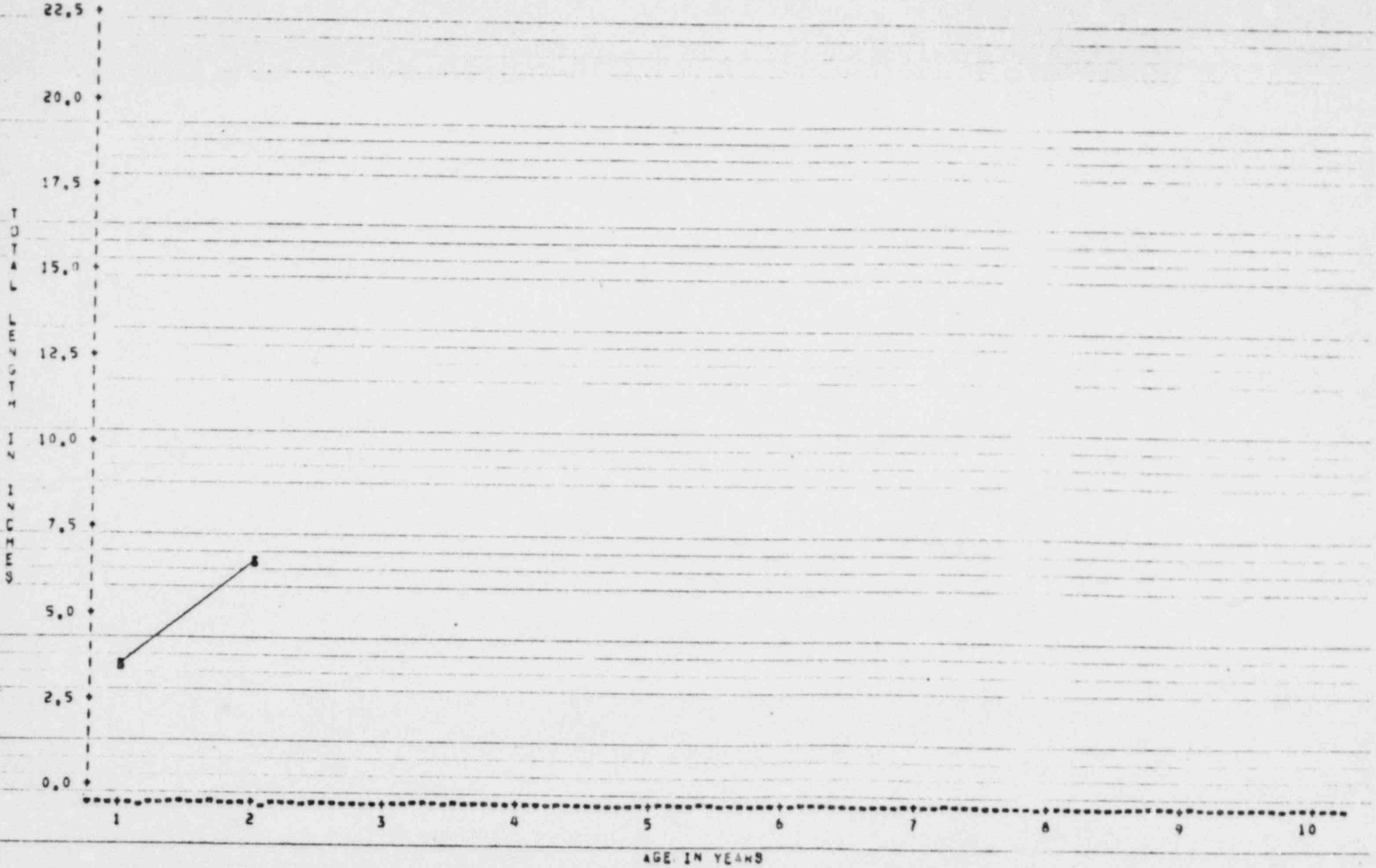


Figure 28

Table 42

Average Growth Rates in Length of White Crappie with Slowest and Fastest Rates Recorded for Areas A,B,C, and D and for the Entire Lake

Area	Growth Rate	I	II	III	IV	V	VI	VII	VIII	IX	X
A	Fastest	5.4	7.0	9.6	13.1	14.0					
A	Average	2.9	5.6	7.4	13.1	14.0					
A	Slowest	2.1	4.1	5.1	13.1	14.0					
B	Fastest	3.4	7.5	9.9	12.0	13.4	12.8				
B	Average	2.5	5.4	8.1	10.8	12.6	12.8				
B	Slowest	1.3	4.0	6.2	9.0	10.9	12.8				
C	Fastest										
C	Average										
C	Slowest										
D	Fastest	4.7	8.0	11.0	12.1	13.5					
D	Average	2.7	5.8	8.0	10.0	13.5					
D	Slowest	1.4	4.2	6.4	8.5	13.5					
Entire Lake	Fastest	5.4	8.0	11.0	13.1	14.0	12.8				
Entire Lake	Average	2.6	5.6	8.0	10.6	13.0	12.8				
Entire Lake	Slowest	1.3	4.0	5.1	8.5	10.9	12.8				

2800/6-78/F11238 (G)

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

13:09 WEDNESDAY, JANUARY 6, 1982

SPECIES=WHITE CRAPPIE AREA=BACKWATER

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

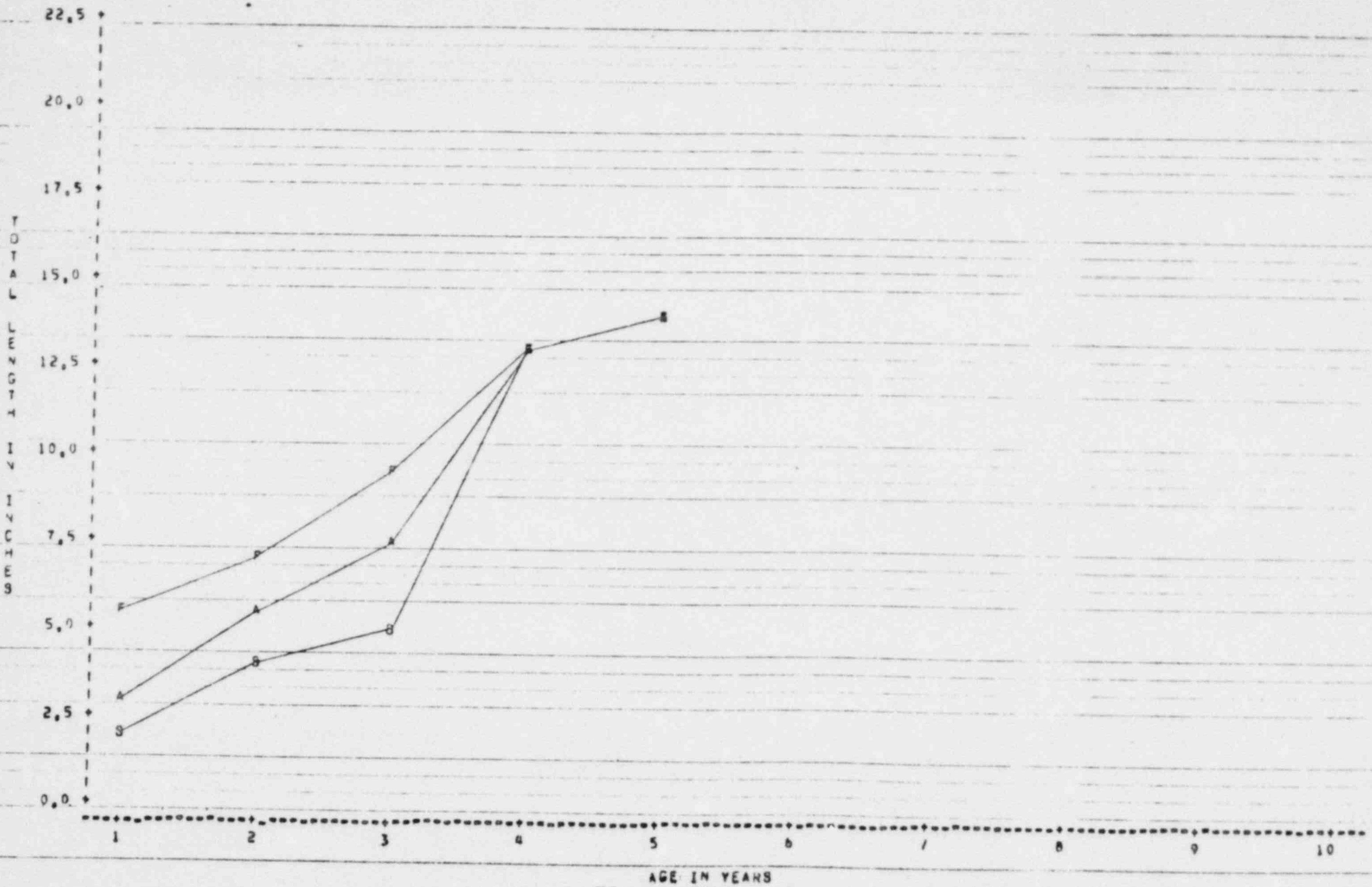


Figure 29

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

30

13:09 WEDNESDAY, JANUARY 6, 1982

SPECIES=WHITE CRAPPIE AREA=INTAKE

PLOT OF INCHES*AGE SYMBOL USED IS A
PLOT OF SLOWEST*AGE SYMBOL USED IS S
PLOT OF FASTEST*AGE SYMBOL USED IS F

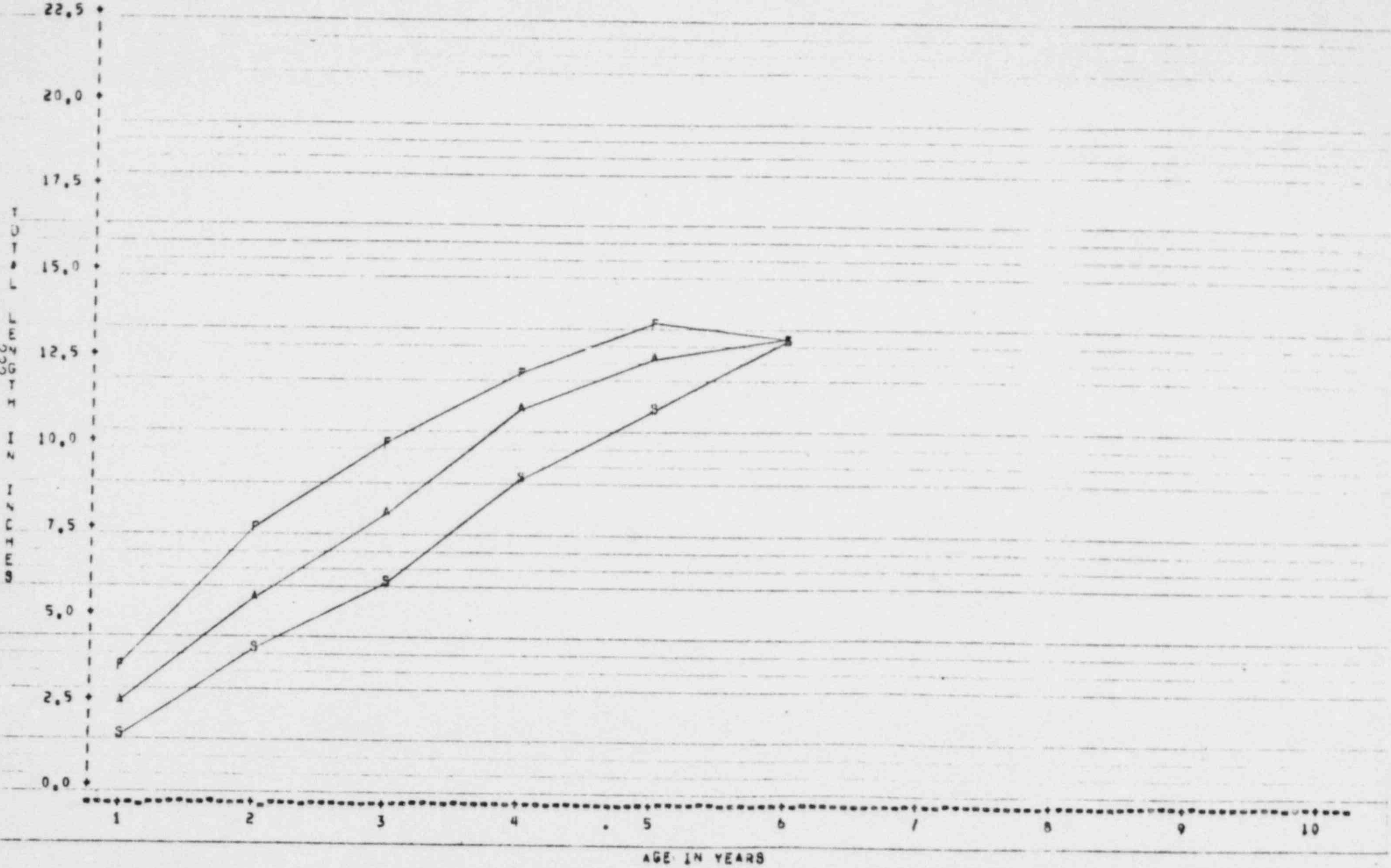


Figure 30

CALCULATED GROWTH IN INCHES OF SPECIES OF FISH BY AREA FOR 1981

SPECIES=WHITE CRAPPIE AREA=CHANNEL

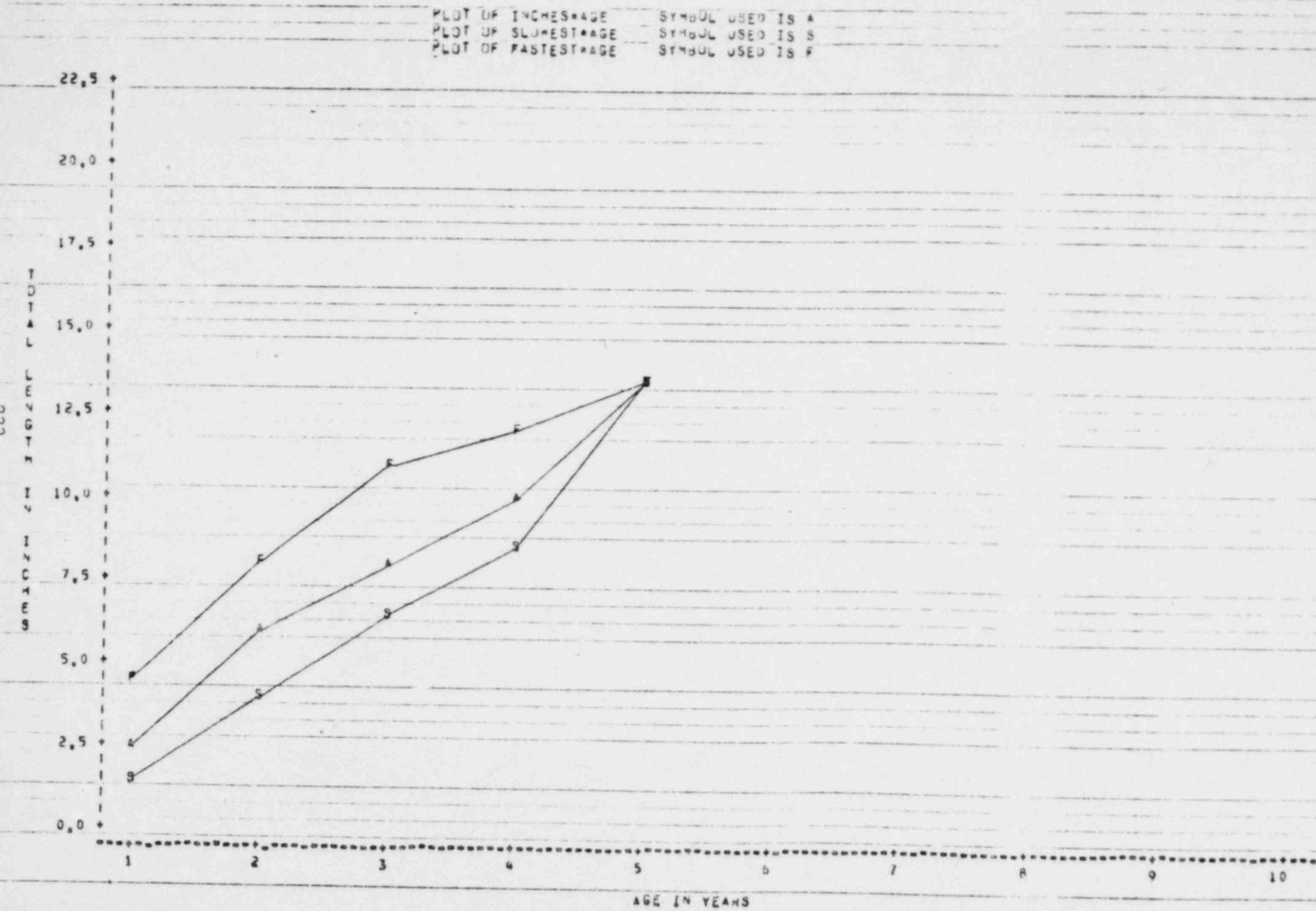


Figure 31

DARDANELLE RESERVOIR-ILLINOIS BAYOU EMBAYMENT SURVEY

PROGRESS REPORT NO. 25

John D. Rickett

Biology Department

University of Arkansas at Little Rock

26 January 1982

DARDANELLE RESERVOIR-ILLINOIS BAYOU EMBAYMENT SURVEY

PROGRESS REPORT NO. 25

Introduction

According to specifications of contract between the University of Arkansas at Little Rock and Arkansas Power & Light Company, this report is respectfully submitted.

Progress Report No. 21 under this title filed with AP&L in February 1979 contains the standard field and laboratory procedures for this project, and subsequent reports contain any changes in procedure and data for the previous year. This report contains data and a superficial analysis for the year 1981, and the reader is referred to Report No. 21 for specific procedures.

Procedural changes

There were no modifications of project operation during 1981. Table 1 is a summary of our standard collection procedures, and Figure 1 is a map of the lake with sampling stations designated.

Plant operation

Unit I of ANO was shut down or in the process of being shut down at trip time in January, February, July and August. These shut-downs involved refueling and safety modifications.

MONTH	Temp.	D.O.	pH	Iron	Filt. Iron	Manganese	Turbidity	COD	Tot. Hardness	Boron	Susp. Solids	Sulfate	Chloride	Nitrite	Plankton	Benthos	Plankton for Rad. testing	Sediment for Rad. testing	Total Diss. Solids	Kjeldahl Nitrogen	Nitrate	Copper	Phosphate	Conductivity
January	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			*	*	*	*	*	*
February	*	*	*	*	*	*	*	*	*	*	*	*	*	*			*	*	*	*	*	*	*	*
March	*	*	*	*	*	*	*	*	*	*	*	*	*	*					*	*	*	*	*	*
April	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			*	*	*	*	*	*
May	*	*	*	*	*	*	*	*	*	*	*	*	*	*					*	*	*	*	*	*
June	*	*	*	*	*	*	*	*	*	*	*	*	*	*					*	*	*	*	*	*
July	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			*	*	*	*	*	*
August	*	*	*	*	*	*	*	*	*	*	*	*	*	*			*	*	*	*	*	*	*	*
September	*	*	*	*	*	*	*	*	*	*	*	*	*	*					*	*	*	*	*	*
October	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			*	*	*	*	*	*
November	*	*	*	*	*	*	*	*	*	*	*	*	*	*					*	*	*	*	*	*
December	*	*	*	*	*	*	*	*	*	*	*	*	*	*					*	*	*	*	*	*
at depths	all	all	tmb	tmb	t b	tmb	tmb	t b	t b	tmb	t b	t b	t b	t b	---	---	---	---	t	t	t b	t b	t b	t b
at stations	all	all	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(3)	(3)	(3)	(3)	(2)	(2)	(4)	(4)	(3)	(3)	(3)	(3)	(3)	(3)

Table 1. Standard operations procedure for field collections, Lake Dardanelle, 1981.

*Station code: (1) all except 20; (2) 1,2,3,5,10,11,14,15,16,21; (3) 1,5,16,21;
(4) 5,10,15,16,21

Depth code: t = top; m = middle; b = bottom

COD and boron are tested at top and bottom from Sta. 1,5,16,21 and from top of others.

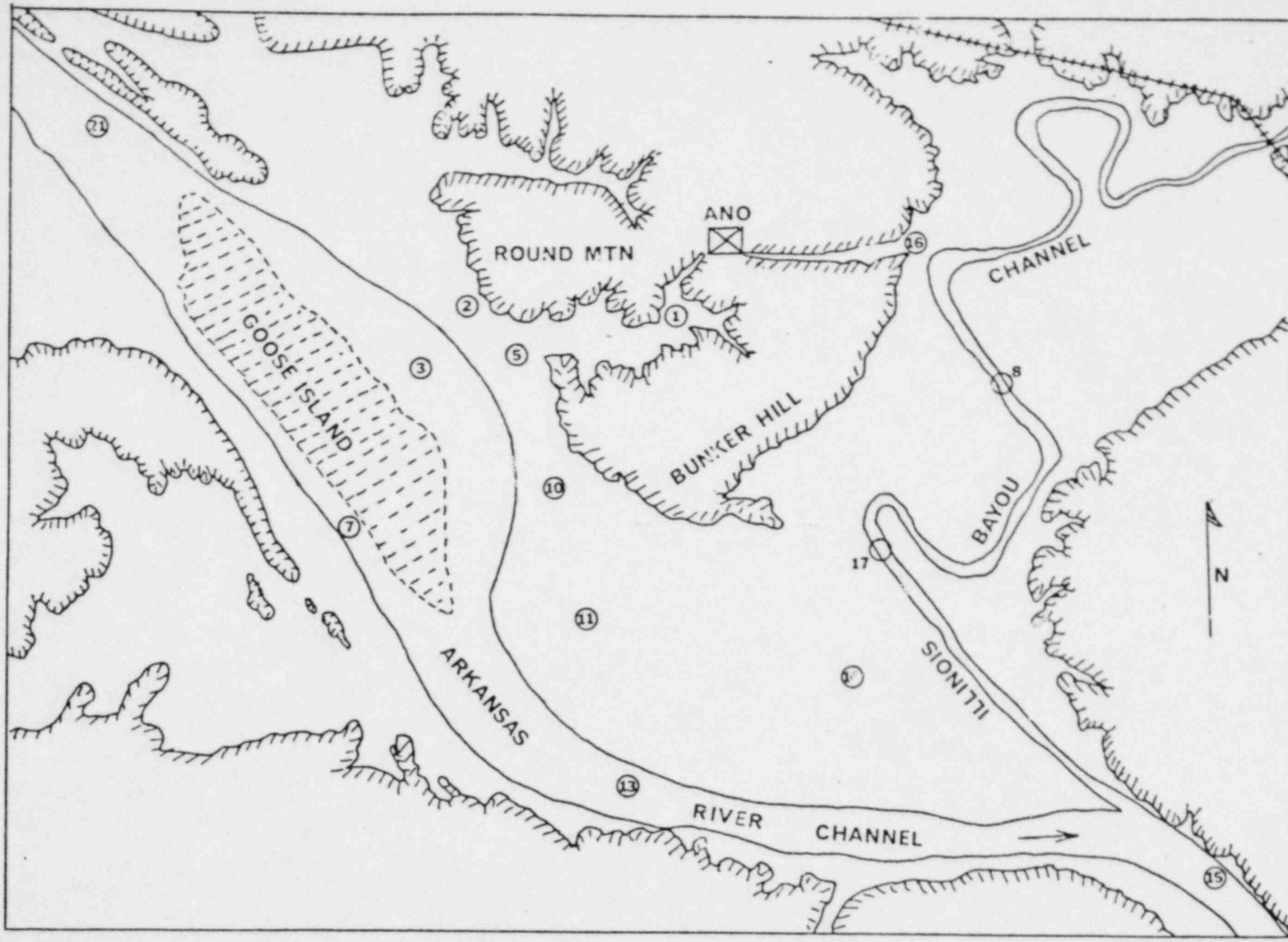


Figure 1. Locations of sampling stations on Lake Dardanelle for Arkansas Nuclear One (ANO) project, 1981.

Data and discussion

Table 2 contains general meteorological data recorded while visiting the various sampling stations on a monthly basis. Temperatures were rather mild with less than usual cloud cover and, consequently, stronger sunlight. Wind was usually a noticeable factor in travel on the water and was more variable during June, July, September and October than other months. Wind velocities were greatest during April, June and October.

Table 3 is a brief description of thermal loading and dispersal for several stations closest to the plant discharge. The mean values show a rather consistent rate of heat dispersal with increasing distance from the point od discharge (P.O.D.). If the proportion values for the "down" periods are deleted, the mean values for operational months are more dramatic. Respectfully, Sta. 1,5,3,10,11 and 7 show the values 1.21, 1.20, 1.10, 1.04, 1.04 and 1.03. Little heat was lost between Sta. 1 and 5, most of it occurred between Sta. 5 and 3 and between 5 and 10. The flow of discharge water was modified by the river current and southeast wind. A heavy river discharge tended to push the water toward Sta. 10, whereas otherwise it flowed toward Sta. 3. With a strong southeast wind and low river discharge, the thermal effluent probably moved toward Sta. 21 (upstream in river), but we collected no data to show the water had not lost its excess heat when and if it reached Sta. 21.

For a mental exercise, let us assume the discharge bay surface area is approximately 100 acres and that the average depth is

Table 2. Meteorological data for vicinity of ANO, Lake Dardanelle, Arkansas, 1981.

Month	Air Temp. (F)	BTU	Wind	Cloud cover
JAN	37-64	20-200	SE,SW 0-6	0
FEB	60-66	12-175	E 3-10	0-100%
MAR	58-70	15-255	S,E 0-7	10-20 %
APR	78-84	10-325	SE,SW 5-15	0-50 %
MAY	70-76	255-320	N,NE 0-5	0-25 %
JUN	86-92	165-325	S,SE,SW 5-10	10-15 %
JUL	86-97	140-310	E,SE,SW 0-5	5-25 %
AUG	77-92	160-285	SE,SW 0-9	0-20 %
SEP	59-76	100-265	E,SE,NW 0-5	0-foggy
OCT	38-61	25-250	SE,SW,NW 3-10	0-15 %
NOV	48-66	30-190	E,SE 0-7	0-60 %
DEC	31-43	30-165	E 0-7	0-10 %

Table 3. Thermal loading and dispersal in the upper two feet (0.61m) in the vicinity of ANO, Lake Dardanelle, Arkansas, 1981.

Month	Plant Operation	Temperature change betw/ Sta. 16 & 1 (through plant)	Temperature at each station as a proportion of the temperature at Sta. 16 (see note below)					
			Sta. 1	Sta. 5	Sta. 3	Sta. 10	Sta. 11	Sta. 7
JAN	down	+ 2.45°F	1.06	1.08	0.99	1.00	1.00	1.00
FEB	down	+ 1.55	1.03	1.02	0.98	1.01	0.99	0.99
MAR	up	+13.05	1.23	1.22	1.16	1.04	1.02	1.05
APR	up	+13.65	1.20	1.18	1.05	0.99	1.00	1.01
MAY	up	+14.25	1.21	1.17	1.07	1.05	1.12	1.04
JUN	up	+10.7	1.13	1.12	1.06	1.02	1.00	0.99
JUL	down	+ 0.8	1.01	1.01	0.98	1.00	1.00	0.98
AUG	down	+ 1.9	1.02	1.01	0.98	1.02	0.98	0.98
SEP	up	+15.6	1.21	1.20	1.11	1.07	1.10	1.10
OCT	up	+10.1	1.15	1.13	1.05	0.97	0.98	0.98
NOV	up	+14.7	1.25	1.21	1.14	1.11	1.06	1.06
DEC	up	+15.15	1.37	1.36	1.13	1.06	1.07	1.05
Mean		+ 9.49	1.156	1.142	1.058	1.028	1.027	1.019

Note: Sta. 16 is the intake. Distances of the other stations from the point of discharge (P.O.D.) are given in miles (km). Sta. 1: 0.25 (0.4); Sta. 5: 0.90 (1.46); Sta. 3: 1.52 (2.46); Sta. 10: 1.52 (2.46); Sta. 11: 2.20 (3.56); Sta. 7: 2.32 (3.76).

three feet. We know that the warm water flows up on top as it moves toward Sta. 5 affecting only the upper half of the water column, if that much. This would mean approximately 1.85×10^5 cubic meters of water is occupied with heat dispersal between Sta. 1 and 5. With the plant discharging 1.734×10^{11} cal/hr the 1.85×10^{11} cm^3 of water in the discharge bay should theoretically handle heat dispersal prior to Sta. 5. But, of course, in a dynamic environment other factors too numerous to be addressed in this report are involved. Also one would probably need to consider the instantaneous heat gain/loss.

Table 4 contains monthly ranges of most of the physico-chemical tests. No explanation was readily available for the unusually low pH readings during the warmer months. Total hardness was low during March through June apparently due to rain dilution. Iron was high during this same period, but there may not be a correlation between it and total hardness. Turbidity was low during the months of low rainfall. Chloride and conductivity varied in conjunction, whereas phosphate continued to show up sporadically in heavy concentrations. Nitrate, nitrite, copper and sulfate varied but not according to season or plant operation.

Tables 8 through 19 (Appendix I) contain all physico-chemical data for January through December, respectively. Gaps in the data are due either to heavy weather which prevented sampling or a leaky sample bag which wasn't discovered until laboratory tests were begun. There were no unusual readings among these data except the unexplained source of the high phosphate readings.

Table 5 contains wet and dry weights of plankton samples,

Table 4. Monthly ranges of 12 physico-chemical parameters, Lake Dardanelle, Arkansas, 1981.

Month	pH	Total hardness (mg/l as $CaCO_3$)	Turbidity (FTU)	Iron (mg/l)	Chloride (mg/l)	Copper (mg/l)
JAN	8.0-8.2	166-176	4-10	.04-.10	102-106	.07-.21
FEB	8.0-8.5	116-156	5-18	.05-.15	68- 94	.03-.15
MAR	7.6-8.8	88-104	10-44	.10-.24	50- 52	.05-.16
APR	7.5-9.2	70-94	10-80	.10-.45	38- 47	.06-.15
MAY	7.4-7.7	72-104	21-74	.18-.60	40- 65	.04-.10
JUN	7.3-8.6	26-112	8-80	.11-.95	43-114	.06-.13
JUL	6.9-8.8	128-172	0-20	.03-.36	136-160	.10-.13
AUG	7.5-8.6	120-206	8-39	.01-.13	122-146	.09-.12
SEP	7.9-8.5	156-186	9-29	.07-.22	130-163	.08-.12
OCT	7.5-8.2	142-196	15-60	.11-.31	147-174	.05-.21
NOV	7.5-8.1	124-168	19-41	.11-.23	115-136	.09-.15
DEC	7.5-8.0	120-178	17-24	.04-.14	158-201	.10-.37

Table 4 (continued).

Month	Sulfate (mg/l)	Phosphate (mg/l)	Susp. Solids (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	Conductivity (µmhos)
JAN	75-81	.22-1.42	0- 8	.35-.70	.016-.026	800-810
FEB	55-68	.07-2.10	10-15	.30-.65	.024-.026	550-720
MAR	46-52	.10-0.40	10-19	.50-.75	.025-.034	410-440
APR	38-48	.10-0.80	0- 7	.40-.95	.014-.029	305-375
MAY	37-56	.15-0.60	4-39	.45-.80	.009-.031	330-490
JUN	33-57	.45-3.0+	0-20	.48-.75	.021-.032	330-770
JUL	66-73	.40-3.0+	0-10	.30-.65	.022-.054	800-1000
AUG	58-72	.64-3.0+	0-17	0.0-.80	0.00-.008	775-975
SEP	[illegible]0-105	.57-3.0+	5-45	.10-.40	.004-.012	840-910
OCT	75-95	.72-1.10	25-50	.20-1.3	.004-.013	625-885
NOV	55-65	.73-3.0+	15-40	.50-.80	.009-.015	670-765
DEC	58-69	.76-3.0+	0- 2	.10-.70	.001-.008	830-940

Table 5. Weights of plankton samples from Lake Dardanelle, Arkansas, 1981.

	JANUARY		APRIL	
Station	Wet(g)	Dry(g)	Wet(g)	Dry(g)
1	.00074	.00070	.00047	.00045
2	.00052	.00045	.00075	.00066
3	.00152	.00143	.00039	.00034
5	.00056	.00049	.00079	.00069
10	.00079	.00070	.00050	.00046
11	.00072	.00062	.00073	.00056
14	.00027	.00020	.00033	.00025
15	.00044	.00040	.00016	.00014
16	.00086	.00076	.00134	.00126
MEAN	.00075	.00066	.00057	.00050
	JULY		OCTOBER	
1	.00160	.00152	.00125	.00119
2	.00425	.00398	.00161	.00151
3	.00386	.00341	.00147	.00130
5	.00399	.00349	.00152	.00133
10	.00404	.00370	.00111	.00102
11	.00395	.00342	.00172	.00149
14	.00397	.00346	.00131	.00114
15	.00305	.00268	.00115	.00101
16	.00236	.00177	.00100	.00075
21	.00482	.00374	.00160	.00124
MEAN	.00359	.00312	.00137	.00120

whereas Table 6 gives total plankton counts (average of field count and strip count on each sample) and phytoplankton/zooplankton ratios. In January and April more total plankton was collected at the close stations (1,2,3,5,10) than at the distant stations (11,14,15,16,21), but overall slightly less plankton was collected at the close stations. Slightly more zooplankton was collected at the close stations, however. The phy/zoo ratio was highest in July and lowest in January (so low, in fact, one wonders what the zooplankton was eating), whereas the overall ratio was very slightly lower at the close stations.

Tables 20 through 23 (Appendix II) are phytoplankton data for January, April, July and October, respectively, whereas Tables 24 through 27 (Appendix III) contain zooplankton for the same months. Dominant phytoplankton taxa were Oscillatoria and Microspora in January; Oscillatoria in April; Oscillatoria, Spirulina, Cyclotella and Melosira (some stations) in July; and Ankistrodesmus and Cyclotella in October. Dominant zooplankton taxa were Polyarthra and eggs in January; nauplii in April; Polyarthra, Brachionus (some stations) and eggs in July; and Polyarthra, Keratella and nauplii in October.

Table 7 is a summary of abundance and diversity of benthic organisms. All are listed in the summary except for one specimen each of Ceratopogonidae (Sta. 10-April), Nematoda (Sta. 3-July) and Trichoptera (Sta. 14-July). Chaoborus larvae was noticeably the most numerous taxon, but since many of the chironomid larvae were larger, the latter may have been dominant by biomass. The populations

Table 6. Numbers of plankton (per liter) and phy/zoo ratios, Lake Dardanelle, Arkansas, 1981. (Total numbers are averages of strip count and field count methods, and zooplankton numbers are adjusted to reflect that proportion of the average totals which the actual counts reflect of the strip count total).

	JANUARY			APRIL		
Sta.	Total	Zoopl.	phy/zoo	Total	Zoopl.	phy/zoo
1	1566	1425	0.1	1006	781	0.3
2	1212	1114	0.09	1336	988	0.4
3	1513	1512	0.00	907	705	0.3
5	702	581	0.2	992	876	0.1
10	948	941	0.01	818	329	1.5
11	978	956	0.02	530	142	2.7
14	626	544	0.2	376	337	0.1
15	709	709	0.00	550	495	0.1
16	1736	1644	0.06	784	538	0.5
21	1336	1233	0.08	938	206	3.6
MEAN			0.076			0.96

	JULY			OCTOBER		
1	6780	633	9.7	2660	471	4.6
2	8446	381	21.2	1600	163	8.8
3	9301	905	9.3	1772	263	5.7
5	23138	556	40.6	1906	662	1.9
10	13083	475	26.5	1800	426	3.2
11	10725	1415	6.6	2334	330	6.1
14	18438	762	23.2	3040	474	5.4
15	12266	338	35.3	2313	330	6.0
16	11108	577	18.2	2351	427	4.5
21	12462	585	20.3	2066	369	4.6
MEAN			21.09			5.08

Table 7. Summary of benthic abundance (no./m^2), Lake Dardanelle, Arkansas, 1981. (Close stations are 1,2,3,5,10; distant stations are 11,14,15,16,21. SD = standard deviation).

	Chaoborus		Chironomidae		Oligochaeta		*Hexagenia*		Sphaeriidae		*Corbicula*	
Month	$\bar{X}$ no.	SD	$\bar{X}$ no.	SD	$\bar{X}$ no.	SD	$\bar{X}$ no.	SD	$\bar{X}$ no.	SD	$\bar{X}$ no.	SD
JANUARY												
close	577	698	280	232	8.6	17.2	30	55	0	0	8.6	18
distant	336	430	327	188	22	52	8.6	17.2	0	0	0	0
all sta.	456	598	304	213	15	39	19	42	0	0	4.3	13
APRIL												
close	232	438	228	184	77	93	47	49	0	0	0	0
distant	134	164	280	188	198	231	22	35	0	0	0	0
all sta.	183	335	254	188	138	157	34	44	0	0	0	0
JULY												
close	69	131	60	52	4.3	13	0	0	0	0	0	0
distant	116	158	116	82	8.6	17	22	44	0	0	0	0
all sta.	93	147	88	74	6.5	15	11	33	0	0	0	0
OCTOBER												
close	194	216	202	149	263	395	4.3	13	4.3	13	0	0
distant	357	456	271	177	439	408	26	39	0	0	0	0
all sta.	276	356	237	167	351	411	15	31	2.15	9.4	0	0

of *Chaoborus* and Chironomidae peaked in January, whereas the Oligochaeta peaked in October and the *Hexagenia* in April. Sphaeriidae and *Corbicula* were very sparse. *Chaoborus* and *Hexagenia* were more numerous at the closer stations during January and April (and less numerous in July and October), whereas Chironomidae and Oligochaeta were less numerous at close stations during all months. The only specimens of Sphaeriidae and *Corbicula* were collected at close stations. Tables 28 through 31 (Appendix IV) give complete data on benthic collections.

Summary

During this study period, operations at ANO did not alter any physico-chemical parameter measured (except temperature), seemed to cause a very slight overall depression of the plankton, a slight enhancement of the zooplankton and a slight general decrease of benthic organisms. Detailed exceptions within these general effects were a slight increase in total plankton, *Chaoborus* and *Hexagenia* during January and April.

ARKANSAS POWER AND LIGHT COMPANY

REVIEW AND SUMMARY

A review of Progress Report No. 24 shows that it complies with Section 4.0 Appendix B of the Arkansas Nuclear One Unit 1 Environmental Technical Specifications. The data collected for all parameters in this reporting period, January through December 1981, closely resemble data collected during 1980 and do not express any significant difference, other than thermal, from preoperational data collected from 1968 through 1974.

It is concluded from these results that no significant impact to the water quality,planktonic or benthic populations of Dardanelle Reservoir is attributable to the operation of Arkansas Nuclear One.

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

JANUARY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	45.4	7.7	11.4						425				0.7				
1	2	44.6	7.0	11.2	8.2	6	28	176	8		<.1	0.00	75		106	.016	0.08	0.04
1	5	44.4	6.9	11.1														
1	7	44.2	6.8	11.1														
1	9	43.4	6.6	11.0	8.2	10	15	176	0		<.1	0.00	77		106	.022	0.06	0.02
3	1	42.4	5.8	11.7														
3	2	42.4	5.8	11.5	8.0	10	30	176			<.1	0.00					0.04	0.02
3	5	41.9	5.5	11.4														
3	7	41.7	5.4	11.3														
3	12	41.5	5.3	11.2														
3	17	41.5	5.3	11.2	8.0	4		168				0.00					0.09	
3	22	41.5	5.3	11.2														
3	27	41.5	5.3	11.2														
3	32	41.5	5.3	11.2														
3	37	41.5	5.3	11.2	8.0	4		176				0.05					0.08	0.02
5																	0.07	0.03
5	1	46.4	8.0	11.4						431				0.3				
5	2	45.9	7.7	11.3	8.2	8	20	168	0		<.1	0.00	80		103	.020	0.07	0.02
5	5	44.4	6.9	11.1														
5	7	42.8	6.0	11.0														
5	9	42.6	5.9	11.0	8.2	8	25	172	7		<.1	0.00	80		104	.026		
7	1	42.8	6.0	12.0														
7	2	42.4	5.8	11.5	8.1	7	20	176			<.1	0.00					0.04	0.03
7	5	42.1	5.6	11.3														
7	7	41.7	5.4	11.3														
7	12	41.5	5.3	11.2	8.1	6		168				0.00					0.06	
7	17	41.5	5.3	11.2														
7	22	41.4	5.2	11.0														
7	27	41.4	5.2	11.0	8.1	6		176				0.00					0.09	0.02
8	1	43.2	6.2	11.6														
8	2	42.8	6.0	11.6	8.0	5	38	168			<.1	0.05					0.05	0.01
8	5	42.8	6.0	11.6														
8	7	42.6	5.9	11.5														
8	12	42.4	5.8	11.5														
8	17	42.4	5.8	11.4														
8	22	42.1	5.6	11.4														
8	27	41.9	5.5	11.4	8.1	8		168				0.00					0.07	0.02
10	1	43.2	6.2	11.9														
10	2	42.8	6.0	11.6	8.0	8	25	176			<.1	0.00					0.06	0.01
10	5	42.4	5.8	11.4														
10	7	41.7	5.4	11.3														
10	11	41.5	5.3	11.2	8.0	10		168				0.00					0.04	0.03

TABLE 8

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

JANUARY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	43.0	6.1	12.2														
11	2	42.6	5.9	11.6	8.0	10	25	168			<.1	0.00					0.08	0.04
11	5	42.1	5.6	11.4														
11	7	41.7	5.4	11.3														
11	12	41.4	5.2	11.2	8.0	10		168				0.00					0.07	0.03
13	1	43.3	6.3	11.1														
13	2	43.2	6.2	11.1	8.1	8	25	168			<.1	0.00					0.07	0.03
13	5	42.8	6.0	11.1														
13	7	42.4	5.8	11.0														
13	12	41.9	5.5	11.0														
13	17	41.5	5.3	11.0														
13	22	41.5	5.3	11.0														
13	27	41.5	5.3	11.0	8.1	8		168				0.00					0.08	
13	32	41.5	5.3	11.0														
13	37	41.5	5.3	11.1														
13	42	41.5	5.3	11.1														
13	47	41.4	5.2	11.1														
13	52	41.4	5.2	11.1	8.1	5		168				0.00					0.10	0.05
14	1	42.9	6.0	11.9														
14	2	42.6	5.9	11.8	8.0	7	45	166			<.1	0.00					0.08	0.03
14	5	42.4	5.8	11.6														
14	7	42.4	5.8	11.6														
14	12	42.1	5.6	11.4														
14	15	41.7	5.4	11.3	8.0	9		176				0.05					0.07	0.01
15	1	46.8	8.2	11.0														
15	2	46.0	7.8	10.8	8.2	8	23	168			<.1	0.00					0.06	0.02
15	5	44.4	6.9	11.0														
15	7	43.2	6.2	11.0														
15	12	42.8	6.0	11.0														
15	17	42.6	5.9	11.0	8.2	3		168				0.00					0.07	
15	22	42.4	5.8	11.0														
15	27	42.3	5.7	11.0														
15	32	42.1	5.6	11.0														
15	37	41.9	5.5	11.0	8.2	4		172				0.00					0.05	0.02
16	1	43.0	6.1	11.9						423				0.4				
16	2	42.6	5.9	11.8	8.1	5	45	168	8		<.1	0.00	81		102	.020	0.05	0.01
16	5	42.4	5.8	11.7														
16	7	42.4	5.8	11.7														
16	12	42.3	5.7	11.6	8.0	5	40	170	4		<.1	0.05	78		103	.019	0.07	0.01

TABLE 8 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

JANUARY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	43.2	6.2	11.8	.	.	.	.	.	.		.	.	.	.	.	.	.
17	2	42.5	6.0	11.6	8.1	5	45	168	.	.	<.1	0.00	.	.	.	.	0.07	0.02
17	5	42.6	5.9	11.4	.	.	.	.	.	.		.	.	.	.	.	.	.
17	7	42.4	5.8	11.4	.	.	.	.	.	.		.	.	.	.	.	.	.
17	12	42.3	5.7	11.4	.	.	.	.	.	.		.	.	.	.	.	.	.
17	17	41.9	5.5	11.4	8.1	5	.	168	.	.		0.00	.	.	.	.	0.09	.
17	22	41.5	5.3	11.2	.	.	.	.	.	.		.	.	.	.	.	.	.
17	27	41.4	5.2	11.2	.	.	.	.	.	.		.	.	.	.	.	.	.
17	32	41.4	5.2	11.2	8.1	5	.	168	.	.		0.01	.	.	.	.	0.07	0.02
20	1	44.4	6.9	12.0	.	.	.	.	.	.		.	.	.	.	.	.	.
20	2	43.3	6.3	11.8	.	.	.	.	.	.		.	.	.	.	.	.	.
20	5	42.8	6.0	11.8	.	.	.	.	.	.		.	.	.	.	.	.	.
20	7	42.6	5.9	11.8	.	.	.	.	.	.		.	.	.	.	.	.	.
20	12	42.3	5.7	11.7	.	.	.	.	.	.		.	.	.	.	.	.	.
20	17	41.5	5.3	11.7	.	.	.	.	.	.		.	.	.	.	.	.	.
20	22	41.5	5.3	11.7	.	.	.	.	.	.		.	.	.	.	.	.	.
20	27	41.5	5.3	11.5	.	.	.	.	.	.		.	.	.	.	.	.	.
21	1	41.5	5.3	12.1	.	.	.	.	.	414		.	.	0.4	.	.	.	.
21	2	41.2	5.1	11.8	8.0	5	48	168	5	.	<.1	0.00	77	.	102	.022	0.07	0.02
21	5	41.2	5.1	11.7	.	.	.	.	.	.		.	.	.	.	.	.	.
21	7	41.2	5.1	11.6	.	.	.	.	.	.		.	.	.	.	.	.	.
21	12	41.0	5.0	11.6	.	.	.	.	.	.		.	.	.	.	.	.	.
21	17	41.0	5.0	11.5	.	.	.	.	.	.		.	.	.	.	.	.	.
21	22	41.0	5.0	11.5	.	.	.	.	.	.		.	.	.	.	.	.	.
21	27	41.0	5.0	11.3	8.0	5	40	168	3	.	<.1	0.10	76	.	102	.023	0.06	0.03

TABLE 8 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

FEBRUARY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	47.5	8.6	12.3	.	.	.	.	.	378		.	.	0.5	.	.	.	.
1	2	46.8	8.2	12.3	8.4	8	30	150	10	.	<.1	0.40	68	.	91	.024	0.08	0.03
1	5	46.6	8.1	12.4	.	.	.	.	.	.		.	.	.	.	.	.	.
1	7	46.4	8.0	12.4	.	.	.	.	.	.		.	.	.	.	.	.	.
1	10	46.4	8.0	12.4	8.4	12	35	150	12	.	<.1	0.00	65	.	90	.024	0.10	0.04
3	1	45.0	7.2	12.6	.	.	.	.	.	.		.	.	.	.	.	.	.
3	2	44.2	6.8	12.8	8.4	10	25	128	.	.	<.1	0.00	.	.	.	.	0.07	0.02
3	5	43.7	6.5	13.0	.	.	.	.	.	.		.	.	.	.	.	.	.
3	7	43.2	6.2	12.9	.	.	.	.	.	.		.	.	.	.	.	.	.
3	12	42.8	6.0	12.7	.	.	.	.	.	.		.	.	.	.	.	.	.
3	17	42.4	5.8	12.5	8.4	8	.	134	.	.		0.00	.	.	.	.	0.09	.
3	22	42.1	5.6	12.4	.	.	.	.	.	.		.	.	.	.	.	.	.
3	27	41.9	5.5	12.2	.	.	.	.	.	.		.	.	.	.	.	.	.
3	32	41.5	5.3	12.1	.	.	.	.	.	.		.	.	.	.	.	.	.
3	37	41.5	5.3	12.0	8.2	7	.	140	.	.		0.00	.	.	.	.	0.07	0.02
5	1	46.8	8.2	12.4	.	.	.	.	.	378		.	.	0.4	.	.	.	.
5	2	46.4	8.0	12.4	8.2	5	24	152	12	.	<.1	0.05	67	.	92	.024	0.10	0.03
5	5	46.2	7.9	12.2	.	.	.	.	.	.		.	.	.	.	.	.	.
5	7	45.2	7.9	12.2	.	.	.	.	.	.		.	.	.	.	.	.	.
5	9	46.0	7.8	12.0	8.2	8	20	152	14	.	<.1	0.20	67	.	94	.025	0.07	0.05
7	1	45.5	7.5	13.0	.	.	.	.	.	.		.	.	.	.	.	.	.
7	2	44.8	7.1	13.1	8.5	15	30	124	.	.	<.1	0.00	.	.	.	.	0.11	0.03
7	5	44.6	7.0	13.1	.	.	.	.	.	.		.	.	.	.	.	.	.
7	7	44.2	6.8	13.0	.	.	.	.	.	.		.	.	.	.	.	.	.
7	12	42.4	5.8	12.4	8.4	18	.	122	.	.		0.00	.	.	.	.	0.08	.
7	17	41.5	5.3	12.4	.	.	.	.	.	.		.	.	.	.	.	.	.
7	22	41.4	5.2	12.2	.	.	.	.	.	.		.	.	.	.	.	.	.
7	27	41.4	5.2	12.2	8.4	10	.	128	.	.		0.00	.	.	.	.	0.09	0.05
8	1	45.0	7.2	12.4	.	.	.	.	.	.		.	.	.	.	.	.	.
8	2	44.6	7.0	12.2	8.2	8	20	150	.	.	<.1	0.01	.	.	.	.	0.08	0.03
8	5	44.6	7.0	12.2	.	.	.	.	.	.		.	.	.	.	.	.	.
8	7	44.6	7.0	12.2	.	.	.	.	.	.		.	.	.	.	.	.	.
8	12	44.6	7.0	12.2	.	.	.	.	.	.		.	.	.	.	.	.	.
8	17	44.6	7.0	12.2	.	.	.	.	.	.		.	.	.	.	.	.	.
8	22	43.2	6.2	11.6	.	.	.	.	.	.		.	.	.	.	.	.	.
8	27	42.8	6.0	11.4	8.0	8	.	154	.	.		0.01	.	.	.	.	0.10	0.03
10	1	46.4	8.0	12.3	.	.	.	.	.	.		.	.	.	.	.	.	.
10	2	45.7	7.6	12.4	8.4	12	28	140	.	.	<.1	0.00	.	.	.	.	0.07	0.03
10	5	45.1	7.3	12.4	.	.	.	.	.	.		.	.	.	.	.	.	.
10	7	44.8	7.1	12.5	.	.	.	.	.	.		.	.	.	.	.	.	.
10	12	44.6	7.0	12.5	8.4	10	.	136	.	.		0.10	.	.	.	.	0.09	0.03

TABLE 9

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

FEBRUARY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	45.9	7.7	12.2														
11	2	45.0	7.2	12.1	8.3	6	20	144			<.1	0.00					0.07	0.02
11	5	44.8	7.1	12.1														
11	7	44.6	7.0	12.1														
11	12	44.6	7.0	12.0														
11	14	44.4	6.9	12.1	8.3	5		140				0.01					0.08	0.01
13	1	44.6	7.0	12.7														
13	2	44.2	6.8	12.6	8.4	10	28	140			<.1	0.10					0.07	0.03
13	5	43.7	6.5	12.6														
13	7	43.5	6.4	12.6														
13	12	43.2	6.2	12.6														
13	17	43.0	6.1	12.6														
13	22	42.8	6.0	12.5														
13	27	42.4	5.8	12.4	8.4	10		138				0.01					0.08	
13	32	42.4	5.8	12.4														
13	37	42.3	5.7	12.3														
13	42	41.9	5.5	12.2														
13	47	41.5	5.3	12.0														
13	52	41.0	5.0	11.6	8.0	12						0.01					0.08	0.03
14	1	46.4	8.0	12.5														
14	2	45.0	7.2	12.2	8.2	9	25	148			<.1	0.00					0.05	0.02
14	5	45.0	7.2	12.2														
14	7	44.8	7.1	12.2														
14	12	44.6	7.0	12.1														
14	15	44.4	6.9	11.7	8.2	8		146				0.01					0.15	0.02
15	1	46.0	7.8	12.2														
15	2	45.3	7.4	12.2	8.3	12	35	148			<.1	0.00					0.07	0.02
15	5	44.6	7.0	12.0														
15	7	44.6	7.0	12.1														
15	12	44.2	6.8	12.1														
15	17	43.9	6.6	12.0	8.2	8		146				0.00					0.07	
15	22	43.3	6.3	12.0														
15	27	43.0	6.1	11.9														
15	32	43.0	6.1	11.9	8.2	5		146				0.00					0.08	0.01
16	1	46.0	7.8	12.2						343				0.5				
16	2	45.5	7.5	12.1	8.2	8	25	142	10		<.1	0.00	67		88	.026	0.08	0.03
16	5	45.1	7.3	12.0														
16	7	45.0	7.2	12.0														
16	12	45.0	7.2	12.1	8.2	9	25	148	13		<.1	0.00	66		89	.024	0.05	0.03

TABLE 9 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

FEBRUARY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	45.9	7.7	12.2	.	.	.	.	.	.		.	.	.	.	.	.	.
17	2	45.3	7.4	12.0	8.2	8	35	152	.	.	<.1	0.00	.	.	.	.	0.09	0.02
17	5	45.1	7.3	12.1	.	.	.	.	.	.		.	.	.	.	.	.	.
17	7	45.0	7.2	12.1	.	.	.	.	.	.		.	.	.	.	.	.	.
17	12	44.6	7.0	12.0	.	.	.	.	.	.		.	.	.	.	.	.	.
17	17	43.9	6.6	11.6	8.2	8	.	152	.	.		0.00	.	.	.	.	0.10	.
17	22	43.2	6.2	11.5	.	.	.	.	.	.		.	.	.	.	.	.	.
17	27	42.8	6.0	11.4	.	.	.	.	.	.		.	.	.	.	.	.	.
17	32	42.4	5.8	11.3	8.0	9	.	156	.	.		0.01	.	.	.	.	0.09	0.03
20	1	46.6	8.1	11.7	.	.	.	.	.	.		.	.	.	.	.	.	.
20	2	46.4	8.0	11.6	.	.	.	.	.	.		.	.	.	.	.	.	.
20	5	46.4	8.0	11.6	.	.	.	.	.	.		.	.	.	.	.	.	.
20	7	46.4	8.0	11.6	.	.	.	.	.	.		.	.	.	.	.	.	.
20	12	46.2	7.9	11.6	.	.	.	.	.	.		.	.	.	.	.	.	.
20	17	44.6	7.0	11.4	.	.	.	.	.	.		.	.	.	.	.	.	.
20	22	44.6	7.0	11.6	.	.	.	.	.	.		.	.	.	.	.	.	.
20	27	44.2	6.8	11.6	.	.	.	.	.	.		.	.	.	.	.	.	.
21	1	46.2	7.9	13.4	.	.	.	.	.	266		.	.	0.6	.	.	.	.
21	2	45.7	7.6	13.1	8.4	10	23	116	15	.	<.1	0.01	55	.	68	.025	0.11	0.03
21	5	45.0	7.2	12.9	.	.	.	.	.	.		.	.	.	.	.	.	.
21	7	44.2	6.8	12.6	.	.	.	.	.	.		.	.	.	.	.	.	.
21	12	43.2	6.2	12.3	.	.	.	.	.	.		.	.	.	.	.	.	.
21	17	42.8	6.0	12.1	.	.	.	.	.	.		.	.	.	.	.	.	.
21	22	42.4	5.8	12.0	.	.	.	.	.	.		.	.	.	.	.	.	.
21	27	41.9	5.5	11.8	8.2	10	23	116	15	.	<.1	0.05	55	.	68	.025	0.10	0.03

TABLE 9 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

MARCH 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	68.0	20.0	11.2						205				0.5				
1	2	69.3	20.7	11.0	8.6	10	35	90	18		<.1	0.20	46		51	.027	0.15	0.08
1	5	69.6	20.9	11.0														
1	7	69.8	21.0	11.0														
1	9	69.8	21.0	11.0	8.6	15	40	98	15		<.1	0.00	52		52	.034	0.14	0.11
3	1	64.4	18.0	11.3														
3	2	64.4	18.0	11.2	8.6	22	40	94			<.1	0.10					0.15	0.15
3	5	60.4	15.8	10.2														
3	7	57.2	14.0	9.5														
3	12	56.1	13.4	9.2														
3	17	55.4	13.0	9.0	7.8	25		96				0.05					0.18	
3	22	53.5	12.0	8.0														
3	27	53.5	12.0	7.9														
3	32	53.4	11.9	7.6														
3	37	53.2	11.8	7.6	7.6	44		92				0.00					0.22	0.19
5	1	67.6	19.8	11.3						215				0.6				
5	2	67.6	19.8	11.2	8.8	20	38	88	10		<.1	0.00	47		50	.025	0.10	0.10
5	5	62.6	17.0	10.9														
5	7	57.2	14.0	10.6														
5	10	57.2	14.0	10.4	8.6	30	30	96	12		<.1	0.00	50		52	.026	0.15	0.05
7	1	58.6	14.8	11.4														
7	2	57.7	14.3	11.1	8.8	25	20	94			<.1	0.00					0.15	0.04
7	5	57.2	14.0	10.8														
7	7	55.9	13.3	10.2														
7	12	55.4	13.0	9.3	8.0	25		94				0.10					0.18	
7	17	55.0	12.8	8.9														
7	22	53.5	12.1	8.3														
7	27	53.6	12.0	8.0	7.6	35		92				0.10					0.24	0.05
8	1	57.0	13.9	11.4														
8	2	56.8	13.8	11.3	8.6	20	48	96			<.1	0.10					0.12	0.00
8	5	55.8	13.2	11.0														
8	7	55.4	13.0	10.7														
8	12	55.4	13.0	10.6														
8	17	53.6	12.0	9.6														
8	22	53.6	12.0	9.4														
8	27	53.1	11.7	6.7	8.0	20		100				0.10					0.22	0.04
10	1	57.7	14.3	11.8														
10	2	57.7	14.3	11.8	8.8	22	30	94			<.1	0.10					0.10	0.08
10	5	57.2	14.0	11.4														
10	7	56.5	13.6	11.2														
10	11	55.8	13.2	10.6	8.6	20		102				0.10					0.14	0.10

TABLE 10

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

MARCH 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	57.2	14.0	11.0														
11	2	55.9	13.8	11.0	8.6	20	35	94			<.1	0.20					0.12	0.12
11	5	55.4	13.0	10.4														
11	7	55.2	12.9	10.2														
11	12	55.0	12.8	10.0	8.4	28		94				0.10					0.14	0.12
13	1	55.4	13.0	8.9														
13	2	54.9	12.7	9.0	7.8	22	25	98			<.1	0.25					0.20	0.14
13	5	54.3	12.4	8.9														
13	7	54.1	12.3	8.8														
13	12	53.6	12.0	8.4														
13	17	53.4	11.9	8.3														
13	22	53.2	11.8	8.2														
13	27	53.2	11.8	8.1	7.6	28		94				0.10					0.16	
13	32	53.2	11.8	8.1														
13	37	53.2	11.8	8.0														
13	42	53.2	11.8	8.0														
13	47	53.2	11.6	8.0														
13	52	53.1	11.7	8.0	7.6	28		96				0.10					0.22	0.15
14	1	57.2	14.0	11.0														
14	2	56.8	13.6	10.9	8.6	22	40	100			<.1	0.10					0.12	0.12
14	5	56.3	13.5	10.8														
14	7	55.8	13.2	10.6														
14	12	55.4	13.0	9.7														
14	15	53.6	12.0	8.6	8.0	22		96				0.10					0.15	0.12
15	1	58.8	14.9	11.4														
15	2	58.3	14.6	11.4	8.8	18	40	96			<.1	0.00					0.12	0.10
15	5	57.2	14.0	11.3														
15	7	56.3	13.6	10.8														
15	12	54.7	12.6	9.2														
15	17	54.3	12.4	9.2	8.0	17		96				0.20					0.16	
15	22	54.1	12.3	9.1														
15	27	53.6	12.0	8.9														
15	32	53.1	11.7	8.4	7.8	22		98				0.10					0.15	0.10
16	1	55.6	13.1	11.4						217				0.3				
15	2	55.6	13.1	11.0	8.6	10	35	90	18		<.1	0.20	46		51	.027	0.15	0.00
16	5	55.0	12.8	11.0														
16	7	55.0	12.8	10.8														
16	11	54.9	12.7	10.6	8.4	18	40	98	15		<.1	0.20	52		52	.034	0.10	0.00

257

TABLE 10 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

MARCH 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	55.9	13.3	10.9														
17	2	55.6	13.2	10.9	8.6	15		96				0.00					0.10	0.05
17	5	55.5	13.2	10.9														
17	7	55.4	13.0	10.8														
17	12	55.4	13.0	10.6														
17	17	54.9	12.7	10.2	8.4	20		100				0.10					0.12	
17	22	53.6	12.0	9.2														
17	27	53.1	11.7	6.9														
17	32	52.9	11.6	6.4	7.8	18		104				0.30					0.18	0.00
20	1	56.5	13.6															
20	2	56.5	13.6															
20	5	56.1	13.4															
20	7	55.9	13.3															
20	12	55.2	12.9															
20	17	53.4	11.9															
20	22	53.2	11.8															
20	27	53.1	11.7															
21	1	60.1	15.6	11.7						230				0.4				
21	2	60.1	15.6	11.7	8.8	25	28	96	17		<.1	0.00	49		51	.030	0.12	0.08
21	5	59.5	15.3	11.6														
21	7	58.8	14.9	11.0														
21	12	56.8	13.8	10.0														
21	17	56.1	13.4	9.6														
21	22	55.4	13.0	9.3														
21	27	53.6	12.0	6.4	7.9	40	40	100	19		<.1	0.00	50		52	.030	0.24	0.14

TABLE 10 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

APRIL 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	80.2	26.8	6.8						157				0.5				
1	2	80.4	26.9	6.9	8.4	10	38	70	0		<.1	0.25	39		40	.020	0.18	0.03
1	5	80.6	27.0	6.9														
1	7	80.4	26.9	6.9														
1	9	80.4	26.9	6.9	8.4	15	50	74	0		<.1	0.00	38		38	.029	0.14	0.03
3	1	70.0	21.1	6.8														
3	2	69.8	21.0	6.7	8.4	18	72	82			<.1	0.10					0.14	0.03
3	5	69.4	20.8	6.6														
3	7	68.5	20.3	6.4														
3	12	68.0	20.0	6.4														
3	17	66.4	19.1	6.1	8.0	19		80				0.00					0.14	
3	22	66.2	19.0	6.1														
3	27	65.5	18.6	7.7														
3	32	63.3	17.4	6.0														
3	37	62.8	17.1	5.9	7.5	55		94				0.00					0.30	0.04
5	1	78.8	26.0	6.8						147				0.5				
5	2	78.8	26.0	6.7	8.5	10	50	74	2		<.1	0.20	40		42	.029	0.16	0.05
5	5	78.8	26.0	6.8														
5	7	74.3	23.5	7.6														
5	10	67.6	19.8	7.4	8.1	21	50	84	7		<.1	0.00	46		47	.025	0.18	0.04
7	1	67.6	19.8	6.7														
7	2	67.1	19.5	6.6	8.4	24	49	84			<.1	0.00					0.14	0.02
7	5	66.7	19.3	6.5														
7	7	66.5	19.2	6.5														
7	12	66.2	19.0	6.3	8.2	25		84				0.00					0.11	
7	17	66.2	19.0	8.1														
7	22	64.8	18.2	7.0														
7	27	64.0	17.8	6.3	7.7	30		84				0.00					0.17	0.02
8	1	70.3	21.3	10.3														
8	2	68.9	20.5	10.4	8.4	10	45	80			<.1	0.10					0.10	0.01
8	5	68.0	20.0	9.6														
8	7	65.3	18.5	9.0														
8	12	64.6	18.1	6.4														
8	17	64.2	17.9	7.9														
8	22	63.0	17.2	7.2														
8	27	62.8	17.1	6.9	7.5	30		78				0.20					0.35	0.12
10	1	66.2	19.0	8.3														
10	2	66.2	19.0	8.3	8.1	18	43	84			<.1	0.00					0.11	0.04
10	5	65.8	18.8	8.3														
10	7	65.8	18.8	8.3														
10	11	65.8	18.8	8.3	8.1	17		84				0.20					0.15	0.08

259

TABLE 11

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

APRIL 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	66.7	19.3	8.7														
11	2	66.5	19.2	8.6	8.2	10	100	84			<.1	0.10					0.14	0.01
11	5	66.4	19.1	8.6														
11	7	66.2	19.0	8.5														
11	12	64.8	18.2	7.9	8.1	20		88				0.00					0.14	0.00
13	1	66.4	19.1	8.3														
13	2	65.7	18.7	8.2	8.0	20	60	84			<.1	0.00					0.15	0.05
13	5	64.4	18.0	7.5														
13	7	64.4	18.0	7.3														
13	12	63.7	17.6	6.8														
13	17	63.5	17.5	6.7														
13	22	63.3	17.4	6.6														
13	27	63.0	17.2	6.4	7.6	30		88				0.10					0.24	
13	32	63.0	17.2	6.3														
13	37	62.6	17.0	5.8														
13	42	62.4	16.9	4.8														
13	47	62.1	16.7	4.3														
13	52	61.7	16.5	3.2	7.3	60		88				0.10					0.45	0.01
14	1	68.0	20.0	9.5														
14	2	67.8	19.9	9.6	8.5	17	48	84			<.1	0.10					0.10	0.04
14	5	67.6	19.8	9.5														
14	7	67.3	19.6	9.5														
14	12	66.2	19.0	9.2														
14	14	64.4	18.0	6.7	8.4	45		84				0.20					0.30	0.02
15	1	69.8	21.0	6.8														
15	2	68.4	20.2	6.9	8.3	10	48	84			<.1	0.00					0.12	0.02
15	5	68.0	20.0	8.8														
15	7	68.0	20.0	8.7														
15	12	68.0	20.0	8.5														
15	17	66.9	19.4	8.2	8.0	15		84				0.00					0.15	
15	22	63.5	17.5	7.1														
15	27	63.0	17.2	6.9														
15	32	63.0	17.2	6.9	7.6	30		80				0.10					0.22	0.02
16	1	67.1	19.5	9.4						163				0.1				
16	2	66.2	19.0	9.4	8.3	18	38	70	5		<.1	0.10	40		41	.014	0.10	0.01
16	5	64.4	18.0	6.5														
16	7	63.9	17.7	8.0														
16	12	63.1	17.3	7.7	7.8	15	47	82	5		<.1	0.25	43		45	.027	0.20	0.01

TABLE 11 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

APRIL 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	68.9	20.5	9.5														
17	2	68.0	20.0	9.6	8.3	18	47	80			<.1	0.00					0.10	0.02
17	5	67.6	19.9	9.6														
17	7	66.9	19.4	9.2														
17	12	64.8	18.2	8.2														
17	17	64.4	18.0	7.9	7.8	18		80				0.00					0.14	
17	22	63.7	17.6	7.6														
17	27	63.1	17.3	7.3														
17	32	63.0	17.2	7.0	7.5	30		78				0.00					0.22	0.00
20	1	70.7	21.5	9.6														
20	2	69.8	21.0	9.6														
20	5	67.8	19.9	9.3														
20	7	66.7	19.3	9.1														
20	12	64.2	17.9	7.9														
20	17	63.3	17.4	7.3														
20	22	62.8	17.1	7.1														
20	27	62.6	17.0	7.0														
21	1	69.8	21.0	8.6						181				0.4				
21	2	69.4	20.8	8.5	8.2	18	95	80	0		<.1	0.00	48		46	.024	0.12	0.02
21	5	69.4	20.8	8.5														
21	7	69.3	20.7	8.5														
21	12	68.9	20.5	8.4														
21	17	67.8	19.9	8.3														
21	22	66.9	19.4	8.1														
21	27	64.0	17.8	8.5	7.8	18	73	80	2		<.1	0.10	41		44	.026	0.14	0.01

TABLE 11 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

MAY 198[illegible]

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	81.1	27.3	6.5	.	.	.	.	.	174		.	.	0.4	.	.	.	.
1	2	82.0	27.8	6.5	7.7	22	48	72	15	.	<.1	0.00	37	.	40	.026	0.18	0.05
1	5	82.2	27.9	6.5	.	.	.	.	.	.		.	.	.	.	.	.	.
1	7	82.2	27.9	6.4	.	.	.	.	.	.		.	.	.	.	.	.	.
1	10	82.4	28.0	6.2	7.7	21	35	80	13	.	<.1	0.00	37	.	41	.025	0.18	0.05
3	1	71.4	21.9	8.1	.	.	.	.	.	.		.	.	.	.	.	.	.
3	2	72.1	22.3	7.9	7.5	52	80	96	.	.	<.1	0.10	.	.	.	.	0.22	0.03
3	5	67.6	19.8	7.7	.	.	.	.	.	.		.	.	.	.	.	.	.
3	7	65.7	18.7	7.4	.	.	.	.	.	.		.	.	.	.	.	.	.
3	12	65.3	18.5	7.5	.	.	.	.	.	.		.	.	.	.	.	.	.
3	17	65.1	18.4	7.4	7.5	70	.	100	.	.		0.00	.	.	.	.	0.30	.
3	22	64.9	18.3	7.5	.	.	.	.	.	.		.	.	.	.	.	.	.
3	27	64.8	18.2	7.5	.	.	.	.	.	.		.	.	.	.	.	.	.
3	32	64.6	18.1	7.4	.	.	.	.	.	.		.	.	.	.	.	.	.
3	37	64.4	18.0	7.3	7.4	62	.	104	.	.		0.10	.	.	.	.	0.32	0.08
5	1	79.0	26.1	8.1	.	.	.	.	.	197		.	.	0.6	.	.	.	.
5	2	77.9	25.5	8.2	7.7	30	80	80	9	.	<.1	0.00	40	.	46	.026	0.27	0.02
5	5	68.0	20.0	7.2	.	.	.	.	.	.		.	.	.	.	.	.	.
5	7	66.2	19.0	7.5	.	.	.	.	.	.		.	.	.	.	.	.	.
5	9	65.3	18.5	7.2	7.6	58	80	92	39	.	<.2	0.00	49	.	59	.030	0.40	0.05
7	1	69.1	20.6	8.6	.	.	.	.	.	.		.	.	.	.	.	.	.
7	2	70.3	21.3	8.1	7.5	58	49	100	.	.	<.1	0.00	.	.	.	.	0.28	0.03
7	5	65.2	20.1	8.0	.	.	.	.	.	.		.	.	.	.	.	.	.
7	7	66.9	19.4	7.7	.	.	.	.	.	.		.	.	.	.	.	.	.
7	12	65.3	18.5	7.4	7.5	59	.	100	.	.		0.00	.	.	.	.	0.46	.
7	17	64.9	18.3	7.4	.	.	.	.	.	.		.	.	.	.	.	.	.
7	22	64.4	18.0	7.2	.	.	.	.	.	.		.	.	.	.	.	.	.
7	27	64.4	18.0	6.4	7.5	65	.	104	.	.		0.00	.	.	.	.	0.34	0.10
8	1	68.2	20.1	6.0	.	.	.	.	.	.		.	.	.	.	.	.	.
8	2	68.4	20.2	7.7	7.5	42	70	92	.	.	<.1	0.00	.	.	.	.	0.32	0.08
8	5	67.8	19.9	7.6	.	.	.	.	.	.		.	.	.	.	.	.	.
8	7	67.5	19.7	7.6	.	.	.	.	.	.		.	.	.	.	.	.	.
8	12	67.5	19.7	7.5	.	.	.	.	.	.		.	.	.	.	.	.	.
8	17	67.1	19.5	7.6	.	.	.	.	.	.		.	.	.	.	.	.	.
8	22	67.1	19.5	7.5	.	.	.	.	.	.		.	.	.	.	.	.	.
8	27	67.1	19.5	7.3	7.4	45	.	92	.	.		0.10	.	.	.	.	0.40	0.05
10	1	71.1	21.7	8.1	.	.	.	.	.	.		.	.	.	.	.	.	.
10	2	69.8	21.0	7.8	7.6	55	52	96	.	.	<.1	0.00	.	.	.	.	0.30	0.04
10	5	67.5	19.7	7.8	.	.	.	.	.	.		.	.	.	.	.	.	.
10	7	65.8	18.8	7.2	.	.	.	.	.	.		.	.	.	.	.	.	.
10	11	65.5	18.6	7.2	7.5	62	.	100	.	.		0.00	.	.	.	.	0.34	0.06

TABLE 12

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

MAY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	76.1	24.5	7.9														
11	2	74.3	23.5	8.0	7.7	48	23	98			0.1	0.00					0.21	0.02
11	5	70.3	21.3	7.3														
11	7	67.5	19.9	7.5														
11	12	66.7	19.3	7.4	7.6	62		100				0.00					0.38	0.03
13	1	71.6	22.0	8.1														
13	2	70.3	21.3	8.0	7.7	40	48	100			0.1	0.00					0.25	0.02
13	5	69.1	20.6	8.1														
13	7	67.5	19.9	8.0														
13	12	66.4	19.1	7.5														
13	17	66.2	19.0	7.7														
13	22	66.0	18.9	7.7														
13	27	65.8	18.8	7.8	7.6	42		100				0.00					0.28	
13	32	65.5	18.6	7.9														
13	37	65.8	18.8	7.8														
13	42	65.5	18.6	7.6														
13	47	65.3	18.5	7.6														
13	52	65.3	18.5	7.3	7.5	55		102				0.00					0.22	0.02
14	1	68.9	20.5	8.3														
14	2	68.4	20.2	8.3	7.6	58	45	96			<.1	0.00					0.30	0.06
14	5	68.2	20.1	8.0														
14	7	67.6	19.8	7.9														
14	12	66.7	19.3	7.6														
14	14	66.2	19.0	6.9	7.4	40		94				0.00					0.60	0.14
15	1	67.5	19.9	8.0														
15	2	67.5	19.7	7.9	7.6	55	50	94			<.1	0.00					0.35	0.05
15	5	66.6	19.2	7.7														
15	7	66.6	19.2	7.7														
15	12	66.6	19.2	7.6														
15	17	66.6	19.2	7.6	7.6	58		100				0.00					0.30	
15	22	66.2	19.0	7.6														
15	27	66.2	19.0	7.6														
15	32	66.2	19.0	7.6	7.5	70		98				0.00					0.42	0.28
16	1	67.3	19.6	8.1						187				0.3				
16	2	67.3	19.6	8.0	7.5	25	60	80	4		<.1	0.05	38		42	.022	0.25	0.15
16	5	67.1	19.5	8.0														
16	7	67.1	19.5	7.9														
16	12	65.9	19.4	7.8	7.5	42	48	88	9		<.1	0.00	42		50	.031	0.32	0.08

263

TABLE 12 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

MAY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	66.7	19.3	7.8														
17	2	67.1	19.5	7.6	7.5	38	49	96			0.1	0.00					0.45	0.08
17	5	67.1	19.5	7.6														
17	7	66.9	19.4	7.5														
17	12	66.7	19.3	7.7														
17	17	66.7	19.3	7.6	7.5	40		94				0.00					0.38	
17	22	66.6	19.2	7.7														
17	27	66.6	19.2	7.7														
17	32	66.6	19.2	7.7														
17	37	66.4	19.1	7.4	7.4	21		94				0.20					0.38	0.02
20	1	66.4	19.1	8.0														
20	2	66.2	19.0	7.9														
20	5	65.7	18.7	8.0														
20	7	65.5	18.6	7.9														
20	12	65.1	18.4	7.9														
20	17	64.9	18.3	7.9														
20	22	64.9	18.3	7.9														
20	27	64.6	18.2	7.9														
21	1	68.2	20.1	7.6						255				0.7				
21	2	67.6	19.8	7.6	7.5	63	49	100	18		<.1	0.00	53		63	.029	0.46	0.10
21	5	67.1	19.5	7.6														
21	7	66.2	19.0	7.5														
21	12	66.0	18.9	7.6														
21	17	65.7	18.7	7.6														
21	22	65.5	18.6	7.6														
21	27	65.1	18.4	7.6	7.5	74	46	98	15		0.1	0.00	56		65	.009	0.50	0.06

TABLE 12 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

JUNE 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	95.0	35.0	8.5						172				0.7				
1	2	95.0	35.0	8.4	7.8	21	50	80	8		<.1	0.00	33		47	.029	0.21	0.05
1	5	95.0	35.0	8.1														
1	7	95.0	35.0	8.2														
1	9	95.0	35.0	8.1	7.8	19	40	66	6		<.1	0.00	35		47	.032	0.20	0.07
3	1	89.6	32.0	10.2														
3	2	89.6	32.0	10.4	8.5	27	30	94			<.1	0.00					0.20	0.07
3	5	87.4	30.8	10.8														
3	7	86.4	30.2	10.8														
3	12	85.6	29.6	9.8														
3	17	80.6	27.0	7.0	7.4	48		108				0.00					0.37	
3	22	80.6	27.0	7.0														
3	27	80.2	26.8	6.8														
3	32	81.0	27.2	6.4														
3	37	79.2	25.2	6.4	7.4	65		102				0.00					0.55	0.08
5	1	94.6	34.8	9.2						204				0.8				
5	2	95.0	35.0	8.8	8.2	25	40	82	8		<.1	0.00	37		56	.021	0.24	0.09
5	5	94.5	34.7	8.0														
5	7	89.6	32.0	8.7														
5	9	82.4	28.0	5.5	7.4	50	55	88	4		<.1	0.00	47		91	.026	0.40	0.06
7	1	83.0	28.0	8.9														
7	2	82.9	28.3	8.5	7.8	38	52	108			<.1	0.00					0.38	0.07
7	5	82.0	27.8	7.6														
7	7	81.3	27.4	7.3														
7	12	81.1	27.3	7.2	7.6	42		112				0.00					0.36	
7	17	81.0	27.2	7.0														
7	22	81.0	27.2	6.9														
7	27	80.8	27.1	6.9	7.4	44		100				0.00					0.46	0.05
8	1	84.2	29.0	9.1														
8	2	84.7	29.3	9.1	8.2	21	35	86			<.1	0.00					0.21	0.07
8	5	83.6	28.7	8.0														
8	7	83.1	28.4	7.7														
8	12	82.8	28.2	7.7														
8	17	82.0	27.8	5.9														
8	22	78.6	25.9	4.5														
8	27	75.2	24.0	0.0	7.4	50		26				0.00					0.62	0.09
10	1	86.4	30.2	9.7														
10	2	86.4	30.2	10.0	8.2	30	30	90			<.1	0.00					0.30	0.08
10	5	86.2	30.1	9.8														
10	7	86.4	30.2	9.8														
10	12	81.1	27.3	6.6	7.4	45		100				0.00					0.41	0.06

TABLE 13

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

JUNE 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	84.4	29.1	9.7														
11	2	84.4	29.1	9.5	8.0	32	35	96			<.1	0.00					0.31	0.08
11	5	84.2	29.0	9.3														
11	7	84.0	28.9	9.1														
11	12	81.3	27.4	6.7	7.4	48		102				0.00					0.38	0.08
13	1	84.2	29.0	8.8														
13	2	84.2	29.0	8.2	7.8	38	50	100			<.1	0.00					0.33	0.09
13	5	82.8	28.2	7.7														
13	7	82.6	28.1	7.2														
13	12	82.2	27.9	6.7														
13	17	82.0	27.8	6.7														
13	22	82.0	27.8	6.5														
13	27	81.5	27.5	6.3	7.4	42		96				0.00					0.40	
13	32	81.5	27.5	6.1														
13	37	80.6	27.0	5.9														
13	42	80.6	27.0	5.5														
13	47	80.6	27.0	5.4														
13	52	80.4	26.9	5.5	7.4	66		98				0.05					0.60	0.05
14	1	84.6	29.2	9.0														
14	2	84.9	29.4	6.9	7.8	35	47	96			<.1	0.00					0.40	0.09
14	5	84.6	29.2	6.5														
14	7	84.0	28.9	6.6														
14	12	83.1	28.4	6.6														
14	14	80.8	27.1	6.1	7.3	41		92				0.00					0.39	0.05
15	1	84.7	29.3	9.7														
15	2	84.9	29.4	9.2	8.0	36	48	96			0.2	0.00					0.34	0.08
15	5	84.2	29.0	6.6														
15	7	84.2	29.0	6.7														
15	12	83.8	28.8	6.4														
15	17	82.5	28.1	6.8	7.4	40		100				0.05					0.35	
15	22	82.4	28.0	6.4														
15	27	82.4	28.0	5.4														
15	32	81.1	27.3	4.8	7.4	60		56				0.15					0.95	0.13
16	1	84.0	28.9	10.6						177				0.5				
16	2	84.6	29.2	10.4	8.6	8	45	78	0		<.1	0.00	35		45	.026	0.11	0.03
16	5	84.6	29.2	10.0														
16	7	84.0	28.9	9.9														
16	11	82.4	28.0	8.5	7.3	19	45	60	8		<.1	0.00	33		43	.028	0.21	0.05

TABLE 13 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

JUNE 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	83,3	28,5	9,1														
17	2	82,6	28,1	8,7	7,8	44	40	90	.	.	<,1	0.00	.	.	.	.	0,28	0,09
17	5	82,4	28,0	7,7	.	.	.	.	.	.		.	.	.	.	.	.	.
17	7	82,4	28,0	6,6	.	.	.	.	.	.		.	.	.	.	.	.	.
17	12	81,1	27,3	4,1	.	.	.	.	.	.		.	.	.	.	.	.	.
17	17	77,9	25,5	3,6	7,3	32	.	78	.	.		0.10	.	.	.	.	0,28	.
17	22	77,4	25,2	3,5	.	.	.	.	.	.		.	.	.	.	.	.	.
17	27	74,8	23,8	5,2	.	.	.	.	.	.		.	.	.	.	.	.	.
17	32	73,4	23,0	4,8	7,4	60	.	42	.	.		0,20	.	.	.	.	0,74	0,16
20	1	83,8	28,8	9,2														
20	2	83,7	28,7	9,1	.	.	.	.	.	.		.	.	.	.	.	.	.
20	5	83,5	28,6	9,1	.	.	.	.	.	.		.	.	.	.	.	.	.
20	7	82,4	28,0	8,5	.	.	.	.	.	.		.	.	.	.	.	.	.
20	12	77,0	25,0	6,6	.	.	.	.	.	.		.	.	.	.	.	.	.
20	17	73,8	23,2	6,5	.	.	.	.	.	.		.	.	.	.	.	.	.
20	22	73,0	22,8	7,7	.	.	.	.	.	.		.	.	.	.	.	.	.
20	27	71,5	22,1	7,5	.	.	.	.	.	.		.	.	.	.	.	.	.
21	1	84,0	28,9	9,8	.	.	.	.	.	380		.	0	0.9	.	.	.	.
21	2	84,0	28,9	9,4	8,0	42	50	112	8	.	<,1	0.00	57	.	114	,029	0,33	0,09
21	5	83,6	28,8	8,9	.	.	.	.	.	.		.	.	.	.		.	.
21	7	83,5	28,6	6,8	.	.	.	.	.	.		.	.	.	.	.	.	.
21	12	82,4	28,0	6,2	.	.	.	.	.	.		.	.	.	.	.	.	.
21	17	81,5	27,5	7,4	.	.	.	.	.	.		.	.	.	.	.	.	.
21	22	81,1	27,3	7,1	.	.	.	.	.	.		.	.	.	.	.	.	.
21	27	81,0	27,2	7,0	7,4	55	45	92	20	.	<,1	0.00	50	.	101	,027	0,51	0,10

267

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

JULY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	92.1	33.4	7.9						526				0.8				
1	2	92.1	33.4	7.8	8.7	0	60	150	0		<.1	0.00	70		151	.025	0.04	0.00
1	5	91.9	33.3	8.0														
1	7	91.9	33.3	8.1														
1	9	91.9	33.3	8.1	8.7	0	52	142	4		0.1	0.00	66		154	.026	0.03	0.00
3	1	89.6	32.0	7.2														
3	2	89.6	32.0	7.1	8.3	2	45	148			<.1	0.00					0.08	0.00
3	5	89.2	31.8	6.6														
3	7	89.1	31.7	6.6														
3	12	88.9	31.6	6.2														
3	17	88.5	31.4	5.5	7.9	2		150				0.10					0.07	
3	22	88.0	31.1	4.9														
3	27	87.4	30.8	2.1														
3	32	86.0	30.0	1.6														
3	37	85.6	29.6	0.3	6.9	10		158				0.30					0.19	0.00
5	1	92.5	33.6	7.4						493				0.6				
5	2	92.1	33.4	7.1	8.6	2	60	144	0		<.1	0.00	65		158	.023	0.05	0.00
5	5	91.0	32.8	6.7														
5	7	89.8	32.1	6.1														
5	9	89.6	32.0	4.9	8.1	9	55	148	10		<.1	0.00	69		156	.023	0.10	0.00
7	1	89.6	32.0	8.2														
7	2	89.6	32.0	7.9	8.3	0	75	160			<.1	0.05					0.08	0.00
7	5	89.2	31.8	6.6														
7	7	88.5	31.4	6.2														
7	12	88.2	31.2	5.9	7.9	4		168				0.10					0.06	
7	17	88.0	31.1	5.9														
7	22	87.8	31.0	5.6														
7	27	87.8	31.0	3.2	7.1	18		168				0.35					0.25	0.00
8	1	93.0	33.9	10.0														
8	2	92.3	33.5	10.0	8.8	0	35	144			<.1	0.01					0.03	0.00
8	5	91.2	32.9	7.9														
8	7	90.0	32.2	7.2														
8	12	89.6	32.0	7.0														
8	17	89.4	31.9	5.6														
8	22	86.5	30.3	1.0														
8	27	85.8	29.9	0.4	7.0	19		128				0.90					0.28	0.00
10	1	91.4	33.0	6.8														
10	2	91.0	32.8	6.6	8.6	3	65	144			<.1	0.00					0.04	0.00
10	5	89.6	32.0	6.2														
10	7	89.2	31.8	7.3														
10	12	86.9	31.6	6.8	8.4	5		142				0.00					0.10	0.00

TABLE 14

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

JULY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	91.4	33.0	8.2														
11	2	91.0	32.8	8.0	8.5	4	50	172			<.1	0.00					0.08	0.00
11	5	89.6	32.0	7.4														
11	7	88.5	31.4	6.6														
11	12	88.2	31.2	6.1														
11	14	87.8	31.0	5.8	8.1	4		146				0.00					0.09	0.00
13	1	89.6	32.0	7.9														
13	2	89.4	31.9	7.7	8.3	2	65	160			<.1	0.00					0.05	0.00
13	5	88.3	31.3	6.6														
13	7	87.8	31.0	6.7														
13	12	87.8	31.0	5.9														
13	17	87.8	31.0	5.8														
13	22	87.8	31.0	5.8														
13	27	87.6	30.9	5.6	7.9	2		156				0.10					0.02	
13	32	87.4	30.8	4.0														
13	37	87.2	30.7	3.9														
13	42	86.4	30.2	3.3														
13	47	86.0	30.0	1.6														
13	52	85.6	29.8	0.9	7.0	19		160				0.70					0.28	0.00
14	1	91.8	33.2	10.0														
14	2	91.2	32.9	9.5	8.4	0	38	140			<.1	0.00					0.07	0.00
14	5	90.0	32.2	8.6														
14	7	89.6	32.0	7.4														
14	12	89.1	31.7	6.3														
14	15	87.8	31.0	2.8	8.1	4		146				0.00					0.10	0.00
15	1	93.4	34.1	9.6														
15	2	93.4	34.1	9.6	8.4	0	35	158	0		<.1	0.00					0.05	0.00
15	5	91.4	33.0	9.4														
15	7	90.1	32.3	7.9														
15	12	89.6	32.0	7.0														
15	17	89.2	31.8	6.2	8.0	5		162				0.20					0.09	
15	22	89.1	31.7	5.1														
15	27	88.5	31.4	5.0														
15	32	87.4	30.8	2.2	7.4	18		144				0.50					0.36	0.00
16	1	91.4	33.0	8.6						495				0.3				
16	2	91.2	32.9	8.6	8.6	2	42	144	0		<.1	0.00	68		160	.024	0.03	0.00
16	5	90.0	32.2	7.9														
16	7	89.6	32.0	7.6														
16	10	89.2	31.8	6.6	8.4	4	38	142	0		<.1	0.00	68		156	.022	0.08	0.00

TABLE 14 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

JULY 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	93.2	34.0	10.2														
17	2	91.5	33.2	9.5	8.6	2	75	148			<.1	0.01					0.03	0.00
17	5	89.6	32.0	8.2														
17	7	89.2	31.6	7.4														
17	12	88.9	31.6	6.8														
17	17	88.3	31.3	6.4	8.3	5		146				0.10					0.09	
17	22	87.8	31.0	3.7														
17	27	86.5	30.3	1.6														
17	32	85.1	29.5	0.3	7.3	20		132				0.80					0.31	0.01
20	1	93.0	33.9	7.6														
20	2	92.3	33.5	7.6														
20	5	91.2	32.9	7.5														
20	7	90.1	32.3	7.4														
20	12	88.5	31.4	4.5														
20	17	87.4	30.8	2.3														
20	22	85.3	29.6	0.5														
20	27	84.2	29.0	0.4														
21	1	88.9	31.6	7.2						485				0.6				
21	2	88.9	31.6	7.1	8.2	5	100	168	0		0.1	0.00	73		140	.025	0.06	0.00
21	5	88.9	31.6	7.0														
21	7	88.9	31.6	6.6														
21	12	88.7	31.5	6.8														
21	17	88.7	31.5	6.7														
21	22	87.6	31.0	4.4														
21	27	86.4	30.2	2.5	6.9	5	48	150	8		<.1	0.20	71		136	.054	0.12	0.00

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

AUGUST 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	86.0	30.0	8.8						422				0.1				
1	2	85.5	29.9	8.8	8.5	10	95	158	6		0.5	0.00	67		128	.004	0.02	0.00
1	5	85.5	29.7	8.8														
1	7	84.7	29.3	8.8														
1	9	84.4	29.1	8.8	8.5	8	65	170	8		0.5	0.00	61		129	.002	0.11	0.00
3	1	82.0	27.8	7.0														
3	2	82.0	27.8	6.8	8.0	15	52	146			0.2	0.00					0.05	0.00
3	5	81.9	27.7	6.1														
3	7	81.3	27.4	5.7														
3	12	81.1	27.3	5.6														
3	17	81.1	27.3	5.4	7.7	18		180				0.05					0.03	
3	22	81.1	27.3	5.4														
3	27	81.1	27.3	5.4														
3	32	81.1	27.3	5.3														
3	37	81.0	27.2	4.7	7.7	30		158				0.15					0.13	0.00
5	1	85.5	29.9	8.0						411				0.2				
5	2	84.4	29.1	7.9	8.4	18	58	150	1		0.2	0.00	62		126	.001	0.02	0.01
5	5	83.5	28.8	7.3														
5	7	82.5	28.1	6.6														
5	10	82.4	28.0	6.6	7.9	21	70	180	8		0.2	0.05	62		136	.000	0.04	0.01
7	1	82.4	28.0	7.9														
7	2	82.4	28.0	7.8	8.0	10	78	172			0.5	0.05					0.02	0.01
7	5	82.2	27.9	7.1														
7	7	82.0	27.8	7.0														
7	12	82.0	27.8	6.9	8.0	12		164				0.00					0.03	
7	17	82.0	27.8	6.9														
7	22	82.0	27.8	6.7														
7	27	81.9	27.7	6.4	7.9	21		200				0.00					0.04	0.01
8	1	86.0	30.0	9.2														
8	2	85.5	29.7	9.4	8.6	8	68	146			0.2	0.00					0.03	0.00
8	5	84.2	29.0	9.3														
8	7	82.4	28.0	8.3														
8	12	82.0	27.8	5.8														
8	17	81.1	27.3	5.4														
8	22	81.0	27.2	4.7														
8	27	81.0	27.2	4.5	7.6	20		150				0.01					0.04	0.00
10	1	85.2	30.1	8.4														
10	2	85.5	29.9	8.4	8.2	30	58	206			0.2	0.01					0.01	0.00
10	5	84.2	29.0	7.0														
10	7	82.5	28.2	5.7														
10	11	82.4	28.0	5.5	7.9	20		170				0.05					0.03	0.02

TABLE 15

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

AUGUST 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	82.6	28.2	8.1														
11	2	82.4	28.0	8.0	8.2	8	80	176			0.2	0.05					0.03	0.00
11	5	82.0	27.8	7.2														
11	7	81.7	27.6	6.8														
11	12	81.5	27.5	6.4														
11	15	81.8	27.7	6.0	7.8	15		186				0.00					0.02	0.01
13	1	82.5	28.2	7.7														
13	2	82.4	28.0	7.5	8.2	15	78	186			0.5	0.00					0.07	0.00
13	5	82.0	27.8	6.7														
13	7	82.0	27.8	6.6														
13	12	82.0	27.8	6.6														
13	17	82.0	27.8	6.5														
13	22	81.9	27.7	6.3														
13	27	81.7	27.6	6.2	8.0	14		168				0.10					0.02	
13	32	81.7	27.6	6.2														
13	37	81.5	27.5	6.1														
13	42	81.3	27.4	6.2														
13	47	81.0	27.2	3.8														
13	52	80.6	27.0	3.1	7.6	39		164				0.40					0.07	0.03
14	1	83.5	28.6	8.1														
14	2	83.1	28.4	8.3	8.1	12	90	158			0.2	0.01					0.03	0.01
14	5	82.8	28.2	7.9														
14	7	82.4	28.0	7.2														
14	12	82.0	27.8	6.2														
14	14	81.3	27.4	6.0	7.9	32		154				0.00					0.04	0.02
15	1	84.4	29.1	8.9														
15	2	84.4	29.1	9.0	8.2	9	110	162			0.2	0.05					0.04	0.01
15	5	84.2	29.0	8.8														
15	7	83.5	28.8	8.6														
15	12	82.9	28.3	8.3														
15	17	82.8	28.2	7.8	8.2	15		180				0.01					0.02	
15	22	82.4	28.0	7.5														
15	27	82.4	28.0	7.2														
15	32	81.5	27.5	5.6	7.9	23		120				0.05					0.04	0.01
16	1	84.7	29.3	9.6						392				0.6				
16	2	83.3	28.5	9.5	8.2	8	78	142	0		0.2	0.01	62		122	.000	0.03	0.01
16	5	82.6	28.1	9.1														
16	7	82.4	28.0	6.5														
16	11	81.7	27.6	6.5	7.8	12	88	146	0		0.5	0.00	58		122	.002	0.01	0.00

TABLE 15 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

AUGUST 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	83.6	28.8	6.8														
17	2	83.5	28.8	8.6	8.2	9	78	148			0.2	0.01					0.03	0.01
17	5	83.7	28.7	6.4														
17	7	82.0	27.8	5.7														
17	12	81.5	27.4	5.4														
17	17	81.1	27.3	4.3	7.8	11		148				0.10					0.05	
17	22	81.0	27.2	5.0														
17	27	80.5	27.1	4.8														
17	32	80.6	27.1	4.9	7.6	24		156				0.15					0.05	0.00
20	1	86.0	30.0	6.9														
20	2	85.1	29.5	7.1														
20	5	83.3	28.5	6.1														
20	7	82.4	28.0	5.7														
20	12	81.1	27.3	4.4														
20	17	81.0	27.2	4.3														
20	22	80.6	27.0	4.2														
20	27	80.6	27.0	3.0														
21	1	81.1	27.3	8.1						479				0.4				
21	2	81.7	27.6	7.9	8.0	10	70	180	15		0.2	0.05	67		146	.004	0.03	0.01
21	5	81.3	27.6	7.2														
21	7	81.5	27.4	6.7														
21	12	81.1	27.3	6.1														
21	17	81.0	27.2	5.4														
21	22	81.0	27.2	4.9														
21	27	81.0	27.2	4.0	7.5	18	58	168	17		0.5	0.25	72		140	.008	0.04	0.02

TABLE 15 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

SEPTEMBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	88.3	31.3	7.9						480				0.4				
1	2	88.3	31.4	7.5	8.3	15	18	156	5		0.0	0.05	75		153	.004	0.16	0.02
1	5	88.7	31.5	7.4														
1	7	88.7	31.5	7.3														
1	9	88.7	31.5	7.3	8.3	17	10	164	20		0.0	0.00	73		163	.007	0.17	0.02
3	1	83.5	28.6	8.9														
3	2	79.0	26.1	6.7	8.5	17	30	166			0.0	0.00					0.07	0.01
3	5	77.0	25.0	6.7														
3	7	77.0	25.0	6.3														
3	12	76.5	24.7	6.2														
3	17	76.1	24.5	5.9	7.9	19		174				0.00					0.14	
3	22	75.7	24.3	6.1														
3	27	75.6	24.2	6.1														
3	32	75.4	24.1	5.6														
3	37	75.4	24.1	6.1	7.9	23		168				0.05					0.18	0.05
5	1	87.6	31.0	7.9						481				0.5				
5	2	87.4	30.8	7.4	8.3	19	20	184	25		0.0	0.00	73		135	.008	0.16	0.00
5	5	78.8	26.0	7.7														
5	7	75.2	24.0	6.7														
5	9	75.2	24.0	6.6	8.1	29	25	176	15		0.0	0.01	75		133	.008	0.22	0.00
7	1	82.0	27.8	6.7														
7	2	78.8	26.0	6.8	8.5	13	60	156			0.0	0.00					0.08	0.00
7	5	76.8	24.9	7.5														
7	7	76.6	24.8	7.1														
7	12	75.9	24.4	6.7	8.3	12		176				0.00					0.09	
7	17	75.6	24.2	6.4														
7	22	75.2	24.0	6.1														
7	27	74.3	23.5	5.3	7.9	18		180				0.00					0.22	0.10
8	1	73.0	22.8	6.2														
8	2	73.4	23.0	6.1	8.3	10	40	164			0.0	0.00					0.11	0.00
8	5	73.4	23.0	7.9														
8	7	73.6	23.1	7.8														
8	12	73.8	23.2	7.8														
8	17	74.1	23.4	7.7														
8	22	74.3	23.5	7.7														
8	27	74.3	23.5	7.7	8.3	12		162				0.00					0.14	0.02
10	1	78.8	26.0	6.4														
10	2	77.4	25.2	6.8	8.5	10	95	178			0.1	0.00					0.11	0.01
10	5	76.1	24.5	9.7														
10	7	75.7	24.3	10.2														
10	11	75.6	24.2	10.8	8.1	12		164				0.00					0.09	0.01

TABLE 16

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

SEPTEMBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	81.0	27.2	9.6														
11	2	79.9	26.6	10.0	8.5	11	85	186	.	.	0.0	0.00	.	.	.	.	0.08	0.00
11	5	76.8	25.0	10.6	.	.	.	.	.	.		.	.	.	.	.	.	.
11	7	77.9	25.5	10.8	.	.	.	.	.	.		.	.	.	.	.	.	.
11	12	77.0	25.0	11.9	8.3	15	.	180	.	.		0.00	.	.	.	.	0.12	0.02
13	1	78.3	25.7	8.6														
13	2	77.4	25.2	8.4	8.5	9	65	168	.	.	0.1	0.10	.	.	.	.	0.11	0.01
13	5	77.0	25.0	7.8	.	.	.	.	.	.		.	.	.	.	.	.	.
13	7	76.8	24.9	7.5	.	.	.	.	.	.		.	.	.	.	.	.	.
13	12	76.1	24.5	7.4	.	.	.	.	.	.		.	.	.	.	.	.	.
13	17	75.7	24.3	7.2	.	.	.	.	.	.		.	.	.	.	.	.	.
13	22	75.6	24.2	7.4	.	.	.	.	.	.		.	.	.	.	.	.	.
13	27	75.4	24.1	7.2	8.3	19	.	180	.	.		0.02	.	.	.	.	0.12	.
13	32	75.2	24.0	6.9	.	.	.	.	.	.		.	.	.	.	.	.	.
13	37	75.2	24.0	6.7	.	.	.	.	.	.		.	.	.	.	.	.	.
13	42	75.2	24.0	6.7	.	.	.	.	.	.		.	.	.	.	.	.	.
13	47	75.0	23.9	6.3	.	.	.	.	.	.		.	.	.	.	.	.	.
13	52	75.0	23.9	6.3	7.9	21	.	168	.	.		0.02	.	.	.	.	0.18	0.01
14	1	74.5	23.6	8.6														
14	2	74.8	23.8	8.3	8.4	14	45	160	.	.	0.0	0.00	.	.	.	.	0.08	0.00
14	5	75.0	23.9	8.1	.	.	.	.	.	.		.	.	.	.	.	.	.
14	7	75.2	24.0	7.7	.	.	.	.	.	.		.	.	.	.	.	.	.
14	12	75.2	24.0	7.6	.	.	.	.	.	.		.	.	.	.	.	.	.
14	17	75.0	23.9	7.4	8.3	16	.	160	.	.		0.01	.	.	.	.	0.15	0.00
15	1	75.6	24.2	8.0														
15	2	76.3	24.6	7.5	8.3	10	60	168	.	.	0.0	0.00	.	.	.	.	0.10	0.00
15	5	76.5	24.7	7.0	.	.	.	.	.	.		.	.	.	.	.	.	.
15	7	76.5	24.7	6.9	.	.	.	.	.	.		.	.	.	.	.	.	.
15	12	76.5	24.7	7.2	.	.	.	.	.	.		.	.	.	.	.	.	.
15	17	76.5	24.7	7.2	8.3	8	.	160	.	.		0.01	.	.	.	.	0.08	.
15	22	76.5	24.7	7.2	.	.	.	.	.	.		.	.	.	.	.	.	.
15	27	76.3	24.6	7.1	.	.	.	.	.	.		.	.	.	.	.	.	.
15	32	75.7	24.3	6.0	8.1	20	.	180	.	.		0.05	.	.	.	.	0.14	0.00
16	1	72.5	22.5	7.3						452				0.4				
16	2	73.2	22.9	7.2	8.1	18	40	158	35	.	0.0	0.00	80	.	137	.012	0.15	0.02
16	5	73.4	23.0	7.0	.	.	.	.	.	.		.	.	.	.	.	.	.
16	7	73.6	23.1	7.0	.	.	.	.	.	.		.	.	.	.	.	.	.
16	10	73.9	23.3	6.9	7.9	22	40	160	45	.	0.0	0.00	85	.	136	.007	0.14	0.02

TABLE 16 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

SEPTEMBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	74.8	23.8	8.4														
17	2	74.8	23.8	8.4	8.4	11	40	160			0.0	0.00					0.10	0.05
17	5	74.8	23.9	8.2														
17	7	74.8	23.8	7.8														
17	12	74.8	23.9	7.6														
17	17	74.8	23.8	7.6	8.3	10		160				0.00					0.12	
17	22	74.8	23.8	7.6														
17	27	74.7	23.7	7.6														
17	32	74.7	23.7	7.5	8.3	19		156				0.00					0.16	0.03
20	1	72.0	22.2	6.4														
20	2	72.7	22.6	6.2														
20	5	73.0	22.8	6.0														
20	7	73.2	22.9	6.0														
20	12	73.4	23.0	6.1														
20	17	73.4	23.0	6.1														
20	22	73.4	23.0	6.0														
20	27	73.4	23.0	5.9														
21	1	79.2	26.2	9.4						454				0.5				
21	2	78.8	26.0	9.2	8.5	12	50	176	35		0.0	0.00	105		134	.007	0.10	0.01
21	5	77.0	25.0	7.1														
21	7	76.5	24.9	6.9														
21	12	76.5	24.7	6.0														
21	17	75.9	24.4	6.0														
21	22	75.7	24.3	6.0														
21	27	75.6	24.2	6.0	8.5	14	45	172	30		0.0	0.00	70		130	.008	0.09	0.01

TABLE 16 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

OCTOBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	73.2	22.9	9.9														
1	2	73.6	23.1	9.6	8.2	21	25	172	40	459	0	0.00	95	0.5	147	.004	0.13	0.03
1	5	74.3	23.5	9.5														
1	7	75.0	23.9	9.3														
1	10	75.2	24.0	9.2	8.0	22	60	178				0.00	80				0.13	0.04
3	1	66.0	18.9	9.6														
3	2	66.9	19.4	9.1	7.9	30	48	160			0.0	0.00					0.17	0.04
3	5	66.6	19.2	8.8														
3	7	66.2	19.0	8.4														
3	12	64.2	17.9	8.1														
3	17	63.7	17.6	8.0	7.6	50		142				0.00					0.25	
3	22	63.5	17.5	8.0														
3	27	63.3	17.4	8.0														
3	32	63.3	17.4	8.0														
3	37	63.1	17.3	7.9	7.5	60		192				0.10					0.31	0.05
5	1	71.6	22.0	9.8														
5	2	72.0	22.2	9.7	8.2	22	90	164	25	469	0.1	0.01	95	0.3	165	.004	0.14	0.05
5	5	68.7	20.4	8.8														
5	7	64.4	18.0	8.1														
5	10	64.4	18.0	8.0	7.8	38	55	170	40		0.1	0.00	90		174	.009	0.20	0.03
7	1	61.5	16.4	9.0														
7	2	62.1	16.7	8.9	7.6	46	55	150			0.2	0.01					0.20	0.08
7	5	62.2	16.8	8.6														
7	7	62.4	16.9	8.5														
7	12	62.6	17.0	8.4	7.6	50		144				0.00					0.25	
7	17	62.6	17.0	8.3														
7	22	62.8	17.1	8.4														
7	27	62.8	17.1	8.3	7.6	48		144				0.00					0.28	0.04
8	1	63.9	17.7	10.0														
8	2	64.4	18.0	9.7	8.0	18	55	160			0.0	0.00					0.11	0.01
8	5	64.4	18.0	9.5														
8	7	64.4	18.0	9.5														
8	12	64.6	18.1	9.4														
8	17	64.6	18.1	9.2														
8	22	64.6	18.1	8.8														
8	27	64.6	18.1	8.6	7.8	22		176				0.00					0.15	0.02
10	1	61.2	16.2	9.1														
10	2	62.2	16.8	8.8	7.7	58	75	144			0.1	0.00					0.22	0.05
10	5	62.4	16.9	8.6														
10	7	62.6	17.0	8.5														
10	12	62.6	17.0	8.2	7.6	52		192				0.00					0.29	0.04

TABLE 17

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

OCTOBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	61.3	16.3	9.4														
11	2	62.2	16.8	9.1	7.8	35	85	152			0.0	0.00					0.19	0.04
11	5	62.4	16.9	8.9														
11	7	62.4	16.9	8.8														
11	12	16.0	[illegible].9	8.6	7.7	38		164				0.00					0.18	0.04
13	2	62.6	17.0	8.7	7.6	40	60	156			0.1	0.00					0.23	0.05
13	5	63.0	17.2	8.5														
13	7	63.1	17.3	8.4														
13	12	63.3	17.4	8.3														
13	17	63.3	17.4	8.2														
13	22	63.3	17.4	8.2														
13	27	63.3	17.4	8.1	7.6	42		164				0.00					0.20	
13	32	63.3	17.4	8.1														
13	37	63.3	17.4	8.1														
13	42	63.3	17.4	8.1														
13	47	63.3	17.4	8.1														
13	52	63.3	17.4	7.9	7.6	59		168				0.00					0.28	0.05
13	**	62.4	16.9	8.8														
14	1	62.8	17.1	9.3														
14	2	63.3	17.4	8.9	7.6	36	25	176			0.1	0.00					0.19	0.04
14	5	64.2	17.9	8.6														
14	7	64.4	18.0	8.5														
14	12	64.4	18.0	8.3														
14	14	64.6	18.1	8.1	7.6	36		176				0.00					0.19	0.04
15	1	64.9	18.3	8.9														
15	2	64.9	18.3	8.7	7.7	25	45	172			0.0	0.01					0.18	0.03
15	5	64.9	18.3	8.5														
15	7	64.9	18.3	8.3														
15	12	64.9	18.3	8.3														
15	17	64.9	18.3	8.2	7.7	25		184				0.00					0.16	
15	22	64.9	18.3	8.2														
15	27	64.8	18.2	8.1														
15	32	64.8	18.2	8.0	7.6	26		160				0.00					0.19	0.01
16	1	62.6	17.0	9.6						484				0.5				
16	2	64.0	17.8	9.2	8.0	15	50	196	35		0.0	0.05	95		172	.012	0.14	0.03
16	5	64.4	18.0	9.1														
16	7	64.4	18.0	9.3														
16	10	64.4	18.0	9.1	8.0	19	40	172	35		0.1	0.00	85		168	.007	0.13	0.03

TABLE 17 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

OCTOBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	62.6	17.0	9.6														
17	2	63.0	17.2	9.3	7.8	22	45	166			0.0	0.01					0.14	0.03
17	5	63.9	17.7	9.1														
17	7	64.0	17.8	9.0														
17	12	64.2	17.9	8.8														
17	17	64.4	18.0	8.7	7.7	22		158				0.00					0.17	
17	22	64.4	18.0	8.4														
17	27	64.4	18.0	8.1														
17	32	64.4	18.0	8.0	7.6	29		162				0.05					0.18	0.03
20	1	64.0	17.8	9.4														
20	2	64.2	17.9	9.3														
20	5	64.4	18.0	8.9														
20	7	64.4	18.0	8.6														
20	12	64.4	18.0	8.3														
20	17	64.4	18.0	8.2														
20	22	64.4	18.0	8.1														
20	27	64.4	18.0	8.2														
21	1	60.6	15.9	9.2						471				0.5				
21	2	61.0	16.1	9.0	7.4	60	65	176	40		0.0	0.00	75		160	.013	0.29	0.07
21	5	61.3	16.3	8.8														
21	7	62.1	16.7	8.6														
21	12	62.4	16.9	8.4														
21	17	62.6	17.0	8.3														
21	22	62.6	17.0	8.2														
21	27	62.6	17.0	8.1	7.4	59	45	160	50		0.0	0.00	95		169	.006	0.30	0.05

TABLE 17 (con't)

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

NOVEMBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	71.6	22.0	9.3						360				0.3				
1	2	72.0	22.2	9.2	7.9	21	55	128	30									
1	5	72.3	22.4	9.1							0.1	0.05	62		118	.010	0.12	0.07
1	7	72.3	22.4	8.9														
1	10	72.0	22.2	9.0	7.9	19	45	124	15		0.0	0.00	59		117	.013	0.13	0.04
3	1	65.3	18.5	10.5														
3	2	65.3	18.5	10.2	8.1	22	85	130			0.1	0.00						
3	5	60.8	16.0	9.9													0.15	0.05
3	7	57.6	14.2	9.4														
3	12	57.2	14.0	9.5														
3	17	57.0	13.9	9.5	7.7	38		144										
3	22	57.0	13.9	9.6								0.00					0.18	
3	27	56.8	13.8	9.6														
3	32	56.8	13.8	9.6														
3	37	56.8	13.8	9.6	7.7	41		144				0.00					0.19	0.05
5	1	69.3	20.7	9.4						358				0.6				
5	2	69.3	20.7	9.1	7.9	21	65	128	30									
5	5	64.4	18.0	8.7							0.1	0.00	60		117	.015	0.14	0.05
5	7	59.0	15.0	8.8														
5	10	58.6	14.8	8.8	7.7	38	65	144	35		0.0	0.01	62		119	.015	0.23	0.07
7	1	60.8	16.0	10.6														
7	2	60.8	15.9	10.4	7.9	30	45	138			0.1	0.01						
7	5	59.0	15.0	10.0													0.16	0.05
7	7	57.6	14.2	9.7														
7	12	57.2	14.0	9.6	7.7	35		156										
7	17	57.0	13.9	9.6								0.00					0.14	
7	22	56.9	13.8	9.6														
7	27	55.7	13.7	9.6	7.7	38		140				0.00					0.22	0.06
8	1	57.6	14.2	9.5														
8	2	58.1	14.5	9.1	7.7	21	40	128			0.1	0.00						
8	5	57.7	14.3	8.4													0.13	0.06
8	7	57.7	14.3	8.7														
8	12	57.7	14.3	8.6														
8	17	57.7	14.3	8.6														
8	22	57.7	14.3	8.5														
8	27	57.7	14.3	8.6	7.7	22		132				0.00					0.13	0.05
10	1	63.9	17.7	9.7														
10	2	63.1	17.3	9.7	7.9	22	55	128			0.1	0.00						
10	5	59.0	15.0	9.4													0.16	0.04
10	7	57.9	14.4	9.4														
10	12	57.4	14.1	9.5	7.7	35		158				0.00					0.22	0.06

TABLE 18

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

NOVEMBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	61.0	16.1	10.2														
11	2	60.4	15.8	9.9	7.7	30	50	152			0.1	0.00					0.15	0.04
11	5	57.7	14.3	9.6														
11	7	57.2	14.0	9.5														
11	12	57.2	14.0	9.6														
11	14	57.0	13.9	9.6	7.7	35		132				0.01					0.17	0.04
13	1	59.0	15.0	10.4														
13	2	58.6	14.8	10.1	7.7	32	60	128			0.1	0.00					0.20	0.06
13	5	57.2	14.0	9.6														
13	7	57.0	13.9	9.5														
13	12	57.0	13.9	9.5														
13	17	56.8	13.8	9.5														
13	22	56.8	13.8	9.5														
13	27	56.8	13.8	9.5	7.7	35		132				0.00					0.15	
13	32	56.8	13.8	9.4														
13	37	56.8	13.8	9.4														
13	42	56.8	13.8	9.4														
13	47	56.8	13.8	9.4														
13	52	56.7	13.7	9.4	7.5	39		152				0.01					0.23	0.05
14	1	60.3	15.7	9.7														
14	2	59.2	15.1	9.3	7.9	22	30	124			0.1	0.00					0.14	0.04
14	5	58.6	14.8	9.3														
14	7	58.5	14.7	9.3														
14	12	57.6	14.2	9.2														
14	14	57.4	14.1	9.2	7.7	34		148				0.05					0.19	0.07
15	1	57.2	14.0	9.9														
15	2	57.2	14.0	9.5	7.5	37	35	142			0.1	0.00					0.17	0.08
15	5	57.2	14.0	9.3														
15	7	57.2	14.0	9.3														
15	12	57.2	14.0	9.3														
15	17	57.2	14.0	9.3	7.5	40		130				0.00					0.22	
15	22	57.2	14.0	9.3														
15	27	57.2	14.0	9.2														
15	32	57.2	14.0	9.2														
15	37	57.2	14.0	9.2	7.5	40		168				0.00					0.20	0.07
16	1	57.0	13.9	9.3						345				0.1				
16	2	57.2	14.0	9.1	7.7	20	35	120	35		0.1	0.00	55		115	.010	0.11	0.06
16	5	57.4	14.1	9.0														
16	7	57.4	14.1	8.8														
16	9	57.4	14.1	8.8	7.7	19	35	132	30		0.1	0.00	57		115	.015	0.11	0.04

TABLE 18 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

NOVEMBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARD NESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	59.0	15.0	9.5	.	.	.	.	.	.		.	.	.	.	.	.	.
17	2	58.6	14.8	9.3	7.7	23	35	152	.	.	0.0	0.00	.	.	.	.	0.13	0.06
17	5	58.1	14.5	9.0	.	.	.	.	.	.		.	.	.	.	.	.	.
17	7	57.9	14.4	8.7	.	.	.	.	.	.		.	.	.	.	.	.	.
17	12	57.7	14.3	8.8	7.7	34	.	112	.	.		0.00	.	.	.	.	0.12	.
17	17	57.6	14.2	8.8	.	.	.	.	.	.		.	.	.	.	.	.	.
17	22	57.4	14.1	8.8	.	.	.	.	.	.		.	.	.	.	.	.	.
17	27	57.2	14.0	8.9	7.7	36	.	132	.	.		0.00	.	.	.	.	0.20	0.06
20	1	57.2	14.0	9.2	.	.	.	.	.	.		.	.	.	.	.	.	.
20	2	57.4	14.1	9.0	.	.	.	.	.	.		.	.	.	.	.	.	.
20	5	57.6	14.2	8.8	.	.	.	.	.	.		.	.	.	.	.	.	.
20	7	57.6	14.2	8.6	.	.	.	.	.	.		.	.	.	.	.	.	.
20	12	57.7	14.3	8.4	.	.	.	.	.	.		.	.	.	.	.	.	.
20	17	57.9	14.4	8.4	.	.	.	.	.	.		.	.	.	.	.	.	.
20	22	57.9	14.4	8.4	.	.	.	.	.	.		.	.	.	.	.	.	.
20	27	58.1	14.5	8.2	.	.	.	.	.	.		.	.	.	.	.	.	.
21	1	59.0	15.0	10.6	.	.	.	.	.	401		.	.	0.8	.	.	.	.
21	2	58.6	14.8	10.4	7.7	31	50	160	40	.	0.1	0.00	65	.	134	.010	0.16	0.04
21	5	57.9	14.4	10.1	.	.	.	.	.	.		.	.	.	.	.	.	.
21	7	57.2	14.0	10.0	.	.	.	.	.	.		.	.	.	.	.	.	.
21	12	57.0	13.9	9.9	.	.	.	.	.	.		.	.	.	.	.	.	.
21	17	56.8	13.8	9.9	.	.	.	.	.	.		.	.	.	.	.	.	.
21	22	56.8	13.8	9.9	.	.	.	.	.	.		.	.	.	.	.	.	.
21	27	56.7	13.7	9.8	7.7	33	55	134	40	.	0.0	0.00	60	.	136	.009	0.17	0.04

TABLE 18 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

DECEMBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
1	1	55.6	13.1	11.8						453				0.3				
1	2	56.7	13.7	11.4	7.8	18	35	140	0		0.0	0.00	63		181	.006	0.13	0.04
1	5	57.0	13.9	11.4														
1	7	57.2	14.0	11.2														
1	9	57.2	14.0	11.2	8.0	20	35	138	0		0.0	0.00	68		180	.008	0.09	0.05
3	1	46.6	7.8	11.8														
3	2	46.4	8.0	11.8	7.8	19	20	142			0.0	0.00					0.08	0.05
3	5	46.2	7.9	11.8														
3	7	46.2	7.9	11.7														
3	12	45.0	7.2	11.4														
3	17	43.5	6.4	11.4	7.8	19		146				0.01					0.11	
3	22	42.8	6.0	11.3														
3	27	41.5	5.3	11.2														
3	32	41.2	5.1	11.2														
3	37	41.2	5.1	11.2	7.8	18		152				0.05					0.12	0.06
5	1	55.4	13.0	11.5						464				0.3				
5	2	55.5	13.2	11.4	7.9	20	35	148	0		0.2	0.00	69		181	.007	0.12	0.05
5	5	55.4	13.0	11.2														
5	7	47.3	8.5	10.8														
5	10	44.6	7.0	10.7	7.8	19	25	152	0		0.0	0.00	65		189	.006	0.12	0.05
7	1	43.0	6.1	12.1														
7	2	43.0	6.1	12.0	7.9	20	30	140			0.2	0.00					0.09	0.04
7	5	43.0	6.1	11.9														
7	7	42.6	5.9	11.8														
7	12	41.7	5.4	11.6	7.8	19		140				0.00					0.11	
7	17	41.0	5.0	11.4														
7	22	41.0	5.0	11.2														
7	27	41.0	5.0	11.2	7.7	24		146				0.00					0.11	0.08
8	1	41.0	5.0	12.2														
8	2	41.0	5.0	11.7	7.6	18	45	140			0.0	0.05					0.12	0.08
8	5	41.4	5.2	11.6														
8	7	41.4	5.2	11.5														
8	12	41.4	5.2	11.3														
8	17	41.4	5.2	11.4														
8	22	41.4	5.2	11.3														
8	27	41.4	5.2	11.3	7.6	20		132				0.10					0.09	0.06
10	1	44.1	6.7	12.2														
10	2	43.2	6.2	11.7	7.9	22	15	152			0.0	0.00					0.08	0.07
10	5	42.8	6.0	11.7														
10	7	42.6	6.0	11.6														
10	12	42.3	5.7	11.3	7.8	22		152				0.01					0.10	0.07

TABLE 19

APPENDIX I

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

DECEMBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
11	1	44.2	6.8	12.0														
11	2	43.3	6.3	11.7	7.9	18	40	178			0.2	0.00					0.04	0.06
11	5	42.8	6.0	11.7														
11	7	42.6	5.9	11.4														
11	12	42.4	5.8	11.4														
11	14	42.4	5.8	11.3	7.8	19		150				0.00					0.06	0.08
13	1	43.2	6.2	11.6														
13	2	43.2	6.2	11.6	7.8	20	50	132			0.0	0.05					0.11	0.07
13	5	42.8	6.0	11.5														
13	7	42.8	6.0	11.6														
13	12	42.6	5.9	11.5														
13	17	42.6	5.9	11.5														
13	22	42.4	5.8	11.4														
13	27	42.4	5.8	11.4	7.7	19		126				0.05					0.12	
13	32	42.4	5.8	11.4														
13	37	42.4	5.8	11.4														
13	42	42.3	5.7	11.4														
13	47	42.3	5.7	11.4														
13	52	42.3	5.7	11.4	7.6	19		146				0.05					0.11	0.05
14	1	44.2	6.8	11.7														
14	2	44.2	6.8	11.6	7.7	20	48	130			0.0	0.10					0.09	0.06
14	5	43.9	6.6	11.2														
14	7	43.2	6.2	11.2														
14	12	42.3	5.7	11.1														
14	15	41.7	5.4	11.1	7.6	20		130				0.00					0.12	0.07
15	1	43.3	6.3	12.0														
15	2	43.9	6.6	11.8	7.8	19	48	136			0.1	0.00					0.10	0.05
15	5	44.1	6.7	11.6														
15	7	43.9	6.6	11.6														
15	12	43.7	6.5	11.4														
15	17	42.8	6.0	11.2	7.7	18		140				0.00					0.10	
15	22	42.9	6.0	11.2														
15	27	42.4	5.8	11.2														
15	32	42.4	5.8	11.1	7.7	21		136				0.00					0.14	0.06
16	1	41.0	5.0	12.4						394				0.8				
16	2	41.0	5.0	12.0	7.5	19	53	120	0		0.2	0.05	69		178	.007	0.10	0.04
16	5	41.0	5.0	11.8														
16	7	41.0	5.0	11.7														
16	12	41.0	5.0	11.6	7.6	22	50	144	0		0.0	0.00	58		179	.001	0.08	0.05

TABLE 19 (con't)

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYSICO CHEMICAL WATER QUALITY DATA

DECEMBER 1981

STA	DEPTH (FT.)	TEMP F	TEMP C	DO	PH	TURB	COD	HARDNESS	TSS	TDS	BORON	MN	SO4	TKN	CL	NO2	TOTAL IRON	FILTR. IRON
17	1	40.8	4.9	12.2														
17	2	41.0	5.0	11.8	7.6	20	48	152			0.0	0.01					0.10	0.[illegible]
17	5	41.0	5.0	11.6														
17	7	41.0	5.0	11.2														
17	12	41.0	5.0	11.2														
17	17	41.0	5.0	11.2	7.6	17		160				0.01					0.13	
17	22	41.0	5.0	11.2														
17	27	41.0	5.0	11.2														
17	32	41.0	5.0	11.2	7.6	19		132				0.05					0.12	0.07
20	1	40.5	4.8	12.2														
20	2	40.5	4.8	12.0														
20	5	40.5	4.9	11.8														
20	7	41.0	5.0	11.4														
20	12	41.0	5.0	11.5														
20	17	41.4	5.2	11.4														
20	22	41.7	5.4	11.4														
20	27	41.9	5.5	11.4														
21	1	41.4	5.2	12.2						507				0.8				
21	2	41.2	5.1	12.1	7.8	20	30	146	2		0.0	0.00	69		201	.005	0.08	0.05
21	5	41.0	5.0	11.7														
21	7	41.0	5.0	11.7														
21	12	41.0	5.0	11.7														
21	17	41.0	5.0	11.5														
21	22	41.0	5.0	11.5														
21	27	41.0	5.0	11.5	7.8	21	60	148	0		0.2	0.00	65		158	.005	0.11	0.05

TABLE 19 (con't)

APPENDIX II

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

JANUARY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ANABAENA	0	0	0	0	1	0	1	0	0	0	2
ANACYSTIS	0	26	0	0	0	0	0	0	0	0	26
EUGLENA	26	0	0	0	0	0	0	0	0	0	26
MICROSPORA	1	51	0	26	1	26	51	0	1	26	183
OSCILLATORIA	51	0	0	26	1	0	26	0	26	1	131
SPIRULINA	0	0	0	0	0	0	0	0	26	0	26
ULOTRIX	26	0	1	77	1	0	0	0	0	1	106
UNID UNICELLULAR	0	0	0	0	0	0	0	0	0	26	26
TOTAL	104	77	1	129	4	26	78	.	53	54	526

TABLE 20

APPENDIX II

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

APRIL 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ANABAENA	0	26	1	0	1	0	1	0	25	0	55
ANACYSTIS	0	26	25	0	26	51	0	0	0	0	129
DINOBRYON	0	0	25	0	0	0	0	0	25	0	52
MELOSIRA	1	0	1	1	0	0	0	0	0	0	3
MERISMOPEDIA	0	0	0	0	1	0	0	0	0	26	27
MICROSPORA	0	0	0	0	0	0	0	0	1	0	1
NAVICULA	0	0	0	0	0	26	0	0	0	0	26
OEDOGONIUM	1	0	0	51	0	0	0	0	0	1	53
OSCILLATORIA	51	1	51	0	26	26	0	0	25	51	232
PANDORINA	0	0	0	0	0	0	0	51	0	26	77
PEDIASTRUM	26	0	0	0	51	0	0	0	0	0	77
SCENEDESMUS	0	51	26	0	26	0	26	26	0	51	206
STAURASTRUM	0	0	0	0	0	0	0	0	25	0	26
STIGEOCLONIUM	0	1	0	0	0	0	0	0	0	0	1
SYNEDRA	0	0	1	0	0	0	0	0	0	0	1
ULOTHRIX	0	0	25	0	0	0	0	0	25	0	52
UNID FILAMENTOUS	0	1	0	0	0	0	0	0	0	0	1
UNID UNICELLULAR	0	0	0	0	129	308	0	0	0	26	463
UNID. ALGAE	77	129	26	26	129	26	0	0	0	129	542
TOTAL	156	235	184	78	389	437	27	77	131	310	2024

TABLE 21

APPENDIX II

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

JULY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ACTINASTRUM	77	0	154	180	26	0	0	0	206	180	823
ANABAENA	51	0	0	77	77	26	822	155	771	206	2185
ANABAENOPSIS	26	0	0	308	437	0	0	103	0	0	874
ANACYSTIS	0	0	0	0	0	0	0	0	0	77	77
ANKISTRODESMUS	26	257	0	129	103	77	0	0	103	180	875
ASTERIONELLA	51	0	77	0	0	51	0	51	0	51	281
CLOSTERIUM	77	26	26	0	26	0	0	0	26	0	181
CYCLOTELLA	797	591	951	1028	0	437	1593	1157	694	2107	9355
EUGLENA	0	0	0	0	0	0	0	0	0	26	26
KIRCHNERIELLA	0	51	0	26	77	154	0	0	0	0	308
MELOSIRA	977	0	1491	745	668	283	334	1799	540	437	7274
MERISMOPEDIA	0	26	26	0	51	0	77	0	51	0	231
MICROCYSTIS	0	0	0	0	26	51	0	0	51	0	128
TOTAL	4990	5455	7094	19814	18403	5782	21483	13623	11078	13569	121291

(CONTINUED)

TABLE 22

APPENDIX II

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

JULY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
NAVICULA	0	0	0	26	0	0	0	0	0	0	26
OSCILLATORIA	1773	3449	3495	15240	15189	3929	17102	9303	6965	8789	85174
PEDIASTRUM	103	0	26	51	26	0	0	26	26	0	258
PLATYDORINA	51	26	0	51	26	77	51	77	0	77	436
SCENEDESMUS	154	129	51	103	0	154	129	0	0	77	797
SCHROEDERIA	0	0	0	0	0	0	51	51	51	0	153
SPHAEROCYSTIS	77	26	26	26	0	26	51	26	0	0	258
SPIRULINA	467	720	617	1490	1568	540	1105	720	1568	1105	9900
STAURASTRUM	0	0	0	51	0	0	0	26	0	0	77
STEPHANODISCUS	0	0	0	0	0	0	0	26	26	0	52
SYNEDRA	257	154	154	283	103	77	51	77	0	257	1413
UNID UNICELLULAR	26	0	0	0	0	0	77	0	0	0	103
VOLVOX	0	0	0	0	0	0	0	26	0	0	26
TOTAL	4990	5455	7094	19814	18403	5782	21483	13623	11078	13569	121291

TABLE 22 (con't)

APPENDIX II

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

OCTOBER 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ACTINASTRUM	0	26	0	0	0	26	0	0	0	0	52
ANABAENA	51	51	26	0	0	26	26	51	0	26	257
ANKISTRODESMUS	514	437	360	154	180	745	308	360	231	386	3675
ASTERIONELLA	26	0	0	26	26	0	26	0	26	0	130
CERATIUM	0	0	0	0	26	0	0	26	0	0	52
CLOSTERIUM	0	0	0	26	51	26	0	0	26	51	180
CYCLOTELLA	386	463	386	540	668	591	540	463	334	283	4654
EUGLENA	0	26	0	0	0	26	0	0	0	0	52
KIRCHNERIELLA	129	129	77	26	206	103	206	77	154	103	1210
MELOSIRA	129	77	0	283	77	77	206	180	0	180	1209
MERISMOPEDIA	0	0	26	0	0	0	26	77	0	0	129
MICROCYSTIS	0	26	0	0	0	0	0	0	0	0	26
NAVICULA	103	103	0	0	129	77	0	0	0	77	489
OSCILLATORIA	0	0	206	51	129	129	283	206	0	488	1492
PEDIASTRUM	154	0	77	103	0	0	77	180	154	51	796
SCENEDESMUS	77	26	51	77	0	129	0	77	103	129	669
SPIRULINA	26	0	0	0	0	0	0	26	0	0	52
STAURASTRUM	0	0	0	0	0	0	0	0	26	0	26
STEPHANODISCUS	0	77	26	0	0	0	0	0	0	0	103
SYNEDRA	77	103	103	26	0	77	103	129	103	0	721
TOTAL	1672	1544	1338	1312	1492	2032	1801	1852	1157	1774	15974

TABLE 23

APPENDIX III

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
ZOOPLANKTON DATA (ORGANISMS/LITER)

JANUARY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ASPLANCHNA	0	0	1	26	0	0	0	1	0	1	29
BOSMINA	26	0	26	77	1	26	1	26	1	0	184
BRACHIONUS	26	77	77	1	51	103	51	1	51	51	489
CYCLOPS	0	0	0	0	0	0	26	0	0	0	26
DAPHNIA	26	0	1	0	0	0	0	0	0	0	27
DIAPTOMUS	0	0	0	0	0	0	0	1	0	1	2
EGGS	180	154	437	154	77	257	180	77	257	128	1901
FILINIA	51	128	26	0	0	0	0	0	77	1	283
KERATELLA	1	0	26	51	0	26	26	1	0	1	132
MONOSTYLA	26	0	77	26	26	0	0	0	0	26	181
NAUPLII	51	0	0	26	26	26	1	26	0	26	182
POLYARTHRA	668	463	745	206	154	488	180	386	360	334	3984
UNID ROTIFERS	103	51	77	51	51	154	26	77	180	77	847
TOTAL	1158	873	1493	618	386	1080	491	596	926	646	8267

TABLE 24

APPENDIX III
APRIL 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
BOSMINA	0	0	103	129	77	1	0	77	0	26	413
BRACHIONUS	1	0	0	0	1	0	0	0	0	1	3
CYCLOPS	51	26	77	51	0	103	26	26	1	1	362
DAPHNIA	0	0	0	0	1	0	0	0	0	1	2
DIAPTOMUS	26	51	26	26	26	0	51	0	1	1	208
EGGS	77	206	26	26	26	1	0	26	77	1	466
FILINIA	26	0	0	0	1	0	0	0	26	0	53
KERATELLA	26	77	26	51	103	51	0	26	26	1	387
MONOSTYLA	0	0	0	0	1	0	0	0	1	1	3
NAUPLII	129	231	257	51	26	3	129	514	51	1	1392
POLYARTHRA	51	0	26	26	0	0	0	0	26	1	130
UNID ROTIFERS	154	77	77	231	0	1	26	26	77	51	720
TOTAL	541	668	618	591	262	160	232	695	286	86	4139

TABLE 25

APPENDIX III

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
ZOOPLANKTON DATA (ORGANISMS/LITER)

JULY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ASPLANCHNA	0	0	77	51	51	0	0	0	0	0	179
BOSMINA	26	26	51	26	0	26	26	0	0	0	181
BRACHIONUS	77	0	0	0	26	0	437	0	103	231	874
CYCLOPS	51	26	154	26	26	26	0	0	26	0	335
DAPHNIA	0	0	0	0	0	0	26	0	0	0	26
DIAPTOMUS	0	0	26	0	0	0	0	26	51	51	154
EGGS	103	0	129	154	129	207	77	77	77	103	1056
FILINIA	0	0	26	26	0	0	26	0	0	0	78
KERATELLA	26	0	0	0	0	54	51	51	0	51	233
NAUPLII	0	26	0	51	154	129	51	103	154	0	668
POLYARTHRA	180	154	257	77	257	437	129	0	51	206	1748
UNID ROTIFERS	0	0	26	0	0	0	0	0	0	0	26
TOTAL	463	232	746	411	643	879	823	257	462	642	5558

TABLE 26

APPENDIX III

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
ZOOPLANKTON DATA (ORGANISMS/LITER)

OCTOBER 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
BRACHIONUS	77	26	26	0	77	77	0	0	77	26	386
CYCLOPS	0	0	0	26	26	26	26	0	0	0	104
DAPHNIA	0	0	0	0	0	0	0	26	0	0	26
DIAPTOMUS	0	0	26	51	0	0	0	0	0	0	77
EGGS	77	77	103	51	26	51	103	154	77	103	822
FILINIA	0	0	0	0	0	0	0	0	0	26	26
KERATELLA	0	26	26	103	129	103	0	26	103	154	670
NAUPLII	77	26	0	103	154	257	51	51	0	77	796
POLYARTHRA	103	0	26	0	51	77	51	51	0	0	359
TOTAL	334	155	207	334	463	591	231	308	257	386	3266

TABLE 27

APPENDIX IV

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR BENTHOS
ORGANISMS/SQUARE METER

JANUARY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
CHAOBORUS	0	603	1809	431	43	0	108	991	0	581	4564
CHIRONOMIDAE	0	474	453	409	65	151	237	582	237	431	3035
CORBICULA	0	0	0	0	22	0	0	0	0	0	22
HEXAGENIA	0	129	0	22	0	0	22	0	22	0	194
OLIGOCHAETA	0	0	22	0	22	86	0	0	0	22	151
TOTAL	.	1206	2283	861	151	237	366	1572	258	1033	7965

TABLE 28

APPENDIX IV

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR BENTHOS
ORGANISMS/SQUARE METER

APRIL 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
CERATOPOGONIDAE	0	0	0	0	22	0	0	0	0	0	22
CHAOBORUS	0	65	1034	65	0	22	259	345	0	43	1830
CHIRONOMIDAE	0	323	452	301	65	151	474	280	43	452	2540
HEXAGENIA	0	108	86	43	0	43	0	65	0	0	344
OLIGOCHAETA	0	0	280	65	43	259	194	86	0	453	1378
TOTAL	.	495	1851	473	129	474	926	775	43	948	6113

TABLE 29

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR BENTHOS
ORGANISMS/SQUARE METER

JULY 1981

TABLE OF TAXON BY STATION

TAXON / FREQUENCY	STATION 1	2	3	5	10	11	14	15	16	21	TOTAL
CHAOBORUS	0	0	323	22	0	22	86	86	22	366	926
CHIRONOMIDAE	0	43	86	108	65	86	258	86	65	86	882
HEXAGENIA	0	0	0	0	0	108	0	0	0	0	108
NEMATODA	0	0	22	0	0	0	0	0	0	0	22
OLIGOCHAETA	0	0	22	0	0	22	0	0	0	22	65
TRICHOPTERA	0	0	0	0	0	0	22	0	0	0	22
TOTAL	.	43	452	129	65	237	366	172	86	474	2022

TABLE 30

APPENDIX IV

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR BENTHOS
ORGANISMS/SQUARE METER

OCTOBER 1981

TABLE OF TAXON BY STATION

TAXON / FREQUENCY	STATION 1	2	3	5	10	11	14	15	16	21	TOTAL
CHAOBORUS	0	517	366	86	0	43	151	1249	65	280	2756
CHIRONOMIDAE	65	237	151	129	431	237	65	431	237	388	2367
HEXAGENIA	0	22	0	0	0	86	22	0	0	22	151
OLIGOCHAETA	0	22	797	0	496	474	86	560	43	1034	3510
SPHAERIIDAE	0	0	22	0	0	0	0	0	0	0	22
TOTAL	65	797	1335	215	926	840	323	2240	344	1722	8604

TABLE 31

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

JANUARY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ANABAENA	0	0	0	0	1	0	1	0	0	0	2
ANACYSTIS	0	26	0	0	0	0	0	0	0	0	26
EUGLENA	26	0	0	0	0	0	0	0	0	0	26
MICROSPORA	1	51	0	26	1	26	51	0	1	26	183
OSCILLATORIA	51	0	0	26	1	0	26	0	26	1	131
SPIRULINA	0	0	0	0	0	0	0	0	26	0	26
ULOTHRIX	26	0	1	77	1	0	0	0	0	1	106
UNID UNICELLULAR	0	0	0	0	0	0	0	0	0	26	26
TOTAL	104	77	1	129	4	26	78	.	53	54	526

TABLE 20

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

APRIL 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ANABAENA	0	26	1	0	1	0	1	0	26	0	55
ANACYSTIS	0	26	26	0	26	51	0	0	0	0	129
DINOBRYON	0	0	26	0	0	0	0	0	26	0	52
MELOSIRA	1	0	1	1	0	0	0	0	0	0	3
MERISMOPEDIA	0	0	0	0	1	0	0	0	0	26	27
MICROSPORA	0	0	0	0	0	0	0	0	1	0	1
NAVICULA	0	0	0	0	0	26	0	0	0	0	26
OEDOGONIUM	1	0	0	51	0	0	0	0	0	1	53
OSCILLATORIA	51	1	51	0	26	26	0	0	26	51	232
PANDORINA	0	0	0	0	0	0	0	51	0	26	77
PEDIASTRUM	26	0	0	0	51	0	0	0	0	0	77
SCENEDESMUS	0	51	26	0	26	0	26	26	0	51	206
STAURASTRUM	0	0	0	0	0	0	0	0	26	0	26
STIGEOCLONIUM	0	1	0	0	0	0	0	0	0	0	1
SYNEDRA	0	0	1	0	0	0	0	0	0	0	1
ULOTHRIX	0	0	26	0	0	0	0	0	26	0	52
UNID FILAMENTOUS	0	1	0	0	0	0	0	0	0	0	1
UNID UNICELLULAR	0	0	0	0	129	308	0	0	0	26	463
UNID. ALGAE	77	129	26	26	129	26	0	0	0	129	542
TOTAL	156	235	184	78	389	437	27	77	131	310	2024

TABLE 21

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

JULY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ACTINASTRUM	77	0	154	180	26	0	0	0	205	180	823
ANABAENA	51	0	0	77	77	26	822	155	771	206	2185
ANABAENOPSIS	26	0	0	308	437	0	0	[illegible]	0	0	874
ANACYSTIS	0	0	0	0	0	0	0	[illegible]	0	77	77
ANKISTRODESMUS	26	257	0	129	103	77	0	[illegible]	103	180	875
ASTERIONELLA	51	0	77	0	0	51	0	51	0	51	281
CLOSTERIUM	77	26	26	0	26	0	0	0	26	0	181
CYCLOTELLA	797	591	451	1028	0	437	1593	1157	694	2107	9355
EUGLENA	0	0	0	0	0	0	0	0	0	26	26
KIRCHNERIELLA	0	51	0	26	77	154	0	0	0	0	308
MELOSIRA	977	0	1491	745	668	283	334	1799	540	437	7274
MERISMOPEDIA	0	26	26	0	51	0	77	0	51	0	231
MICROCYSTIS	0	0	0	0	26	51	0	0	51	0	128
TOTAL	4990	5455	7094	19814	13803	5782	21933	13623	11078	13569	121291

(CONTINUED)

TABLE 22

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

JULY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
NAVICULA	0	0	0	26	0	0	0	0	0	0	26
OSCILLATORIA	1773	3449	3495	15240	15189	3929	17102	9303	6965	8789	85174
PEDIASTRUM	103	0	26	51	26	0	0	26	26	0	258
PLATYDORINA	51	26	0	51	26	77	51	77	0	77	436
SCENEDESMUS	154	129	51	103	0	154	129	0	0	77	797
SCHROEDERIA	0	0	0	0	0	0	51	51	51	0	153
SPHAEROCYSTIS	77	26	26	26	0	26	51	26	0	0	258
SPIRULINA	467	720	617	1490	1568	540	1105	720	1569	1105	9900
STAURASTRUM	0	0	0	51	0	0	0	26	0	0	77
STEPHANODISCUS	0	0	0	0	0	0	0	26	26	0	52
SYNEDRA	257	154	154	283	103	77	51	77	0	257	1413
UNID UNICELLULAR	26	0	0	0	0	0	77	0	0	0	103
VOLVOX	0	0	0	0	0	0	0	26	0	0	26
TOTAL	4990	5455	7094	19814	18403	5782	21483	13623	11078	13569	121291

TABLE 22 (con't)

APPENDIX II

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
PHYTOPLANKTON DATA (ORGANISMS/LITER)

OCTOBER 1981

TABLE OF TAXON BY STATION

TAXON / STATION / FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ACTINASTRUM	0	26	0	0	0	26	0	0	0	0	52
ANABAENA	51	51	26	0	0	26	26	51	0	26	257
ANKISTRODESMUS	514	437	360	154	180	745	308	360	231	386	3675
ASTERIONELLA	26	0	0	26	26	0	26	0	26	0	130
CERATIUM	0	0	0	0	26	0	0	26	0	0	52
CLOSTERIUM	0	0	0	26	51	26	0	0	26	51	180
CYCLOTELLA	386	463	386	540	668	591	540	463	334	283	4654
EUGLENA	0	26	0	0	0	26	0	0	0	0	52
KIRCHNERIELLA	129	129	77	26	206	103	206	77	154	103	1210
MELOSIRA	129	77	0	283	77	77	206	180	0	180	1209
MERISMOPEDIA	0	0	26	0	0	0	26	77	0	0	129
MICROCYSTIS	0	26	0	0	0	0	0	0	0	0	26
NAVICULA	103	103	0	0	129	77	0	0	0	77	489
OSCILLATORIA	0	0	206	51	129	129	283	206	0	488	1492
PEDIASTRUM	154	0	77	103	0	0	77	180	154	51	796
SCENEDESMUS	77	26	51	77	0	129	0	77	103	129	669
SPIRULINA	26	0	0	0	0	0	0	26	0	0	52
STAURASTRUM	0	0	0	0	0	0	0	0	26	0	26
STEPHANODISCUS	0	77	26	0	0	0	0	0	0	0	103
SYNEDRA	77	103	103	26	0	77	103	129	103	0	721
TOTAL	1672	1544	1338	1312	1492	2032	1801	1852	1157	1774	15974

TABLE 23

APPENDIX III

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
ZOOPLANKTON DATA (ORGANISMS/LITER)

JANUARY 1981

TABLE OF TAXON BY STATION

TAXON / STATION	1	2	3	5	10	11	14	15	16	21	TOTAL
FREQUENCY											
ASPLANCHNA	0	0	1	26	0	0	0	1	0	1	29
BOSMINA	26	0	26	77	1	26	1	26	1	0	184
BRACHIONUS	26	77	77	1	51	103	51	1	51	51	489
CYCLOPS	0	0	0	0	0	0	26	0	0	0	26
DAPHNIA	26	0	1	0	0	0	0	0	0	0	27
DIAPTOMUS	0	0	0	0	0	0	0	1	0	1	2
EGGS	180	154	437	154	77	257	180	77	257	128	1901
FILINIA	51	128	26	0	0	0	0	0	77	1	283
KERATELLA	1	0	26	51	0	26	26	1	0	1	132
MONOSTYLA	26	0	77	26	26	0	0	0	0	26	181
NAUPLII	51	0	0	26	26	26	1	26	0	26	182
POLYARTHRA	668	463	745	206	154	488	180	386	360	334	3984
UNID ROTIFERS	103	51	77	51	51	154	26	77	180	77	847
TOTAL	1158	873	1493	618	386	1080	491	596	926	646	8267

TABLE 24

APPENDIX III
APRIL 1981

TABLE OF TAXON BY STATION

TAXON / FREQUENCY	STATION 1	2	3	5	10	11	14	15	16	21	TOTAL
BOSMINA	0	0	103	129	77	1	0	77	0	26	413
BRACHIONUS	1	0	0	0	1	0	0	0	0	1	3
CYCLOPS	51	26	77	51	0	103	26	26	1	1	362
DAPHNIA	0	0	0	0	1	0	0	0	0	1	2
DIAPTOMUS	26	51	26	26	26	0	51	0	1	1	208
EGGS	77	206	26	26	26	1	0	26	77	1	466
FILINIA	26	0	0	0	1	0	0	0	26	0	53
KERATELLA	26	77	26	51	103	51	0	26	26	1	387
MONOSTYLA	0	0	0	0	1	0	0	0	1	1	3
NAUPLII	129	231	257	51	26	3	129	514	51	1	1392
POLYARTHRA	51	0	26	26	0	0	0	0	26	1	130
UNID ROTIFERS	154	77	77	231	0	1	26	26	77	51	720
TOTAL	541	668	618	591	262	160	232	695	286	86	4139

TABLE 25

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
ZOOPLANKTON DATA (ORGANISMS/LITER)

JULY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
ASPLANCHNA	0	0	77	51	51	0	0	0	0	0	179
BOSMINA	26	26	51	26	0	26	26	0	0	0	181
BRACHIONUS	77	0	0	0	26	0	437	0	103	231	874
CYCLOPS	51	26	154	26	26	26	0	0	26	0	335
DAPHNIA	0	0	0	0	0	0	26	0	0	0	26
DIAPTOMUS	0	0	26	0	0	0	0	26	51	51	154
EGGS	103	0	129	154	129	207	77	77	77	103	1056
FILINIA	0	0	26	26	0	0	26	0	0	0	78
KERATELLA	26	0	0	0	0	54	51	51	0	51	233
NAUPLII	0	26	0	51	154	129	51	103	154	0	668
POLYARTHRA	180	154	257	77	257	437	129	0	51	206	1748
UNID ROTIFERS	0	0	26	0	0	0	0	0	0	0	26
TOTAL	463	232	746	411	643	879	823	257	462	642	5558

TABLE 26

APPENDIX III

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR
ZOOPLANKTON DATA (ORGANISMS/LITER)

OCTOBER 1981

TABLE OF TAXON BY STATION

TAXON / STATION	1	2	3	5	10	11	14	15	16	21	TOTAL
FREQUENCY											
BRACHIONUS	77	26	26	0	77	77	0	0	77	26	386
CYCLOPS	0	0	0	26	26	26	26	0	0	0	104
DAPHNIA	0	0	0	0	0	0	0	26	0	0	26
DIAPTOMUS	0	0	26	51	0	0	0	0	0	0	77
EGGS	77	77	103	51	26	51	103	154	77	103	822
FILINIA	0	0	0	0	0	0	0	0	0	26	26
KERATELLA	0	26	26	103	129	103	0	26	103	154	670
NAUPLII	77	26	0	103	154	257	51	51	0	77	796
POLYARTHRA	103	0	26	0	51	77	51	51	0	0	359
TOTAL	334	155	207	334	463	591	231	308	257	386	3266

TABLE 27

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR BENTHOS
ORGANISMS/SQUARE METER

JANUARY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
CHAOBORUS	0	603	1809	431	43	0	108	991	0	581	4564
CHIRONOMIDAE	0	474	453	409	65	151	237	582	237	431	3035
CORBICULA	0	0	0	0	22	0	0	0	0	0	22
HEXAGENIA	0	129	0	22	0	0	22	0	22	0	194
OLIGOCHAETA	0	0	22	0	22	86	0	0	0	22	151
TOTAL	.	1206	2283	861	151	237	366	1572	258	1033	7965

TABLE 28

APPENDIX IV

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR BENTHOS
ORGANISMS/SQUARE METER

APRIL 1981

TABLE OF TAXON BY STATION

TAXON STATION

FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
CERATOPOGONIDAE	0	0	0	0	22	0	0	0	0	0	22
CHAOBORUS	0	65	1034	65	0	22	259	345	0	43	1830
CHIRONOMIDAE	0	323	452	301	65	151	474	280	43	452	2540
HEXAGENIA	0	108	86	43	0	43	0	65	0	0	344
OLIGOCHAETA	0	0	280	65	43	259	194	86	0	453	1378
TOTAL	.	495	1651	473	129	474	926	775	43	948	6113

309

TABLE 29

APPENDIX IV

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR BENTHOS
ORGANISMS/SQUARE METER

JULY 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
CHAOBORUS	0	0	323	22	0	22	86	86	22	366	926
CHIRONOMIDAE	0	43	86	[illegible]	65	86	258	86	65	86	882
HEXAGENIA	0	0	0	0	0	108	0	0	0	0	108
NEMATODA	0	0	22	0	0	0	0	0	0	0	22
OLIGOCHAETA	0	0	22	0	0	22	0	0	0	22	65
TRICHOPTERA	0	0	0	0	0	0	22	0	0	0	22
TOTAL	•	43	452	129	65	237	366	172	86	474	2022

TABLE 30

ARKANSAS NUCLEAR ONE ENVIRONMENTAL MONITORING PROGRAM
DARDANELLE RESERVOIR BENTHOS
ORGANISMS/SQUARE METER

OCTOBER 1981

TABLE OF TAXON BY STATION

TAXON / STATION FREQUENCY	1	2	3	5	10	11	14	15	16	21	TOTAL
CHAOBORUS	0	517	366	86	0	43	151	1249	65	280	2756
CHIRONOMIDAE	65	237	151	129	431	237	65	431	237	388	2367
HEXAGENIA	0	22	0	0	0	86	22	0	0	22	151
OLIGOCHAETA	0	22	797	0	496	474	86	560	43	1034	3510
SPHAERIIDAE	0	0	22	0	0	0	0	0	0	0	22
TOTAL	65	797	1335	215	926	840	323	2240	344	1722	8804

TABLE 31

1981 Report on Larval Fish Entrainment at

Arkansas Nuclear One

Entrainment is defined here as the passive movement of drifting larval fish in water withdrawn from a lake or river and used for industrial cooling purposes. While moving through a power plant's condenser cooling system, the larvae may be injured from turbulent shear forces and sudden changes in water temperature and pressure. Of particular interest to power plant operators and regulatory agencies is the environmental impact entrainment of larval fish has on the lake or river used as a source of cooling water.

Methods

In 1981, entrainment of larval fish through the Arkansas Nuclear One Unit-1 circulating water system was evaluated by monthly sampling in the intake canal from April to September. Vertical sampling of the water column at the surface, mid-depth and bottom of the 14 feet deep canal was performed on each sampling date at 0800, 1600 and 2400 hours. Three 0.5 m, 782u mesh, Birge closing nets fitted with General Oceanics flow meters and double-trip mechanisms were used. Nets were fished for 5 minutes and replicate samples were collected within 10 minutes. The volume of samples varied with intake canal water velocities and ranged from 29 to 75m^3. Approximately 0.25% of the total flow through the intake canal during sampling was filtered. Fish larvae captured in the nets were preserved in a solution of 4% formalin and 0.001% Rose Bengal

stain. Larvae were identified at 40X magnification to the lowest taxon pratical. The length of each specimen was recorded and the presence of parasites and abnormal growths was noted.

The intake canal water temperature, dissolved oxygen concentration and pH were determined for each sampling effort (Table 1). The water velocity in the canal was not measured before sampling. Previous calculations indicated the highest velocities occur at the narrow passage in the canal where sampling is performed (Figure 1). At maximum flow conditions, this area has a velocity of approximately 1.0 m/sec; the velocity at the intake structure was calculated to be 0.15 m/sec.

Field and laboratory data were transferred to 80 column computer cards, stored on disk and managed using the Statistical Analysis System (SAS) software. The 292 observations from this program are listed in Appendix 1. Names of variables at the top of each page are defined as follows:

OBS -	The observation number
SITE -	Lake Dardenelle
STATION -	ANO intake canal
SAMDEPTH -	Depth of sample (surface, mid-depth, bottom)
REPNUM -	Replicate sample number
TOD -	Time of day sampling occurred (hours)
TOSM -	Duration of sampling (minutes)
STADEPTH -	Depth of intake canal (feet)
UNIT1PUMP -	Number of Unit-1 circulating water pumps operating during sampling
UNIT2PUMP -	Number of Unit-2 circulating water pumps operating during sampling
ANOTOFLO -	Volume of ANO circulating water flow on day of sampling (m^3)
GRPCLASS -	Larval fish length class (mm)
TOTNUM -	Number of larvae in observation
DISPARA -	Code of disease or parasite in observation

NUMDRPO -	Number of fish larvae having a disease or parasite in observation
VOLUME -	Sample volume (m^3)
DENSITY -	Number of larvae/1000 m^3
TAXON -	Systematic name of larvae in observation

Results

A total of 861 larval fish were collected in samples taken in 1981. Larvae ranged in length from 2 to 37 mm. The major taxa identified were: Atherinidae (Silversides), Cyprinidae (Minnows), Clupeidae (Herring/Shad), Aplodinotus grunniens (Freshwater drum), Lepomis sp. (Sunfishes), Morone sp. (Sea basses) and Pomixis sp. (Crappie). In order of relative abundance, Clupeidae composed 96.5% of the larvae collected, Atherinidae 1.6%, Pomoxis sp. 0.4%, Morone sp. 0.2%, Aplodinotus grunniens 0.2%, Lepomis sp. 0.2% and Cyprinidae 0.1%. The remaining larvae (0.5%) were damaged during sampling and could not be identified.

The Clupeidae were composed of 1.2% Dorosoma petenense (Threadfin Shad), 0.8% Dorosoma cepedianum (Gizzard Shad), 0.9% Dorosoma sp. and 96.5% could not be further differentiated taxonomically. Forty-three percent of the Atherinidae were identified as Minidia Audens (Mississippi Silverside).

Unlike previous years, a significant trend in the spatial distribution of larvae in the intake canal water column was observed in 1981. Seventy-five percent of the net catch was collected at the surface, 15% at mid-depth and 10% at the bottom. A consistent trend in the temporal

distribution was observed, however, as in previous years. Ninety-six percent of net catch was collected at 2400 h, 2% at 1600 h and 2% at 0800 h.

Estimates of larval fish densities in the ANO Unit-1 circulating water source for the period April through September 1981 is presented in Figure 2. Observations on the seasonal appearance and relative abundance of each taxon were similar to those of previous years.

Samples collected in April were composed of Clupeidae, Atherinidae and Pomoxis sp. at densities of 23.2, 16.2 and 1.0 larvae/1000 m^3, respectively. While Atherinidae and Pomoxis sp. declined in number through May and June, Clupeidae increased significantly in abundance. They reached a maximum observed density of 478 larvae/1000 m^3 in late June, then decreased abruptly by mid-July to approximately 50 larvae/ 1000^3. Only Clupeidae were observed in August and September collections at densities of 3.1 and 2.0 larvae/1000 m^3, respectively.

Morone sp. were observed only in May samples. Freshwater drum were detected in early May and early June samples. Lepomis sp. were observed through June and July, and Cyprinidae were seen only in samples collected in July.

Estimates of monthly larval fish entrainment (Table 2) were calculated by multiplying the observed density of each taxon by the average monthly circulating water flow for the corresponding month (Figure 3). An average of the results for multiple sampling efforts in May and June were

used to obtain single estimates for each month. Based on limited sampling over the six month period of study, approximately 6.01 x 10^7 larval fish were estimated to have been entrained in the ANO Unit-1 circulating water system.

Conclusions

Several factors must be taken into consideration in assessing the data reported above. The water velocity at the point in the intake canal where samples are collected was much higher than the velocity at the intake structure area. It has been recognized that this factor likely introduces a significant bias in estimating entrainment. Many larvae unable to avoid gear capture may have been able to easily escape the slower water currents at the intake structure and avoid being entrained.

Actual mortality of entrained larvae is highly variable and difficult to evaluate. A conservative assumption of 100% mortality may be used as in previous reports; though, studies at other power plants with similar cooling system design and operation have revealed mortality rates may be as low as 20%.

In addition, entrainment of fish larvae at ANO has had no apparent affect on the recruitment of spawning stock in the fish populations of Dardanelle Reservoir. Particularly the Clupeidae, which composed 97% of the total number of larvae entrained in 1981, have historically exhibited sufficient compensatory reserves to offset any affect from entrainment losses.

Larval fish entrainment monitoring at Arkansas Nuclear One is performed in compliance of ANO Unit One Environmental Technical Specification objectives (Section 4.1.2(3)) and reporting requirements (Section 5.6.1).

TABLE 1. ANO INTAKE CANAL TEMPERATURE, DISSOLVED OXYGEN CONCENTRATION AND pH.

Date	Time	Depth (Ft)	Temp (C)	D.O. (mg/l)	pH
27 Apr 81	0800	3	21.5	12.0	8.4
	1600	3	23.5	9.1	8.6
	2400	3	23.0	12.6	8.6
11 May 81	0800	3	19.5	8.3	7.7
	1600	3	19.0	7.5	7.6
	2400	3	18.5	8.1	7.2
27 May 81	0800	3	19.5	8.3	7.9
	1600	3	23.0	9.5	7.9
	2400	3	22.5	9.1	8.0
9 Jun 81	0800	3	26.5	9.4	8.6
	1600	3	26.0	8.3	8.0
	2400	3	26.0	8.5	7.6
24 Jun 81	0800	3	28.0	9.1	8.5
	1600	3	30.0	8.4	8.6
	2400	3	29.0	8.5	8.6
15 Jul 81	0800	3	31.0	8.5	8.8
	1600	3	31.8	7.9	8.5
	2400	3	31.5	5.8	8.6
12 Aug 81	0800	3	28.5	7.7	8.6
	1600	3	29.5	8.0	8.6
	2400	3	29.5	9.0	8.7
16 Sep 81	0800	3	25.0	5.8	8.0
	1600	3	25.5	7.2	8.3
	2400	3	24.5	9.0	8.4

TABLE 2. Number (millions) of larval fish entrained in the ANO Unit-1 circulating water system in 1981.

TAXON	APR	MAY	JUN	JUL	AUG	SEPT
Clupeidae	3.02	4.66	42.10	5.73	0.38	0.26
Atherinidae	2.09	0.49	0.05	-	-	-
Morone sp.	-	0.14	-	-	-	-
Pomoxis sp.	0.13	0.14	-	-	-	-
Freshwater drum	-	0.07	0.59	-	-	-
Lepomis sp.	-	-	0.34	0.13	-	-
Cyprinidae	-	-	-	0.16	-	-
Unidentified	-	0.13	-	-	-	-
TOTAL	5.24	5.63	42.5	6.02	0.38	0.26

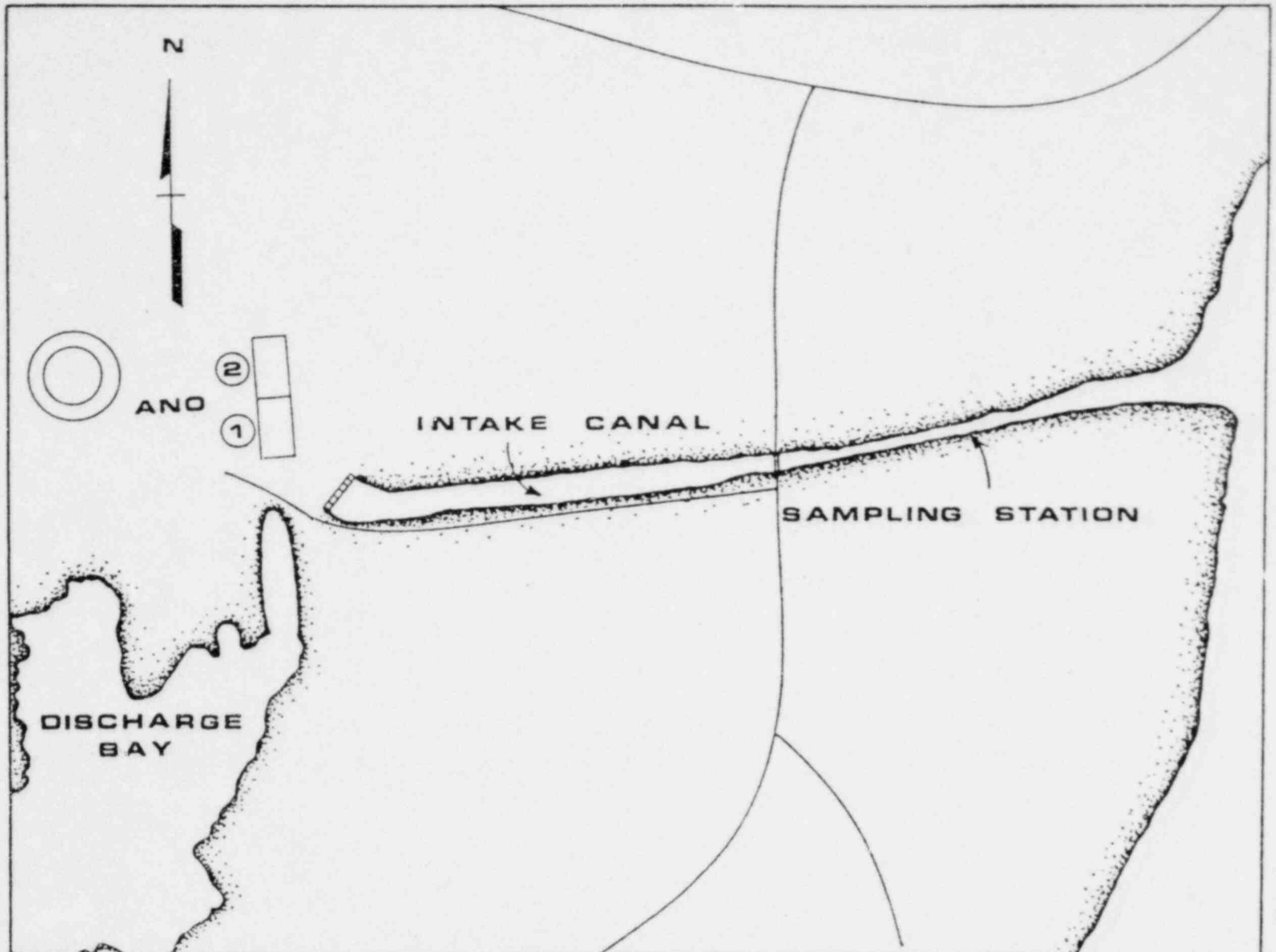


FIGURE 1. Map of the ANO Intake Canal with the location of the larval fish entrainment sampling station.

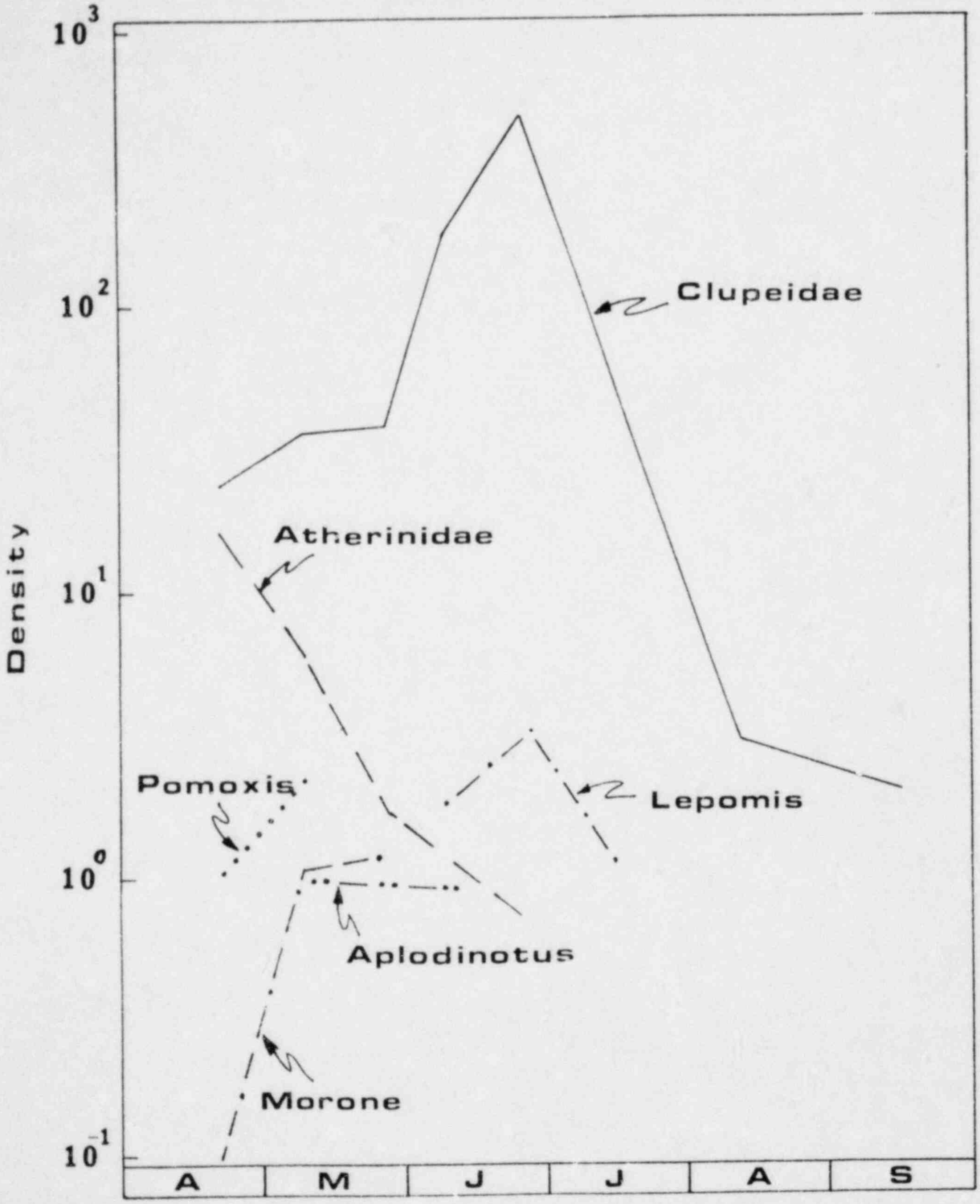


FIGURE 2. Density (larvae/1000 m³) of larval fishes in the ANO Intake Canal from April to September 1981.

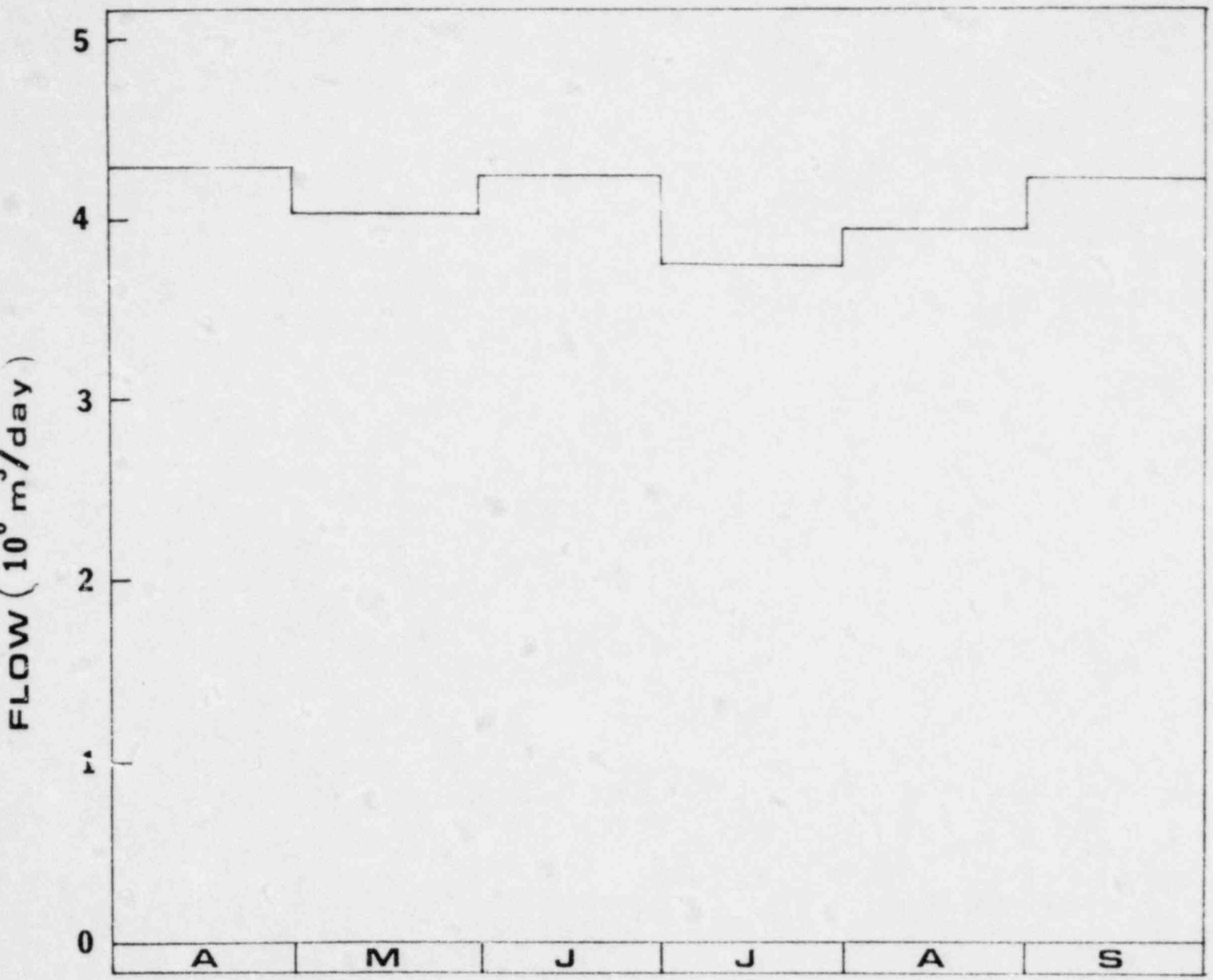


FIGURE 3. Hydrograph of the average monthly AND circulating water flow from April to September 1981.

APPENDIX I

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=27APR81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TUSM	STADEPT	UNT1PUMP	UNT2PUMP	ANOUTFLU	GRPCLASS	TOTNUM	DISPARA	NUMDURP	VOLUME	DENSITY	TAXON
1	L DARD	INTAKE CANAL	BOTTOM	1	600	5	14	4	0	4753249	35	1	0	0	37,3756	26,7554	DOROSOMA SP.
2	L DARD	INTAKE CANAL	MIDDEPTH	1	600	5	14	4	0	4753249	.	.		.	46,8308	.	NO FISH CAUGHT
3	L DARD	INTAKE CANAL	SURFACE	1	600	5	14	4	0	4753249	8	1	0	0	49,6292	20,1494	CLUPEIDAE
4	L DARD	INTAKE CANAL	BOTTOM	2	600	5	14	4	0	4753249	35	1	0	0	45,7602	21,8531	DOROSOMA SP.
5	L DARD	INTAKE CANAL	MIDDEPTH	2	600	5	14	4	0	4753249	3	1	0	0	55,2101	19,1126	DOROSOMA SP.
6	L DARD	INTAKE CANAL	SURFACE	2	600	5	14	4	0	4753249	3	1	0	0	53,6413	18,6424	DOROSOMA SP.
7	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	14	4	0	4753249	3	1	0	0	47,2601	21,1595	DOROSOMA SP.
8	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	14	4	0	4753249	4	1	0	0	47,2601	21,1595	DOROSOMA SP.
9	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	14	4	0	4753249	.	.		.	58,1463	.	NO FISH CAUGHT
10	L DARD	INTAKE CANAL	SURFACE	1	1600	5	14	4	0	4753249	.	.		.	48,0657	.	NO FISH CAUGHT
11	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	14	4	0	4753249	.	.		.	49,5041	.	NO FISH CAUGHT
12	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	14	4	0	4753249	.	.		.	54,1077	.	NO FISH CAUGHT
13	L DARD	INTAKE CANAL	SURFACE	2	1600	5	14	4	0	4753249	.	.		.	54,9716	.	NO FISH CAUGHT
14	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4753249	.	.		.	52,8092	.	NO FISH CAUGHT
15	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4753249	11	1	0	0	55,1942	18,1178	CLUPEIDAE
16	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4753249	15	1	0	0	55,1942	18,1178	CLUPEIDAE
17	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4753249	10	1	0	0	57,7541	17,3148	CLUPEIDAE
18	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4753249	7	1	0	0	57,7541	17,3148	ATHERINIDAE-SILV
19	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4753249	11	1	0	0	48,3625	20,6772	CLUPEIDAE
20	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4753249	10	2	0	0	57,5951	34,7252	CLUPEIDAE
21	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4753249	11	1	0	0	57,5951	17,3626	CLUPEIDAE
22	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	9	3	0	0	55,0723	54,4736	CLUPEIDAE
23	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	10	1	0	0	55,0723	18,1579	CLUPEIDAE
24	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	12	2	0	0	55,0723	36,3159	CLUPEIDAE
25	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	13	1	0	0	55,0723	18,1579	CLUPEIDAE
26	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	15	1	0	0	55,0723	18,1579	CLUPEIDAE
27	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	13	1	0	0	55,0723	18,1579	POMOXIS SP.

APPENDIX I

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=11MAY81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TUSM	STADEPT	UNT1PUMP	UNT2PUMP	ANUTOFLU	GRPCLASS	TOTNUM	DISPAHA	NUMDRP	VOLUME	DENSITY	TAXON
28	L DARD	INTAKE CANAL	BOTTOM	1	800	5	14	4	0	4742347	13	1	0	0	49.8253	20.0701	CLUPEIDAE
29	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	14	4	0	4742347	7	1	0	0	57.5845	17.3650	CLUPEIDAE
30	L DARD	INTAKE CANAL	SURFACE	1	800	5	14	4	0	4742347	17	1	0	0	58.8406	15.9451	CLUPEIDAE
31	L DARD	INTAKE CANAL	BOTTOM	2	800	5	14	4	0	4742347	4	2	0	0	46.5022	43.0087	SKIPJACK HERRING
32	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	14	4	0	4742347	12	1	0	0	53.1007	18.8321	CLUPEIDAE
33	L DARD	INTAKE CANAL	SURFACE	2	800	5	14	4	0	4742347	.	.		.	52.0449	.	NO FISH CAUGHT
34	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	14	4	0	4742347	.	.		.	46.3909	.	NO FISH CAUGHT
35	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	14	4	0	4742347	11	1	0	0	59.1056	16.9189	CLUPEIDAE
36	L DARD	INTAKE CANAL	SURFACE	1	1600	5	14	4	0	4742347	.	.		.	55.6076	.	NO FISH CAUGHT
37	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	14	4	0	4742347	.	.		.	43.8257	.	NO FISH CAUGHT
38	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	14	4	0	4742347	.	.		.	52.5654	.	NO FISH CAUGHT
39	L DARD	INTAKE CANAL	SURFACE	2	1600	5	14	4	0	4742347	.	.		.	49.8200	.	NO FISH CAUGHT
40	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4742347	14	1	0	0	46.7672	21.3825	MISSISSIPPI SILV
41	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4742347	9	1	0	0	46.7672	21.3825	ATHERINIDAE-SILV
42	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4742347	.	.		.	55.5387	.	NO FISH CAUGHT
43	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	18	1	0	0	52.5283	19.0374	THREADFIN SHAD
44	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	20	1	0	0	52.5283	19.0374	THREADFIN SHAD
45	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	12	3	0	0	52.5283	57.1121	CLUPEIDAE
46	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	14	2	0	0	52.5283	38.0747	CLUPEIDAE
47	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	15	2	0	0	52.5283	38.0747	CLUPEIDAE
48	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	17	1	0	0	52.5283	19.0374	CLUPEIDAE
49	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	11	1	0	0	52.5283	19.0374	POMOXIS SP.
50	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	12	2	0	0	52.5283	38.0747	MISSISSIPPI SILV
51	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	8	1	0	0	52.5283	19.0374	ATHERINIDAE-SILV
52	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	9	2	0	0	52.5283	38.0747	ATHERINIDAE-SILV
53	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4742347	12	1	0	0	47.7265	20.9527	CLUPEIDAE
54	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4742347	9	1	0	0	53.9434	18.5379	CLUPEIDAE
55	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4742347	14	1	0	0	53.9434	18.5379	CLUPEIDAE
56	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4742347	15	3	0	0	53.9434	55.6136	CLUPEIDAE
57	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	10	1	0	0	54.4999	18.3487	CLUPEIDAE
58	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	12	2	0	0	54.4999	36.6973	CLUPEIDAE
59	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	13	3	0	0	54.4999	55.046	CLUPEIDAE
60	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	14	2	0	0	54.4999	36.6973	CLUPEIDAE
61	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	16	3	0	0	54.4999	55.046	CLUPEIDAE
62	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	6	1	0	0	54.4999	18.3487	UNIDENTIFIED LAR
63	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	8	1	0	0	54.4999	18.3487	UNIDENTIFIED LAR
64	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	7	1	0	0	54.4999	18.3487	ATHERINIDAE-SILV
65	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	11	1	0	0	54.4999	18.3487	MISSISSIPPI SILV
66	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	13	1	0	0	54.4999	18.3487	MISSISSIPPI SILV
67	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	9	1	0	0	54.4999	18.3487	FRESHWATER DRUM
68	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	9	1	0	0	54.4999	18.3487	POMOXIS SP.
69	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	13	1	0	0	54.4999	18.3487	MORONE SP.

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

-- DATE=27MAY81 --

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TODSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANUTOFLO	GRPCLASS	TOTNUM	DISPARA	NUMDORP	VOLUME	DENSITY	TAXON
70	L DARD	INTAKE CANAL	BOTTOM	1	800	5	13	4	0	4706876	3	1	0	0	49.3112	20.2794	DOROSOMA SP.
71	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	13	4	0	4706876	.	.		.	81.3724	.	NO FISH CAUGHT
72	L DARD	INTAKE CANAL	SURFACE	1	800	5	13	4	0	4706876	.	.		.	59.4713	.	NO FISH CAUGHT
73	L DARD	INTAKE CANAL	BOTTOM	2	800	5	13	4	0	4706876	.	.		.	49.4119	.	NO FISH CAUGHT
74	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	13	4	0	4706876	.	.		.	52.0675	.	NO FISH CAUGHT
75	L DARD	INTAKE CANAL	SURFACE	2	800	5	13	4	0	4706876	.	.		.	54.7543	.	NO FISH CAUGHT
76	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	4	0	4706876	.	.		.	52.3004	.	NO FISH CAUGHT
77	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	4	0	4706876	3	1	0	0	55.3956	18.052	SKIPJACK HERRING
78	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	4	0	4706876	.	.		.	75.1649	.	NO FISH CAUGHT
79	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	4	0	4706876	.	.		.	49.5126	.	NO FISH CAUGHT
80	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	0	4706876	9	1	0	0	53.9010	18.5525	CLUPEIDAE
81	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	0	4706876	12	1	0	0	53.9010	18.5525	CLUPEIDAE
82	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	0	4706876	3	1	0	0	64.2466	15.565	SKIPJACK HERRING
83	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	0	4706876	9	2	0	0	64.2466	31.1301	ATHERINIDAE-SILV
84	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	6	1	0	0	46.0305	21.7247	MORONE SP.
85	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	7	1	0	0	46.0305	21.7247	CLUPEIDAE
86	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	9	1	0	0	46.0305	21.7247	CLUPEIDAE
87	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	10	2	0	0	46.0305	43.4495	CLUPEIDAE
88	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	12	1	0	0	46.0305	21.7247	CLUPEIDAE
89	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	17	1	0	0	46.0305	21.7247	CLUPEIDAE
90	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	12	4	0	4706876	8	1	0	0	51.0326	19.3576	CLUPEIDAE
91	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	12	4	0	4706876	9	3	0	0	51.0326	58.1025	CLUPEIDAE
92	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	12	4	0	4706876	17	1	0	0	51.0326	19.3576	CLUPEIDAE
93	L DARD	INTAKE CANAL	SURFACE	1	2400	5	12	4	0	4706876	10	1	0	0	63.7007	15.6984	CLUPEIDAE
94	L DARD	INTAKE CANAL	SURFACE	1	2400	5	12	4	0	4706876	11	3	0	0	63.7007	47.0952	CLUPEIDAE
95	L DARD	INTAKE CANAL	SURFACE	1	2400	5	12	4	0	4706876	12	3	0	0	63.7007	47.0952	CLUPEIDAE
96	L DARD	INTAKE CANAL	SURFACE	1	2400	5	12	4	0	4706876	13	1	0	0	63.7007	15.6984	CLUPEIDAE
97	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	12	4	0	4706876	10	1	0	0	46.2319	21.6301	CLUPEIDAE
98	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	12	4	0	4706876	8	2	0	0	54.3250	36.8155	CLUPEIDAE
99	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	12	4	0	4706876	9	1	0	0	54.3250	18.4077	CLUPEIDAE
100	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	12	4	0	4706876	11	1	0	0	54.3250	18.4077	CLUPEIDAE
101	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	7	1	0	0	64.3665	15.5355	CLUPEIDAE
102	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	11	2	0	0	64.3665	31.0711	CLUPEIDAE
103	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	12	2	0	0	64.3665	31.0711	CLUPEIDAE
104	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	13	1	0	0	64.3665	15.5355	CLUPEIDAE
105	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	16	2	0	0	64.3665	31.0711	CLUPEIDAE
106	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	22	1	91	1	64.3665	15.5355	GIZZARD SHAD

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=09JUN81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TOSM	STADEP1	UNIT1PUMP	UNIT2PUMP	ANUTOFLO	GRPCLASS	TOTNUM	DISPARA	NUMUURP	VOLUME	DENSITY	TAXON
107	L DARD	INTAKE CANAL	BOTTOM	1	800	5	14	4	0	4725994	10	1	0	0	46.3220	21.588	CLUPEIDAE
108	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	14	4	0	4725994	.	.		.	48.1611	.	NO FISH CAUGHT
109	L DARD	INTAKE CANAL	SURFACE	1	800	5	14	4	0	4725994	12	1	0	0	59.8264	16.715	CLUPEIDAE
110	L DARD	INTAKE CANAL	BOTTOM	2	800	5	14	4	0	4725994	9	1	0	0	49.9790	20.0084	CLUPEIDAE
111	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	14	4	0	4725994	.	.		.	50.4348	.	NO FISH CAUGHT
112	L DARD	INTAKE CANAL	SURFACE	2	800	5	14	4	0	4725994	10	2	0	0	64.6123	30.9539	CLUPEIDAE
113	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	14	4	0	4725994	.	.		.	41.8753	.	NO FISH CAUGHT
114	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	14	4	0	4725994	6	1	0	0	49.7988	20.0808	CLUPEIDAE
115	L DARD	INTAKE CANAL	SURFACE	1	1600	5	14	4	0	4725994	.	.		.	51.6432	.	NO FISH CAUGHT
116	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	14	4	0	4725994	6	1	0	0	44.1649	22.6424	CLUPEIDAE
117	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	14	4	0	4725994	.	.		.	51.3411	.	NO FISH CAUGHT
118	L DARD	INTAKE CANAL	SURFACE	2	1600	5	14	4	0	4725994	.	.		.	62.8315	.	NO FISH CAUGHT
119	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	4	1	0	0	45.9669	21.7540	CLUPEIDAE
120	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	5	1	0	0	45.9669	21.7540	CLUPEIDAE
121	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	7	1	0	0	45.9669	21.7540	CLUPEIDAE
122	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	8	2	0	0	45.9669	43.5090	CLUPEIDAE
123	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	9	2	0	0	45.9669	43.5090	CLUPEIDAE
124	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	10	7	0	0	45.9669	152.283	CLUPEIDAE
125	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	11	3	0	0	45.9669	65.2644	CLUPEIDAE
126	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	12	3	0	0	45.9669	65.2644	CLUPEIDAE
127	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	13	1	0	0	45.9669	21.7540	CLUPEIDAE
128	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	17	1	0	0	45.9669	21.7540	CLUPEIDAE
129	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	6	1	0	0	53.5300	18.6811	CLUPEIDAE
130	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	9	1	0	0	53.5300	18.6811	CLUPEIDAE
131	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	10	2	0	0	53.5300	37.3622	CLUPEIDAE
132	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	12	1	0	0	53.5300	18.6811	CLUPEIDAE
133	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	13	1	0	0	53.5300	18.6811	CLUPEIDAE
134	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	17	1	0	0	53.5300	18.6811	CLUPEIDAE
135	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	8	1	0	0	61.2205	16.3345	LEPOMIS SP.
136	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	10	1	0	0	61.2205	16.3345	FRESHWATER DRUM
137	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	6	2	0	0	61.2205	32.6689	CLUPEIDAE
138	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	7	2	0	0	61.2205	32.6689	CLUPEIDAE
139	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	8	5	0	0	61.2205	81.6725	CLUPEIDAE
140	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	9	3		0	61.2205	49.0034	CLUPEIDAE
141	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	10	20		0	61.2205	326.689	CLUPEIDAE
142	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	11	18	0	0	61.2205	294.02	CLUPEIDAE
143	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	12	10	0	0	61.2205	163.345	CLUPEIDAE
144	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	13	3	0	0	61.2205	49.0034	CLUPEIDAE
145	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	16	3	0	0	61.2205	49.0034	CLUPEIDAE
146	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	9	1	0	0	45.6542	21.9030	CLUPEIDAE
147	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	10	3	0	0	45.6542	65.7114	CLUPEIDAE
148	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	11	1	0	0	45.6542	21.9030	CLUPEIDAE

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=09JUN81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TDSM	STADEPT	UNT1PUMP	UNT2PUMP	ANUTOFLO	GHPCLASS	TOTNUM	DISPAMA	NUMOUMP	VOLUME	DENSITY	TAXON
149	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	12	3	0	0	45.6542	65.7114	CLUPEIDAE
150	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	13	1	0	0	45.6542	21.9038	CLUPEIDAE
151	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	7	4	0	0	50.2122	79.6619	CLUPEIDAE
152	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	8	1	0	0	50.2122	19.9155	CLUPEIDAE
153	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	9	2	0	0	50.2122	39.831	CLUPEIDAE
154	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	10	5	0	0	50.2122	99.5774	CLUPEIDAE
155	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	11	5	0	0	50.2122	99.5774	CLUPEIDAE
156	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	7	1	0	0	58.3583	17.1355	LEPOMIS SP.
157	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	8	4	0	0	58.3583	68.5421	CLUPEIDAE
158	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	9	13	0	0	58.3583	222.762	CLUPEIDAE
159	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	10	8	0	0	58.3583	137.084	CLUPEIDAE
160	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	11	10	0	0	58.3583	171.355	CLUPEIDAE
161	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	12	10	0	0	58.3583	171.355	CLUPEIDAE
162	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	13	8	0	0	58.3583	137.084	CLUPEIDAE

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

-- DATE=24JUN81 --

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TDSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANOTDFLO	GRPCLASS	TOTNUM	DISPARA	NUMDUMP	VOLUME	DENSITY	TAXON
163	L DARD	INTAKE CANAL	BOTTOM	1	800	5	13	4	0	4715092	.	.		.	49.1734	.	NO FISH CAUGHT
164	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	13	4	0	4715092	.	.		.	53.2547	.	NO FISH CAUGHT
165	L DARD	INTAKE CANAL	SURFACE	1	800	5	13	4	0	4715092	.	.		.	63.0173	.	NO FISH CAUGHT
166	L DARD	INTAKE CANAL	BOTTOM	2	800	5	13	4	0	4715092	.	.		.	46.9666	.	NO FISH CAUGHT
167	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	13	4	0	4715092	.	.		.	49.5179	.	NO FISH CAUGHT
168	L DARD	INTAKE CANAL	SURFACE	2	800	5	13	4	0	4715092	.	.		.	56.0687	.	NO FISH CAUGHT
169	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	4	0	4715092	7	1	0	0	45.7284	21.8682	CLUPEIDAE
170	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	4	0	4715092	.	.		.	46.5943	.	NO FISH CAUGHT
171	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	4	0	4715092	.	.		.	53.6519	.	NO FISH CAUGHT
172	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	4	0	4715092	.	.		.	42.0449	.	NO FISH CAUGHT
173	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	0	4715092	.	.		.	46.1243	.	NO FISH CAUGHT
174	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	0	4715092	.	.		.	55.1624	.	NO FISH CAUGHT
175	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	0	4715092	10	3	0	0	45.1719	66.413	CLUPEIDAE
176	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	0	4715092	11	1	0	0	45.1719	22.1377	CLUPEIDAE
177	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	0	4715092	12	2	0	0	45.1719	44.2753	CLUPEIDAE
178	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	0	4715092	17	1	0	0	45.1719	22.1377	CLUPEIDAE
179	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	10	2	0	0	52.7562	37.9102	CLUPEIDAE
180	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	13	1	0	0	52.7562	18.9551	CLUPEIDAE
181	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	14	1	0	0	52.7562	18.9551	CLUPEIDAE
182	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	16	1	0	0	52.7562	18.9551	CLUPEIDAE
183	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	18	1	0	0	52.7562	18.9551	THREADFIN SHAD
184	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	10	1	0	0	75.2070	13.2966	MISSISSIPPI SILV
185	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	9	10	0	0	75.2070	132.966	CLUPEIDAE
186	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	10	5	0	0	75.2070	66.4832	CLUPEIDAE
187	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	11	42	0	0	75.2070	558.459	CLUPEIDAE
188	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	12	26	0	0	75.2070	345.713	CLUPEIDAE
189	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	13	21	0	0	75.2070	279.229	CLUPEIDAE
190	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	14	11	0	0	75.2070	146.263	CLUPEIDAE
191	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	15	5	0	0	75.2070	66.4832	CLUPEIDAE
192	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	16	11	0	0	75.2070	146.263	CLUPEIDAE
193	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	17	10	0	0	75.2070	132.966	CLUPEIDAE
194	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	7	1	0	0	45.6330	21.914	LEPOMIS SP.
195	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	12	1	0	0	45.6330	21.914	LEPOMIS SP.
196	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	8	1	0	0	45.6330	21.914	CLUPEIDAE
197	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	9	1	0	0	45.6330	21.914	CLUPEIDAE
198	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	10	5	0	0	45.6330	109.57	CLUPEIDAE
199	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	11	1	0	0	45.6330	21.914	CLUPEIDAE
200	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	12	4	0	0	45.6330	87.6559	CLUPEIDAE
201	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	13	3	0	0	45.6330	65.7419	CLUPEIDAE
202	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	15	1	0	0	45.6330	21.914	CLUPEIDAE
203	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	9	2	0	0	50.1360	39.8899	CLUPEIDAE
204	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	10	17	0	0	50.1360	339.064	CLUPEIDAE

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=24JUN81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TDSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANOTOFLD	CHPCLASS	TOTNUM	DISPARA	NUMDORP	VOLUME	DENSITY	TAXON
205	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	11	17	0	0	50.1350	339.044	CLUPEIDAE
206	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	12	4	0	0	50.1350	79.7750	CLUPEIDAE
207	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	13	4	0	0	50.1350	79.7748	CLUPEIDAE
208	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	15	5	0	0	50.1350	99.7248	CLUPEIDAE
209	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	9	1	0	0	58.5173	17.089	LEPOMIS SP.
210	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	19	1	0	0	58.5173	17.089	THREADFIN SHAD
211	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	9	53	0	0	58.5173	905.715	CLUPEIDAE
212	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	10	53	0	0	58.5173	905.715	CLUPEIDAE
213	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	11	117	0	0	58.5173	1999.41	CLUPEIDAE
214	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	12	32	0	0	58.5173	546.847	CLUPEIDAE
215	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	15	21	0	0	58.5173	358.868	CLUPEIDAE
216	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	16	11	0	0	58.5173	187.979	CLUPEIDAE
217	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	17	11	0	0	58.5173	187.979	CLUPEIDAE

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=15JUL81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TDSH	STADEPT	UNIT1PUMP	UNIT2PUMP	ANOTOFLO	GRPCLASS	TOTNUM	DISPARA	NUMUURW	VOLUME	DENSITY	TAXON
1	L DARD	INTAKE CANAL	BOTTOM	1	800	5	13	3	2	2989995	.	.		.	29.9397	.	NO FISH CAUGHT
2	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	13	3	2	2989995	.	.		.	43.1102	.	NO FISH CAUGHT
3	L DARD	INTAKE CANAL	SURFACE	1	800	5	13	3	2	2989995	.	.		.	53.6943	.	NO FISH CAUGHT
4	L DARD	INTAKE CANAL	BOTTOM	2	800	5	13	3	2	2989995	.	.		.	41.5255	.	NO FISH CAUGHT
5	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	13	3	2	2989995	.	.		.	46.2319	.	NO FISH CAUGHT
6	L DARD	INTAKE CANAL	SURFACE	2	800	5	13	3	2	2989995	.	.		.	53.4555	.	NO FISH CAUGHT
7	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	3	2	2989995	.	.		.	31.9905	.	NO FISH CAUGHT
8	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	3	2	2989995	.	.		.	40.8735	.	NO FISH CAUGHT
9	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	3	2	2989995	.	.		.	50.4984	.	NO FISH CAUGHT
10	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	3	2	2989995	.	.		.	34.7465	.	NO FISH CAUGHT
11	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	3	2	2989995	.	.		.	43.4464	.	NO FISH CAUGHT
12	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	3	2	2989995	.	.		.	48.1770	.	NO FISH CAUGHT
13	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	25	1	0	0	28.0052	35.7077	GIZZARD SHAD
14	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	15	1	0	0	28.0052	35.7077	CLUPEIDAE
15	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	16	2	0	0	28.0052	71.4155	CLUPEIDAE
16	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	17	1	0	0	28.0052	35.7077	CLUPEIDAE
17	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	18	1	0	0	28.0052	35.7077	CLUPEIDAE
18	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	6	1	0	0	40.1157	24.9279	CYPRINIDAE
19	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	24	1	0	0	40.1157	24.9279	GIZZARD SHAD
20	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	11	1	0	0	40.1157	24.9279	CLUPEIDAE
21	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	12	2	0	0	40.1157	49.8558	CLUPEIDAE
22	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	14	1	0	0	40.1157	24.9279	CLUPEIDAE
23	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	15	1	0	0	40.1157	24.9279	CLUPEIDAE
24	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	16	2	0	0	40.1157	49.8558	CLUPEIDAE
25	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	17	1	0	0	40.1157	24.9279	CLUPEIDAE
26	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	3	2	2989995	15	1	0	0	48.6434	20.5578	LEPOMIS SP.
27	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	3	2	2989995	17	2	0	0	48.6434	41.1155	CLUPEIDAE
28	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	3	2	2989995	22	1	91	1	48.6434	20.5578	GIZZARD SHAD
29	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	3	2	2989995	18	1	91	1	31.2225	32.0284	THREADFIN SHAD
30	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	3	2	2989995	20	1	91	1	31.2225	32.0284	THREADFIN SHAD
31	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	3	2	2989995	22	1	91	1	31.2225	32.0284	THREADFIN SHAD
32	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	3	2	2989995	20	1	91	1	31.2225	32.0284	GIZZARD SHAD
33	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	30	1	0	0	41.7004	23.9806	THREADFIN SHAD
34	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	19	2	91	1	41.7004	47.9612	GIZZARD SHAD
35	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	12	3	0	0	41.7004	71.9418	CLUPEIDAE
36	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	14	4	0	0	41.7004	95.9225	CLUPEIDAE
37	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	16	1	0	0	41.7004	23.9806	CLUPEIDAE
38	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	3	2	2989995	.	.		.	55.9044	.	NO FISH CAUGHT

APPENDIX I

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=12AUG81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TUSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANUTUFLD	GRPCLASS	TOTNUM	DISPARA	NUMDUMP	VOLUME	DENSITY	TAXON
256	L DARD	INTAKE CANAL	BOTTOM	1	800	5	14	4	3	4885503	.	.		.	46.1685	.	NO FISH CAUGHT
257	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	14	4	3	4885503	.	.		.	50.8685	.	NO FISH CAUGHT
258	L DARD	INTAKE CANAL	SURFACE	1	800	5	14	4	3	4885503	.	.		.	50.3947	.	NO FISH CAUGHT
259	L DARD	INTAKE CANAL	BOTTOM	2	800	5	14	4	3	4885503	.	.		.	46.3644	.	NO FISH CAUGHT
260	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	14	4	3	4885503	.	.		.	53.1590	.	NO FISH CAUGHT
261	L DARD	INTAKE CANAL	SURFACE	2	800	5	14	4	3	4885503	.	.		.	60.8161	.	NO FISH CAUGHT
262	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	4	3	4885503	.	.		.	49.0035	.	NO FISH CAUGHT
263	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	4	3	4885503	.	.		.	55.1041	.	NO FISH CAUGHT
264	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	4	3	4885503	.	.		.	63.0489	.	NO FISH CAUGHT
265	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	4	3	4885503	.	.		.	51.7174	.	NO FISH CAUGHT
266	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	3	4885503	.	.		.	60.1444	.	NO FISH CAUGHT
267	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	3	4885503	.	.		.	67.0556	.	NO FISH CAUGHT
268	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	3	4885503	.	.		.	47.8645	.	NO FISH CAUGHT
269	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	3	4885503	26	1	0	0	54.2295	18.4401	THREADFIN SHAD
270	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	3	4885503	35	1	0	0	54.2295	18.4401	THREADFIN SHAD
271	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	3	4885503	.	.		.	66.9175	.	NO FISH CAUGHT
272	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	3	4885503	33	1	0	0	54.1235	18.4762	GIZZARD SHAD
273	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	3	4885503	.	.		.	61.1302	.	NO FISH CAUGHT
274	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	3	4885503	.	.		.	69.2975	.	NO FISH CAUGHT

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=16SEP81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TDSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANUTOFLO	GRPCLASS	TOTNUM	DISPANA	NUMDURP	VOLUME	DENSITY	TAXON
575	L DARD	INTAKE CANAL	BOTTOM	1	800	5	13	4	2	4843190	.	.		.	46.3326	.	NO FISH CAUGHT
576	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	13	4	2	4843190	.	.		.	52.7933	.	NO FISH CAUGHT
577	L DARD	INTAKE CANAL	SURFACE	1	800	5	13	4	2	4843190	.	.		.	58.2841	.	NO FISH CAUGHT
578	L DARD	INTAKE CANAL	BOTTOM	2	800	5	13	4	2	4843190	.	.		.	50.7051	.	NO FISH CAUGHT
579	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	13	4	2	4843190	.	.		.	53.3180	.	NO FISH CAUGHT
580	L DARD	INTAKE CANAL	SURFACE	2	800	5	13	4	2	4843190	.	.		.	59.9324	.	NO FISH CAUGHT
581	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	4	2	4843190	.	.		.	50.3394	.	NO FISH CAUGHT
582	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	4	2	4843190	.	.		.	53.1695	.	NO FISH CAUGHT
583	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	4	2	4843190	.	.		.	64.2890	.	NO FISH CAUGHT
584	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	4	2	4843190	.	.		.	47.7954	.	NO FISH CAUGHT
585	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	2	4843190	.	.		.	53.9855	.	NO FISH CAUGHT
586	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	2	4843190	.	.		.	59.0473	.	NO FISH CAUGHT
587	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	2	4843190	.	.		.	51.1662	.	NO FISH CAUGHT
588	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	2	4843190	.	.		.	55.1942	.	NO FISH CAUGHT
589	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	2	4843190	16	1	0	0	65.7412	15.2112	CLUPEIDAE
590	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	2	4843190	35	1	0	0	48.3360	20.6885	THREADFIN SHAD
591	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	2	4843190	.	.		.	54.8073	.	NO FISH CAUGHT
592	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	2	4843190	.	.		.	66.5415	.	NO FISH CAUGHT

332

APPENDIX I

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=27APR81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TUSM	STADEPT	UNT1PUMP	UNT2PUMP	ANUTUFLJ	GRPCLASS	TOTNUM	DISPARA	NUMDURP	VOLUME	DENSITY	TAXON
1	L DARD	INTAKE CANAL	BOTTOM	1	600	5	14	4	0	4753249	35	1	0	0	37,3756	26,7554	DOROSOMA SP.
2	L DARD	INTAKE CANAL	MIDDEPTH	1	600	5	14	4	0	4753249	.	.		.	46,8309	.	NO FISH CAUGHT
3	L DARD	INTAKE CANAL	SURFACE	1	600	5	14	4	0	4753249	8	1	0	0	49,6292	20,1494	CLUPEIDAE
4	L DARD	INTAKE CANAL	BOTTOM	2	600	5	14	4	0	4753249	35	1	0	0	45,7602	21,8531	DOROSOMA SP.
5	L DARD	INTAKE CANAL	MIDDEPTH	2	600	5	14	4	0	4753249	3	1	0	0	55,2101	19,1126	DOROSOMA SP.
6	L DARD	INTAKE CANAL	SURFACE	2	600	5	14	4	0	4753249	3	1	0	0	53,6413	18,6424	DOROSOMA SP.
7	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	14	4	0	4753249	3	1	0	0	47,2601	21,1595	DOROSOMA SP.
8	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	14	4	0	4753249	4	1	0	0	47,2601	21,1595	DOROSOMA SP.
9	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	14	4	0	4753249	.	.		.	58,1463	.	NO FISH CAUGHT
10	L DARD	INTAKE CANAL	SURFACE	1	1600	5	14	4	0	4753249	.	.		.	48,0657	.	NO FISH CAUGHT
11	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	14	4	0	4753249	.	.		.	44,5041	.	NO FISH CAUGHT
12	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	14	4	0	4753249	.	.		.	54,1077	.	NO FISH CAUGHT
13	L DARD	INTAKE CANAL	SURFACE	2	1600	5	14	4	0	4753249	.	.		.	54,9716	.	NO FISH CAUGHT
14	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4753249	.	.		.	52,8092	.	NO FISH CAUGHT
15	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4753249	11	1	0	0	55,1942	18,1176	CLUPEIDAE
16	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4753249	15	1	0	0	55,1942	18,1176	CLUPEIDAE
17	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4753249	10	1	0	0	57,7541	17,3148	CLUPEIDAE
18	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4753249	7	1	0	0	57,7541	17,3148	ATHERINIDAE-SILV
19	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4753249	11	1	0	0	48,3625	20,6772	CLUPEIDAE
20	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4753249	10	2	0	0	57,5951	34,7252	CLUPEIDAE
21	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4753249	11	1	0	0	57,5951	17,3626	CLUPEIDAE
22	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	9	3	0	0	55,0723	54,4736	CLUPEIDAE
23	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	10	1	0	0	55,0723	18,1579	CLUPEIDAE
24	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	12	2	0	0	55,0723	36,3159	CLUPEIDAE
25	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	13	1	0	0	55,0723	18,1579	CLUPEIDAE
26	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	15	1	0	0	55,0723	18,1579	CLUPEIDAE
27	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4753249	13	1	0	0	55,0723	18,1579	POMOXIS SP.

333

APPENDIX I

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=11MAY81

334

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TUSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANUTUFLO	GRPCLASS	TOTNUM	DISPARA	NUMDUMP	VOLUME	DENSITY	TAXON
28	L DARD	INTAKE CANAL	BOTTOM	1	800	5	14	4	0	4742347	13	1	0	0	49.8253	20.0701	CLUPEIDAE
29	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	14	4	0	4742347	7	1	0	0	57.5845	17.3650	CLUPEIDAE
30	L DARD	INTAKE CANAL	SURFACE	1	800	5	14	4	0	4742347	17	1	0	0	58.8406	16.9951	CLUPEIDAE
31	L DARD	INTAKE CANAL	BOTTOM	2	800	5	14	4	0	4742347	4	2	0	0	46.5022	43.0087	SKIPJACK HERRING
32	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	14	4	0	4742347	12	1	0	0	53.1007	18.8321	CLUPEIDAE
33	L DARD	INTAKE CANAL	SURFACE	2	800	5	14	4	0	4742347	.	.		.	52.6449	.	NO FISH CAUGHT
34	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	14	4	0	4742347	.	.		.	46.3909	.	NO FISH CAUGHT
35	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	14	4	0	4742347	11	1	0	0	59.1056	16.9189	CLUPEIDAE
36	L DARD	INTAKE CANAL	SURFACE	1	1600	5	14	4	0	4742347	.	.		.	55.6076	.	NO FISH CAUGHT
37	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	14	4	0	4742347	.	.		.	43.8257	.	NO FISH CAUGHT
38	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	14	4	0	4742347	.	.		.	52.5654	.	NO FISH CAUGHT
39	L DARD	INTAKE CANAL	SURFACE	2	1600	5	14	4	0	4742347	.	.		.	49.8200	.	NO FISH CAUGHT
40	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4742347	14	1	0	0	46.7672	21.3825	MISSISSIPPI SILV
41	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4742347	9	1	0	0	46.7672	21.3825	ATHERINIDAE-SILV
42	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4742347	.	.		.	55.5387	.	NO FISH CAUGHT
43	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	18	1	0	0	52.5283	19.0374	THREADFIN SHAD
44	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	20	1	0	0	52.5283	19.0374	THREADFIN SHAD
45	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	12	3	0	0	52.5283	57.1121	CLUPEIDAE
46	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	14	2	0	0	52.5283	38.0747	CLUPEIDAE
47	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	15	2	0	0	52.5283	38.0747	CLUPEIDAE
48	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	17	1	0	0	52.5283	19.0374	CLUPEIDAE
49	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	11	1	0	0	52.5283	19.0374	POMOXIS SP.
50	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	12	2	0	0	52.5283	38.0747	MISSISSIPPI SILV
51	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	8	1	0	0	52.5283	19.0374	ATHERINIDAE-SILV
52	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4742347	9	2	0	0	52.5283	38.0747	ATHERINIDAE-SILV
53	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4742347	12	1	0	0	47.7265	20.9527	CLUPEIDAE
54	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4742347	9	1	0	0	53.9434	18.5379	CLUPEIDAE
55	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4742347	14	1	0	0	53.9434	18.5379	CLUPEIDAE
56	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4742347	15	3	0	0	53.9434	55.6136	CLUPEIDAE
57	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	10	1	0	0	54.4999	18.3487	CLUPEIDAE
58	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	12	2	0	0	54.4999	36.6975	CLUPEIDAE
59	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	13	3	0	0	54.4999	55.0460	CLUPEIDAE
60	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	14	2	0	0	54.4999	36.6975	CLUPEIDAE
61	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	16	3	0	0	54.4999	55.0460	CLUPEIDAE
62	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	6	1	0	0	54.4999	18.3487	UNIDENTIFIED LAR
63	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	8	1	0	0	54.4999	18.3487	UNIDENTIFIED LAR
64	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	7	1	0	0	54.4999	18.3487	ATHERINIDAE-SILV
65	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	11	1	0	0	54.4999	18.3487	MISSISSIPPI SILV
66	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	13	1	0	0	54.4999	18.3487	MISSISSIPPI SILV
67	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	9	1	0	0	54.4999	18.3487	FRESHWATER DRUM
68	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	9	1	0	0	54.4999	18.3487	POMOXIS SP.
69	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4742347	13	1	0	0	54.4999	18.3487	MORONE SP.

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=27MAY81

334

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TOSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANUTOFLU	GRPCLASS	TOTNUM	DISPARA	NUMDORP	VOLUME	DENSITY	TAXON
70	L DARD	INTAKE CANAL	BOTTOM	1	800	5	13	4	0	4706876	3	1	0	0	49.3112	20,2794	DOROSOMA SP,
71	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	13	4	0	4706876	.	.		.	51.3729	.	NO FISH CAUGHT
72	L DARD	INTAKE CANAL	SURFACE	1	800	5	13	4	0	4706876	.	.		.	59.4713	.	NO FISH CAUGHT
73	L DARD	INTAKE CANAL	BOTTOM	2	800	5	13	4	0	4706876	.	.		.	49.4119	.	NO FISH CAUGHT
74	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	13	4	0	4706876	.	.		.	52.6675	.	NO FISH CAUGHT
75	L DARD	INTAKE CANAL	SURFACE	2	800	5	13	4	0	4706876	.	.		.	54.7543	.	NO FISH CAUGHT
76	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	4	0	4706876	.	.		.	52.3004	.	NO FISH CAUGHT
77	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	4	0	4706876	3	1	0	0	55.3956	18,052	SKIPJACK HERRING
78	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	4	0	4706876	.	.		.	75.1699	.	NO FISH CAUGHT
79	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	4	0	4706876	.	.		.	49.5126	.	NO FISH CAUGHT
80	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	0	4706876	9	1	0	0	53.9010	18,5525	CLUPEIDAE
81	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	0	4706876	12	1	0	0	53.9010	18,5525	CLUPEIDAE
82	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	0	4706876	3	1	0	0	64.2466	15,565	SKIPJACK HERRING
83	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	0	4706876	9	2	0	0	64.2466	31,1301	ATHERINIDAE=SILV
84	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	6	1	0	0	46.0305	21,7247	MORONE SP,
85	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	7	1	0	0	46.0305	21,7247	CLUPEIDAE
86	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	9	1	0	0	46.0305	21,7247	CLUPEIDAE
87	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	10	2	0	0	46.0305	43,4495	CLUPEIDAE
88	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	12	1	0	0	46.0305	21,7247	CLUPEIDAE
89	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	12	4	0	4706876	17	1	0	0	46.0305	21,7247	CLUPEIDAE
90	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	12	8	0	4706876	8	1	0	0	51.6326	19,3576	CLUPEIDAE
91	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	12	4	0	4706876	9	3	0	0	51.6326	58,1028	CLUPEIDAE
92	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	12	4	0	4706876	17	1	0	0	51.6326	19,3576	CLUPEIDAE
93	L DARD	INTAKE CANAL	SURFACE	1	2400	5	12	4	0	4706876	10	1	0	0	63.7007	15,6984	CLUPEIDAE
94	L DARD	INTAKE CANAL	SURFACE	1	2400	5	12	4	0	4706876	11	3	0	0	63.7007	47,0952	CLUPEIDAE
95	L DARD	INTAKE CANAL	SURFACE	1	2400	5	12	4	0	4706876	12	3	0	0	63.7007	47,0952	CLUPEIDAE
96	L DARD	INTAKE CANAL	SURFACE	1	2400	5	12	4	0	4706876	13	1	0	0	63.7007	15,6984	CLUPEIDAE
97	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	12	4	0	4706876	10	1	0	0	46.2319	21,6301	CLUPEIDAE
98	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	12	4	0	4706876	8	2	0	0	54.3250	36,8155	CLUPEIDAE
99	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	12	4	0	4706876	9	1	0	0	54.3250	18,4077	CLUPEIDAE
100	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	12	4	0	4706876	11	1	0	0	54.3250	18,4077	CLUPEIDAE
101	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	7	1	0	0	64.3665	15,5355	CLUPEIDAE
102	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	11	2	0	0	64.3665	31,0711	CLUPEIDAE
103	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	12	2	0	0	64.3665	31,0711	CLUPEIDAE
104	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	13	1	0	0	64.3665	15,5355	CLUPEIDAE
105	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	16	2	0	0	64.3665	31,0711	CLUPEIDAE
106	L DARD	INTAKE CANAL	SURFACE	2	2400	5	12	4	0	4706876	22	1	91	1	64.3665	15,5355	GIZZARD SHAD

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=09JUN81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TDSM	STADEPT	UNT1PUMP	UNT2PUMP	ANUTOFLO	GRPCLASS	TOTNUM	DISPARA	NUMDUMP	VOLUME	DENSITY	TAXON
107	L DARD	INTAKE CANAL	BOTTOM	1	800	5	14	4	0	4725994	10	1	0	0	46,3220	21,588	CLUPEIDAE
108	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	14	4	0	4725994	.	.		.	48,1611	.	NO FISH CAUGHT
109	L DARD	INTAKE CANAL	SURFACE	1	800	5	14	4	0	4725994	12	1	0	0	59,8264	16,715	CLUPEIDAE
110	L DARD	INTAKE CANAL	BOTTOM	2	800	5	14	4	0	4725994	9	1	0	0	49,9790	20,0084	CLUPEIDAE
111	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	14	4	0	4725994	.	.		.	50,4348	.	NO FISH CAUGHT
112	L DARD	INTAKE CANAL	SURFACE	2	800	5	14	4	0	4725994	10	2	0	0	64,6125	30,9559	CLUPEIDAE
113	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	14	4	0	4725994	.	.		.	41,8755	.	NO FISH CAUGHT
114	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	14	4	0	4725994	6	1	0	0	49,7985	20,0806	CLUPEIDAE
115	L DARD	INTAKE CANAL	SURFACE	1	1600	5	14	4	0	4725994	.	.		.	51,6432	.	NO FISH CAUGHT
116	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	14	4	0	4725994	6	1	0	0	44,1649	22,6424	CLUPEIDAE
117	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	14	4	0	4725994	.	.		.	51,3411	.	NO FISH CAUGHT
118	L DARD	INTAKE CANAL	SURFACE	2	1600	5	14	4	0	4725994	.	.		.	62,8315	.	NO FISH CAUGHT
119	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	4	1	0	0	45,9669	21,7540	CLUPEIDAE
120	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	5	1	0	0	45,9669	21,7540	CLUPEIDAE
121	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	7	1	0	0	45,9669	21,7540	CLUPEIDAE
122	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	8	2	0	0	45,9669	43,5090	CLUPEIDAE
123	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	9	2	0	0	45,9669	43,5090	CLUPEIDAE
124	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	10	7	0	0	45,9669	152,283	CLUPEIDAE
125	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	11	3	0	0	45,9669	65,2644	CLUPEIDAE
126	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	12	3	0	0	45,9669	65,2644	CLUPEIDAE
127	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	13	1	0	0	45,9669	21,7540	CLUPEIDAE
128	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	14	4	0	4725994	17	1	0	0	45,9669	21,7540	CLUPEIDAE
129	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	6	1	0	0	53,5300	18,6811	CLUPEIDAE
130	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	9	1	0	0	53,5300	18,6811	CLUPEIDAE
131	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	10	2	0	0	53,5300	37,3622	CLUPEIDAE
132	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	12	1	0	0	53,5300	18,6811	CLUPEIDAE
133	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	13	1	0	0	53,5300	18,6811	CLUPEIDAE
134	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	14	4	0	4725994	17	1	0	0	53,5300	18,6811	CLUPEIDAE
135	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	8	1	0	0	61,2203	16,3345	LEPOMIS SP.
136	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	10	1	0	0	61,2203	16,3345	FRESHWATER DRUM
137	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	6	2	0	0	61,2203	32,6689	CLUPEIDAE
138	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	7	2	0	0	61,2203	32,6689	CLUPEIDAE
139	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	8	5	0	0	61,2203	81,6723	CLUPEIDAE
140	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	9	3	0	0	61,2203	49,0034	CLUPEIDAE
141	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	10	20	0	0	61,2203	326,689	CLUPEIDAE
142	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	11	18	0	0	61,2203	294,02	CLUPEIDAE
143	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	12	10	0	0	61,2203	163,345	CLUPEIDAE
144	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	13	3	0	0	61,2203	49,0034	CLUPEIDAE
145	L DARD	INTAKE CANAL	SURFACE	1	2400	5	14	4	0	4725994	16	3	0	0	61,2203	49,0034	CLUPEIDAE
146	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	9	1	0	0	45,6542	21,9030	CLUPEIDAE
147	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	10	3	0	0	45,6542	65,7114	CLUPEIDAE
148	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	11	1	0	0	45,6542	21,9030	CLUPEIDAE

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=09JUN81

OBS	STYPE	STATION	SAMDEPTH	REPNUM	TOD	TOSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANUTOFLO	GRPCLASS	TOTNUM	DISPAMA	NUMDUMP	VOLUME	DENSITY	TAXON
149	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	12	3	0	0	45.6542	65.7114	CLUPEIDAE
150	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	14	4	0	4725994	13	1	0	0	45.6542	21.9038	CLUPEIDAE
151	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	7	4	0	0	50.2122	79.6619	CLUPEIDAE
152	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	8	1	0	0	50.2122	19.9155	CLUPEIDAE
153	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	9	2	0	0	50.2122	39.831	CLUPEIDAE
154	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	10	5	0	0	50.2122	99.5774	CLUPEIDAE
155	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	14	4	0	4725994	11	5	0	0	50.2122	99.5774	CLUPEIDAE
156	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	7	1	0	0	58.3583	17.1355	LEPOMIS SP.
157	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	8	4	0	0	58.3583	68.5421	CLUPEIDAE
158	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	9	13	0	0	58.3583	222.762	CLUPEIDAE
159	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	10	8	0	0	58.3583	137.084	CLUPEIDAE
160	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	11	10	0	0	58.3583	171.355	CLUPEIDAE
161	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	12	10	0	0	58.3583	171.355	CLUPEIDAE
162	L DARD	INTAKE CANAL	SURFACE	2	2400	5	14	4	0	4725994	13	8	0	0	58.3583	137.084	CLUPEIDAE

337

APPENDIX I

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

-- DATE=24JUN81 --

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TDSM	STADEPT	UNT1PUMP	UNT2PUMP	ANOTOFLO	GRPCLASS	TOTNUM	DISPARA	NUMDUMP	VOLUME	DENSITY	TAXON
163	L DARD	INTAKE CANAL	BOTTOM	1	800	5	13	4	0	4715092	.	.		.	49.1734	.	NO FISH CAUGHT
164	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	13	4	0	4715092	.	.		.	53.2547	.	NO FISH CAUGHT
165	L DARD	INTAKE CANAL	SURFACE	1	800	5	13	4	0	4715092	.	.		.	63.0173	.	NO FISH CAUGHT
166	L DARD	INTAKE CANAL	BOTTOM	2	800	5	13	4	0	4715092	.	.		.	40.9666	.	NO FISH CAUGHT
167	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	13	4	0	4715092	.	.		.	49.5179	.	NO FISH CAUGHT
168	L DARD	INTAKE CANAL	SURFACE	2	800	5	13	4	0	4715092	.	.		.	50.0687	.	NO FISH CAUGHT
169	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	4	0	4715092	7	1	0	0	45.7264	21,8682	CLUPEIDAE
170	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	4	0	4715092	.	.		.	46.3943	.	NO FISH CAUGHT
171	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	4	0	4715092	.	.		.	53.0519	.	NO FISH CAUGHT
172	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	4	0	4715092	.	.		.	42.0449	.	NO FISH CAUGHT
173	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	0	4715092	.	.		.	46.1293	.	NO FISH CAUGHT
174	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	0	4715092	.	.		.	55.1624	.	NO FISH CAUGHT
175	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	0	4715092	10	3	0	0	45.1719	66.413	CLUPEIDAE
176	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	0	4715092	11	1	0	0	45.1719	22,1377	CLUPEIDAE
177	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	0	4715092	12	2	0	0	45.1719	44,2753	CLUPEIDAE
178	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	0	4715092	17	1	0	0	45.1719	22,1377	CLUPEIDAE
179	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	10	2	0	0	52.7562	37,9102	CLUPEIDAE
180	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	13	1	0	0	52.7562	18,9551	CLUPEIDAE
181	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	14	1	0	0	52.7562	18,9551	CLUPEIDAE
182	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	16	1	0	0	52.7562	18,9551	CLUPEIDAE
183	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	0	4715092	18	1	0	0	52.7562	18,9551	THREADFIN SHAD
184	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	10	1	0	0	75.2070	13,2966	MISSISSIPPI SILV
185	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	9	10	0	0	75.2070	132,966	CLUPEIDAE
186	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	10	5	0	0	75.2070	66,4832	CLUPEIDAE
187	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	11	42	0	0	75.2070	558,459	CLUPEIDAE
188	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	12	26	0	0	75.2070	345,713	CLUPEIDAE
189	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	13	21	0	0	75.2070	279,229	CLUPEIDAE
190	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	14	11	0	0	75.2070	146,263	CLUPEIDAE
191	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	15	5	0	0	75.2070	66,4832	CLUPEIDAE
192	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	16	11	0	0	75.2070	146,263	CLUPEIDAE
193	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	0	4715092	17	10	0	0	75.2070	132,966	CLUPEIDAE
194	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	7	1	0	0	45.6330	21,914	LEPOMIS SP.
195	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	12	1	0	0	45.6330	21,914	LEPOMIS SP.
196	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	8	1	0	0	45.6330	21,914	CLUPEIDAE
197	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	9	1	0	0	45.6330	21,914	CLUPEIDAE
198	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	10	5	0	0	45.6330	109,57	CLUPEIDAE
199	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	11	1	0	0	45.6330	21,914	CLUPEIDAE
200	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	12	4	0	0	45.6330	87,6559	CLUPEIDAE
201	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	13	3	0	0	45.6330	65,7419	CLUPEIDAE
202	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	0	4715092	15	1	0	0	45.6330	21,914	CLUPEIDAE
203	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	9	2	0	0	50.1360	39,8899	CLUPEIDAE
204	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	10	17	0	0	50.1360	339,064	CLUPEIDAE

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=24JUN81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TOSM	STADEPT	UNT1PUMP	UNI2PUMP	ANDOFLO	GHPCLASS	TOTNUM	DISPARA	NUMDORP	VOLUME	DENSITY	TAXON
205	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	11	17	0	0	50.1380	339.064	CLUPEIDAE
206	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	12	4	0	0	50.1380	79.7798	CLUPEIDAE
207	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	13	4	0	0	50.1380	79.7798	CLUPEIDAE
208	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	0	4715092	15	5	0	0	50.1380	99.7248	CLUPEIDAE
209	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	9	1	0	0	58.5173	17.089	LEPOMIS SP.
210	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	19	1	0	0	58.5173	17.089	THREADFIN SHAD
211	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	9	53	0	0	58.5173	905.715	CLUPEIDAE
212	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	10	53	0	0	58.5173	905.715	CLUPEIDAE
213	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	11	117	0	0	58.5173	1999.41	CLUPEIDAE
214	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	12	32	0	0	58.5173	546.847	CLUPEIDAE
215	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	15	21	0	0	58.5173	358.868	CLUPEIDAE
216	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	16	11	0	0	58.5173	187.979	CLUPEIDAE
217	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	0	4715092	17	11	0	0	58.5173	187.979	CLUPEIDAE

339

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=15JUL81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TOSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANOTOFLO	GRPCLASS	TOTNUM	DISPARA	NUMDORP	VOLUME	DENSITY	TAXON
218	L DARD	INTAKE CANAL		2	22	.	.	.	.	.	40	0	782	9453	.	.	JDC
219	L DARD	INTAKE CANAL	BOTTOM	1	800	5	13	3	2	2989995	.	.		.	29.9397	.	NO FISH CAUGHT
220	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	13	3	2	2989995	.	.		.	43.1102	.	NO FISH CAUGHT
221	L DARD	INTAKE CANAL	SURFACE	1	800	5	13	3	2	2989995	.	.		.	53.6943	.	NO FISH CAUGHT
222	L DARD	INTAKE CANAL	BOTTOM	2	800	5	13	3	2	2989995	.	.		.	41.5255	.	NO FISH CAUGHT
223	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	13	3	2	2989995	.	.		.	46.2319	.	NO FISH CAUGHT
224	L DARD	INTAKE CANAL	SURFACE	2	800	5	13	3	2	2989995	.	.		.	53.4556	.	NO FISH CAUGHT
225	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	3	2	2989995	.	.		.	31.9908	.	NO FISH CAUGHT
226	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	3	2	2989995	.	.		.	40.8736	.	NO FISH CAUGHT
227	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	3	2	2989995	.	.		.	50.4984	.	NO FISH CAUGHT
228	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	3	2	2989995	.	.		.	34.7468	.	NO FISH CAUGHT
229	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	3	2	2989995	.	.		.	43.8469	.	NO FISH CAUGHT
230	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	3	2	2989995	.	.		.	48.1770	.	NO FISH CAUGHT
231	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	25	1	0	0	28.0052	35.7077	GIZZARD SHAD
232	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	15	1	0	0	28.0052	35.7077	CLUPEIDAE
233	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	16	2	0	0	28.0052	71.4153	CLUPEIDAE
234	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	17	1	0	0	28.0052	35.7077	CLUPEIDAE
235	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	3	2	2989995	18	1	0	0	28.0052	35.7077	CLUPEIDAE
236	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	6	1	0	0	40.1157	24.9279	CYPRINIDAE
237	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	24	1	0	0	40.1157	24.9279	GIZZARD SHAD
238	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	11	1	0	0	40.1157	24.9279	CLUPEIDAE
239	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	12	2	0	0	40.1157	49.8558	CLUPEIDAE
240	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	14	1	0	0	40.1157	24.9279	CLUPEIDAE
241	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	15	1	0	0	40.1157	24.9279	CLUPEIDAE
242	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	16	2	0	0	40.1157	49.8558	CLUPEIDAE
243	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	3	2	2989995	17	1	0	0	40.1157	24.9279	CLUPEIDAE
244	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	3	2	2989995	15	1	0	0	48.6434	20.5578	LEPOMIS SP.
245	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	3	2	2989995	17	2	0	0	48.6434	41.1155	CLUPEIDAE
246	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	3	2	2989995	22	1	91	1	48.6434	20.5578	GIZZARD SHAD
247	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	3	2	2989995	18	1	91	1	31.2223	32.0284	THREADFIN SHAD
248	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	3	2	2989995	20	1	91	1	31.2223	32.0284	THREADFIN SHAD
249	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	3	2	2989995	20	1	91	1	31.2223	32.0284	GIZZARD SHAD
250	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	30	1	0	0	41.7004	23.9806	THREADFIN SHAD
251	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	19	2	91	1	41.7004	47.9612	GIZZARD SHAD
252	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	12	3	0	0	41.7004	71.9418	CLUPEIDAE
253	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	14	4	0	0	41.7004	95.9223	CLUPEIDAE
254	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	3	2	2989995	16	1	0	0	41.7004	23.9806	CLUPEIDAE
255	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	3	2	2989995	.	.		.	55.9044	.	NO FISH CAUGHT

APPENDIX I

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=12AUG81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TUSM	STADEPT	UNT1PUMP	UNT2PUMP	ANUTUFLD	GRPCLASS	TOTNUM	DISPARA	NUMDU.	VOLUME	DENSITY	TAXON
256	L DARD	INTAKE CANAL	BOTTOM	1	600	5	14	4	3	4885503	.	.		.	46,1683	.	NO FISH CAUGHT
257	L DARD	INTAKE CANAL	MIDDEPTH	1	600	5	14	4	3	4885503	.	.		.	50,5685	.	NO FISH CAUGHT
258	L DARD	INTAKE CANAL	SURFACE	1	600	5	14	4	3	4885503	.	.		.	50,3447	.	NO FISH CAUGHT
259	L DARD	INTAKE CANAL	BOTTOM	2	600	5	14	4	3	4885503	.	.		.	46,3644	.	NO FISH CAUGHT
260	L DARD	INTAKE CANAL	MIDDEPTH	2	600	5	14	4	3	4885503	.	.		.	53,1590	.	NO FISH CAUGHT
261	L DARD	INTAKE CANAL	SURFACE	2	600	5	14	4	3	4885503	.	.		.	60,6161	.	NO FISH CAUGHT
262	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	4	3	4885503	.	.		.	49,0035	.	NO FISH CAUGHT
263	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	4	3	4885503	.	.		.	55,1041	.	NO FISH CAUGHT
264	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	4	3	4885503	.	.		.	63,0485	.	NO FISH CAUGHT
265	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	4	3	4885503	.	.		.	51,7174	.	NO FISH CAUGHT
266	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	3	4885503	.	.		.	60,1444	.	NO FISH CAUGHT
267	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	3	4885503	.	.		.	67,0556	.	NO FISH CAUGHT
268	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	3	4885503	.	.		.	47,8643	.	NO FISH CAUGHT
269	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	3	4885503	26	1	0	0	54,2295	18,4401	THREADFIN SHAD
270	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	3	4885503	35	1	0	0	54,2295	18,4401	THREADFIN SHAD
271	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	3	4885503	.	.		.	66,9173	.	NO FISH CAUGHT
272	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	3	4885503	33	1	0	0	54,1236	18,4762	GIZZARD SHAD
273	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	3	4885503	.	.		.	61,1302	.	NO FISH CAUGHT
274	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	3	4885503	.	.		.	69,2975	.	NO FISH CAUGHT

ARKANSAS NUCLEAR ONE
ENTRAINMENT MONITORING PROGRAM

NET CATCH DATA 1981

DATE=16SEP81

OBS	SITE	STATION	SAMDEPTH	REPNUM	TOD	TDSM	STADEPT	UNIT1PUMP	UNIT2PUMP	ANUTOFLO	GRPCLASS	TOTNUM	DISPARA	NUMDURP	VOLUME	DENSITY	TAXON
275	L DARD	INTAKE CANAL	BOTTOM	1	800	5	13	4	2	4843190	.	.		.	46.3326	.	NO FISH CAUGHT
276	L DARD	INTAKE CANAL	MIDDEPTH	1	800	5	13	4	2	4843190	.	.		.	52.7935	.	NO FISH CAUGHT
277	L DARD	INTAKE CANAL	SURFACE	1	800	5	13	4	2	4843190	.	.		.	58.2641	.	NO FISH CAUGHT
278	L DARD	INTAKE CANAL	BOTTOM	2	800	5	13	4	2	4843190	.	.		.	50.7051	.	NO FISH CAUGHT
279	L DARD	INTAKE CANAL	MIDDEPTH	2	800	5	13	4	2	4843190	.	.		.	53.3180	.	NO FISH CAUGHT
280	L DARD	INTAKE CANAL	SURFACE	2	800	5	13	4	2	4843190	.	.		.	59.9324	.	NO FISH CAUGHT
281	L DARD	INTAKE CANAL	BOTTOM	1	1600	5	13	4	2	4843190	.	.		.	50.3394	.	NO FISH CAUGHT
282	L DARD	INTAKE CANAL	MIDDEPTH	1	1600	5	13	4	2	4843190	.	.		.	53.1696	.	NO FISH CAUGHT
283	L DARD	INTAKE CANAL	SURFACE	1	1600	5	13	4	2	4843190	.	.		.	64.2690	.	NO FISH CAUGHT
284	L DARD	INTAKE CANAL	BOTTOM	2	1600	5	13	4	2	4843190	.	.		.	47.7954	.	NO FISH CAUGHT
285	L DARD	INTAKE CANAL	MIDDEPTH	2	1600	5	13	4	2	4843190	.	.		.	53.9858	.	NO FISH CAUGHT
286	L DARD	INTAKE CANAL	SURFACE	2	1600	5	13	4	2	4843190	.	.		.	59.0475	.	NO FISH CAUGHT
287	L DARD	INTAKE CANAL	BOTTOM	1	2400	5	13	4	2	4843190	.	.		.	51.1662	.	NO FISH CAUGHT
288	L DARD	INTAKE CANAL	MIDDEPTH	1	2400	5	13	4	2	4843190	.	.		.	55.1942	.	NO FISH CAUGHT
289	L DARD	INTAKE CANAL	SURFACE	1	2400	5	13	4	2	4843190	16	1	0	0	65.7412	15.2112	CLUPEIDAE
290	L DARD	INTAKE CANAL	BOTTOM	2	2400	5	13	4	2	4843190	35	1	0	0	48.3360	20.6885	THREADFIN SHAD
291	L DARD	INTAKE CANAL	MIDDEPTH	2	2400	5	13	4	2	4843190	.	.		.	54.8075	.	NO FISH CAUGHT
292	L DARD	INTAKE CANAL	SURFACE	2	2400	5	13	4	2	4843190	.	.		.	66.5415	.	NO FISH CAUGHT

A SUMMARY OF FISH IMPINGMENT MONITORING

AT ARKANSAS NUCLEAR ONE

FROM JANUARY 1 - DECEMBER 31, 1981

In reviewing the Impingement data for 1981, it does not appear that the operation of Arkansas Nuclear One is having a significant impact on the fishery of Dardanelle Reservoir.

There were 110 samples collected in the twelve month period. Sampling was conducted two to three times a week as required in the technical specifications. Weekly sampling was without interruption because Unit Two was operating when Unit One was off-line for refueling. This would, in essence, give 365 Reactor Power days for the year and a sampling frequency factor of 3.32 was used to extrapolate total numbers and weights for the year.

Dardanelle Reservoir covers approximately 36,600 acres. Using Rotenone survey estimates for 1981 supplied by the Arkansas Game and Fish Commission and Arkansas Tech University, it is estimated that there were 6,029 fish per acre and 605 pounds per acre. The estimated total impingement for 1981 was calculated to be approximately 8.1 million fish with a weight of approximately 97,000 pounds. This impingement represented approximately 3.7% of the calculated total fish in the Reservoir and .44% of the calculated weight in pounds. Of the fish impinged, there were 34 species representing 13 families.

Tables 1 and 2 present the number, weights and percentage of each species impinged in the monthly samples and the total for the year. The most impinged species of fish were the Gizzard Shad, *Dorosoma cepedianum* (LeSueur) and Threadfin Shad, *Dorosoma petenense* (Gunther) representing the Herring (Clupeidae) Family at 99.25% of the total number and 95.34% of the total weight (Tables 3 and 4). Freshwater Drum, *Aplodinotus grunniens* (Rafinesque) representing the Drum (*Sciaenidae*) Family contributed 2.17% of the total weight of fish impinged. All other species were less than 1.0% in total number or weight.

Highest impingement occurs during late fall, winter and early spring, October through March. As stated before, the Shad species are the most prevalent in the impingment samples. They become thermally stressed at temperatures below 60°F. Strawn (1963) demonstrated that Threadfin Shad in Arkansas will most likely not survive the winter in lakes in which temperatures drop below 41°F (5.0°C) for any extended length of time. Recorded water temperatures at the intake structure (Table 5) indicate that the temperature had dropped below this threshold in January and February of 1977, 1978 and 1979. It is during this period of time that the Threadfin Shad began to experience a sharp decline in numbers as evidenced by both impingement data and Reservoir data (Table 6).

Texas Instruments, Inc. (1976) concluded that the loss and possible subsequent reduction in Threadfin Shad standing crop due to natural mortality and impingement will effect little change in the numbers and/or biomass of the sport and/or commercial fish populations in Dardanelle Reservoir. Further, they concluded that any shift in predator-prey

relationships brought on by a reduction in standing crop of Threadfin Shad may be buffered by compensatory changes in Gizzard Shad population levels.

Reservoir data over the last nine years seems to support these conclusions. In fact, there appears to be an enhancement of the predator:forage ratio when Threadfin Shad numbers decline (Figures 1 and 2). Generally, when the Threadfin Shad numbers decrease, the Gizzard Shad numbers increase (Figure 3). This provides evidence of the buffering capacity alluded to in Texas Instruments' conclusions.

A comparison of the number and weight of the more important forage and commercial/sport fish is presented in Table 7. The calculated percent of number and weight of these species impinged compared to the estimated reservoir total is small and represents a minimal impact. The forage fish species, Gizzard and Threadfin Shad make up the greatest percentage impinged. Gizzard Shad represents 2.50% of the number and .64% of the weight and Threadfin Shad represents 12.71% of the number and 12.67% of the weight removed from the reservoir. Again, this is primarily due to their inability to withstand thermal stress in the winter months. The impingement of sport and commercial fish species does not present a significant impact on the reservoir fishery due to the low numbers and biomass removed.

As a general rule, there is a close relationship between the average weight per species impinged and the average weight in the reservoir (Table 8). With the exception of a few species, the average weight

impinged is slightly less than the average weight in the reservoir. The most notable exception was the Largemouth Bass, Micropterus salmoides (Lacépède), which was over twice the average weight in the reservoir. A possible explanation for the phenomenon would be the greater feeding opportunities near the intake screens.

Due to the demonstrated affect of thermal stress on the Shad species in the winter months and the low number and biomass of the other species of fish removed from the reservoir by impingement, the operation of Arkansas Nuclear One does not appear to significantly impact the fishery of Dardanelle Reservoir.

References

Strawn, K. 1963. Resistance of threadfin shad to low temperatures. Proc. Ann. Conf. SE Assn. Game and Fish Comm. 17:290-293.

Texas Instruments, Inc. 1976. Evaluation of potential impact of impingement on fishing resources and dissolved oxygen Dardanelle Reservoir. Annual Report prepared for AP&L Co. xxii.

TABLE 1

SPECIES NUMBERS IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
CHANNEL CATFISH	17 0.00	24 0.00	7 0.00	36 0.00	24 0.00	51 0.00	55 0.00	59 0.00	121 0.00	150 0.01	40 0.00	11 0.00	605 0.02
CHESTNUT LAMPREY	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00
EMERALD SHINER	0 0.00	0 0.00	0 0.00	9 0.00	7 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	15 0.00
EUROPEAN CARP	0 0.00	0 0.00	0 0.00	2 0.00	1 0.00	2 0.00	1 0.00	0 0.00	0 0.00	2 0.00	2 0.00	1 0.00	11 0.00
FLATHEAD CATFISH	1 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	13 0.00	15 0.00
FRESHWATER DRUM	101 0.00	107 0.00	283 0.01	1320 0.05	3580 0.15	2816 0.12	507 0.02	184 0.01	257 0.01	560 0.02	281 0.01	272 0.01	10263 0.42
GIZZARD SHAD	63722 2.61	41629 1.71	225126 9.23	13233 0.54	4344 0.18	457 0.02	62 0.00	589 0.02	3421 0.14	18301 0.75	6821 0.28	10523 0.43	38822- 15.9
GOLDEN SHINER	13 0.00	11 0.00	59 0.00	17 0.00	15 0.00	2 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	1 0.00
BLACK BULLHEAD	0 0.00	0 0.00	0 0.00	2 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	3 0.00	0 0.00	0 0.00	6 0.00
GREEN SUNFISH	7 0.00	0 0.00	6 0.00	2 0.00	2 0.00	0 0.00	0 0.00	2 0.00	1 0.00	2 0.00	2 0.00	5 0.00	29 0.00
LARGEMOUTH BASS	1 0.00	0 0.00	0 0.00	4 0.00	1 0.00	1 0.00	0 0.00	2 0.00	2 0.00	1 0.00	0 0.00	3 0.00	15 0.00
LONGEAR SUNFISH	11 0.00	0 0.00	26 0.00	9 0.00	5 0.00	12 0.00	9 0.00	10 0.00	8 0.00	16 0.00	10 0.00	11 0.00	127 0.01
TOTAL	101967 4.18	445320 18.25	257622 10.56	16272 0.67	8392 0.34	3607 0.15	906 0.04	1902 0.08	16119 0.66	532500 21.82	360265 14.76	695183 28.49	2440055 100.00

(CONTINUED)

TABLE 1 (Cont)

SPECIES NUMBERS IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
LONGNOSE GAR	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00	0 0.00	1 0.00
MISSISSIPPI SILVERSIDE	1003 0.04	1601 0.07	207 0.01	46 0.00	69 0.00	47 0.00	8 0.00	2 0.00	2 0.00	4 0.00	2 0.00	98 0.00	3089 0.13
BLACK CRAPPIE	0 0.00	0 0.00	4 0.00	0 0.00	2 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	6 0.00
MOONEYE	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	4 0.00	0 0.00	0 0.00	4 0.00
ORANGESPOTTED SUNFISH	5 0.00	4 0.00	0 0.00	2 0.00	1 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	2 0.00	15 0.00
RED SHINER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00
REDEAR SUNFISH	0 0.00	0 0.00	4 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	4 0.00
RIVER CARPSUCKER	1 0.00	0 0.00	4 0.00	4 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 0.00	12 0.00
RIVER SHINER	1 0.00	0 0.00	0 0.00	0 0.00	2 0.00	1 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	5 0.00
SAUGER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 0.00
SHORTNOSE GAR	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00
BLUE CATFISH	27 0.00	25 0.00	15 0.00	39 0.00	35 0.00	20 0.00	45 0.00	126 0.01	263 0.01	565 0.02	178 0.01	47 0.00	1385 0.06
TOTAL	101957 4.18	445320 18.25	257622 10.56	16272 0.67	8392 0.34	3607 0.15	906 0.04	1902 0.08	16119 0.66	532500 21.82	360265 14.76	695163 28.49	2440055 100.00

(CONTINUED)

TABLE 1 (Cont)

SPECIES NUMBERS IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
SKIPJACK HERRING	50 0.00	33 0.00	16 0.00	1 0.00	1 0.00	0 0.00	0 0.00	0 0.00	2 0.00	17 0.00	11 0.00	83 0.00	214 0.01
SMALLMOUTH BUFFALO	1 0.00	3 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 0.00	0 0.00	6 0.00
STRIPED BASS	435 0.02	45 0.00	32 0.00	16 0.00	5 0.00	9 0.00	11 0.00	6 0.00	8 0.00	140 0.01	5 0.00	9 0.00	721 0.03
THREADFIN SHAD	36505 1.50	401778 16.47	31730 1.30	1379 0.06	192 0.01	76 0.00	43 0.00	775 0.03	11932 0.49	512234 20.99	352514 14.45	684058 28.03	2033217 83.33
WHITE BASS	24 0.00	11 0.00	14 0.00	15 0.00	11 0.00	22 0.00	27 0.00	17 0.00	52 0.00	321 0.01	370 0.02	1 0.00	885 0.04
BLUEGILL SUNFISH	25 0.00	36 0.00	74 0.00	50 0.00	36 0.00	45 0.00	116 0.00	105 0.00	31 0.00	137 0.01	20 0.00	39 0.00	716 0.03
WHITE CRAPPIE	7 0.00	5 0.00	13 0.00	74 0.00	55 0.00	42 0.00	18 0.00	13 0.00	18 0.00	43 0.00	6 0.00	5 0.00	299 0.01
WARMOUTH	0 0.00	0 0.00	2 0.00	11 0.00	0 0.00	1 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	15 0.00
AMERICAN EEL	1 0.00	3 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	4 0.00
BROOK SILVERSIDE	7 0.00	5 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	12 0.00
TOTAL	101967 4.18	445320 18.25	257622 10.56	16272 0.67	8392 0.34	3607 0.15	906 0.04	1902 0.08	16119 0.66	532500 21.82	360265 14.76	695163 28.49	2440055 100.00

TABLE 2

SPECIES WEIGHTS (IN POUNDS) IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
CHANNEL CATFISH	2	13	1	3	2	4	5	7	11	15	4	1	67
	0.01	0.05	0.00	0.01	0.01	0.01	0.02	0.02	0.04	0.05	0.01	0.00	0.23
CHESTNUT LAMPREY	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EMERALD SHINER	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EUROPEAN CARP	0	0	0	3	3	6	4	0	0	2	2	4	25
	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.01	0.01	0.01	0.09
FLATHEAD CATFISH	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRESHWATER DRUM	10	24	42	58	97	78	18	20	53	122	59	55	635
	0.03	0.08	0.14	0.20	0.33	0.27	0.06	0.07	0.18	0.42	0.20	0.19	2.17
GIZZARD SHAD	1450	1314	4227	265	123	25	3	4	27	200	127	590	8357
	4.95	4.48	14.42	0.90	0.42	0.08	0.01	0.01	0.09	0.68	0.44	2.01	28.51
GOLDEN SHINER	0	0	0	0	0	0	0	0	0	0	0	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACK BULLHEAD	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GREEN SUNFISH	0	0	0	0	0	0	0	0	0	0	0	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LARGEMOUTH BASS	1	0	0	3	2	0	0	1	1	0	0	6	15
	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05
LONGEAR SUNFISH	1	0	2	1	1	1	1	1	1	1	0	1	9
	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
TOTAL	1962	9151	4766	415	261	139	61	70	193	3323	2364	6606	29311
	6.69	31.22	16.26	1.41	0.89	0.47	0.21	0.24	0.66	11.34	8.06	22.54	100.00

(CONTINUED)

TABLE 2 (Cont)

SPECIES WEIGHTS (IN POUNDS) IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
LONGNOSE GAR	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
MISSISSIPPI SILVERSIDE	11 0.04	17 0.06	2 0.01	1 0.00	1 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.01	34 [illegible]
BLACK CRAPPIE	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00
MOONEYE	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	1 0.00
ORANGESPOTTED SUNFISH	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
RED SHINER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
REDEAR SUNFISH	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
RIVER CARPSUCKER	4 0.01	0 0.00	4 0.02	10 0.04	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	5 0.02	24 0.08
RIVER SHINER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
SAUGER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 0.01
SHORTNOSE GAR	2 0.01	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 0.01
BLUE CATFISH	1 0.00	14 0.05	1 0.00	4 0.01	3 0.01	5 0.02	4 0.01	8 0.03	11 0.04	23 0.08	8 0.03	4 0.01	85 0.29
TOTAL	1962 6.69	9151 31.22	4766 16.26	415 1.41	261 0.89	139 0.47	61 0.21	70 0.24	193 0.66	3323 11.34	2364 8.06	6606 22.54	29311 100.00

(CONTINUED)

TABLE 2 (Cont)

SPECIES WEIGHTS (IN POUNDS) IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES MONTH

FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
SKIPJACK HERRING	2	1	9	0	0	0	0	0	1	8	7	4	32
	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.01	0.11
SMALLMOUTH BUFFALO	2	10	0	0	0	0	0	0	0	0	6	0	19
	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.06
STRIPED BASS	12	1	1	1	1	1	2	3	4	66	6	3	101
	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.22	0.02	0.01	0.34
THREADFIN SHAD	455	7744	454	21	6	2	0	3	65	2792	2085	5929	19555
	1.55	26.42	1.55	0.07	0.02	0.01	0.00	0.01	0.22	9.52	7.11	20.23	66.72
WHITE BASS	3	0	6	9	5	4	5	5	9	65	55	0	167
	0.01	0.00	0.02	0.03	0.02	0.01	0.02	0.02	0.03	0.22	0.19	0.00	0.57
BLUEGILL SUNFISH	3	4	9	6	5	5	17	15	4	15	1	1	84
	0.01	0.01	0.03	0.02	0.02	0.02	0.06	0.05	0.01	0.05	0.00	0.00	0.29
WHITE CRAPPIE	1	0	7	28	12	7	2	3	5	13	1	1	79
	0.00	0.00	0.02	0.09	0.04	0.02	0.01	0.01	0.02	0.04	0.00	0.00	0.27
WARMOUTH	0	0	0	0	0	0	0	0	0	0	0	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AMERICAN EEL	1	8	0	0	0	0	0	0	0	0	0	0	9
	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
BROOK SILVERSIDE	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	1962	9151	4766	415	261	139	61	70	195	3323	2364	6606	29311
	6.69	31.22	16.26	1.41	0.89	0.47	0.21	0.24	0.66	11.34	8.06	22.54	100.00

TABLE 1

SPECIES NUMBERS IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
CHANNEL CATFISH	17 0.00	24 0.00	7 0.00	36 0.00	24 0.00	51 0.00	55 0.00	69 0.00	121 0.00	150 0.01	40 0.00	11 0.00	605 0.02
CHESTNUT LAMPREY	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00
EMERALD SHINER	0 0.00	0 0.00	0 0.00	9 0.00	7 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	16 0.00
EUROPEAN CARP	0 0.00	0 0.00	0 0.00	2 0.00	1 0.00	2 0.00	1 0.00	0 0.00	0 0.00	2 0.00	2 0.00	1 0.00	11 0.00
FLATHEAD CATFISH	1 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	13 0.00	16 0.00
FRESHWATER DRUM	101 0.00	107 0.00	283 0.01	1320 0.05	3580 0.15	2816 0.12	507 0.02	184 0.01	257 0.01	560 0.02	281 0.01	272 0.01	10265 0.42
GIZZARD SHAD	63722 2.61	41629 1.71	225126 9.23	13233 0.54	4344 0.18	457 0.02	62 0.00	589 0.02	3421 0.14	18301 0.75	6821 0.28	10523 0.43	388225 15.91
GOLDEN SHINER	13 0.00	11 0.00	59 0.00	17 0.00	15 0.00	2 0.00	0 0.00	0 0.00	1 0.00	0 0.00	0 0.00	0 0.00	118 0.00
BLACK BULLHEAD	0 0.00	0 0.00	0 0.00	2 0.00	1 0.00	0 0.00	0 0.00	0 0.00	0 0.00	3 0.00	0 0.00	0 0.00	6 0.00
GREEN SUNFISH	7 0.00	0 0.00	6 0.00	2 0.00	2 0.00	0 0.00	0 0.00	2 0.00	1 0.00	2 0.00	2 0.00	5 0.00	29 0.00
LARGEMOUTH BASS	1 0.00	0 0.00	0 0.00	4 0.00	1 0.00	1 0.00	0 0.00	2 0.00	2 0.00	1 0.00	0 0.00	3 0.00	15 0.00
LONGEAR SUNFISH	11 0.00	0 0.00	26 0.00	9 0.00	5 0.00	12 0.00	9 0.00	10 0.00	8 0.00	16 0.00	10 0.00	11 0.00	127 0.01
TOTAL	101967 4.18	445320 18.25	257622 10.56	16272 0.67	8392 0.34	3607 0.15	906 0.04	1902 0.08	16119 0.66	532500 21.82	360265 14.76	695183 28.49	2440055 100.00

(CONTINUED)

TABLE 1 (Cont)

SPECIES NUMBERS IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
LONGNOSE GAR	0	0	0	0	0	0	0	0	0	0	1	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISSISSIPPI SILVERSIDE	1003	1601	207	46	69	47	5	2	2	4	2	98	3089
	0.04	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
BLACK CRAPPIE	0	0	4	0	2	0	0	0	0	0	0	0	6
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOONEYE	0	0	0	0	0	0	0	0	0	4	0	0	4
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ORANGESPOTTED SUNFISH	5	4	0	2	1	0	0	1	0	0	0	2	15
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RED SHINER	0	0	0	0	0	1	0	0	0	0	0	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REDEAR SUNFISH	0	0	4	0	0	0	0	0	0	0	0	0	4
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RIVER CARPSUCKER	1	0	4	4	0	1	0	0	0	0	0	2	12
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RIVER SHINER	1	0	0	0	2	1	1	0	0	0	0	0	5
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAUGER	0	0	0	0	0	1	1	0	0	0	0	0	2
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHORTNOSE GAR	1	0	0	0	0	0	0	0	0	0	0	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLUE CATFISH	27	25	15	39	35	20	45	126	263	565	178	47	1385
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.05
TOTAL	101967	445320	257622	16272	8392	3607	905	1902	16119	532500	360265	695163	2440055
	4.18	18.25	10.56	0.67	0.34	0.15	0.04	0.08	0.66	21.82	14.76	28.49	100.00

(CONTINUED)

TABLE 1 (Cont)

SPECIES NUMBERS IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH — FREQUENCY / PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
SKIPJACK HERRING	50	33	16	1	1	0	0	0	2	17	11	83	214
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
SMALLMOUTH BUFFALO	1	3	0	0	0	0	0	0	0	0	2	0	6
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STRIPED BASS	435	45	32	16	5	9	11	6	8	140	5	9	721
	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03
THREADFIN SHAD	36505	401778	31730	1379	192	76	43	775	11932	512234	352514	684058	2033217
	1.50	16.47	1.30	0.06	0.01	0.00	0.00	0.03	0.49	20.99	14.45	28.03	83.33
WHITE BASS	24	11	14	15	11	22	27	17	52	321	370	1	885
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.04
BLUEGILL SUNFISH	25	36	74	50	38	45	115	105	31	137	20	39	715
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03
WHITE CRAPPIE	7	5	13	74	55	42	18	13	18	43	6	5	[illegible]9
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
WARMOUTH	0	0	2	11	0	1	1	0	0	0	0	0	15
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AMERICAN EEL	1	3	0	0	0	0	0	0	0	0	0	0	4
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BROOK SILVERSIDE	7	5	0	0	0	0	0	0	0	0	0	0	12
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	101967	445320	257622	16272	8392	3607	905	1902	16119	532500	360265	695163	2440055
	4.18	18.25	10.56	0.67	0.34	0.15	0.04	0.08	0.66	21.82	14.76	28.49	100.00

TABLE 2

SPECIES WEIGHTS (IN POUNDS) IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES MONTH

FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
CHANNEL CATFISH	2 0.01	13 0.05	1 0.00	3 0.01	2 0.01	4 0.01	5 0.02	7 0.02	11 0.04	15 0.05	4 0.01	1 0.00	67 0.23
CHESTNUT LAMPREY	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
EMERALD SHINER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
EUROPEAN CARP	0 0.00	0 0.00	0 0.00	3 0.01	3 0.01	6 0.02	4 0.01	0 0.00	0 0.00	2 0.01	2 0.01	4 0.01	25 0.09
FLATHEAD CATFISH	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
FRESHWATER DRUM	10 0.03	24 0.08	42 0.14	58 0.20	97 0.33	78 0.27	15 0.05	20 0.07	53 0.18	122 0.42	59 0.20	55 0.19	635 2.17
GIZZARD SHAD	1450 4.95	1314 4.48	4227 14.42	265 0.90	123 0.42	25 0.08	3 0.01	4 0.01	27 0.09	200 0.68	127 0.44	590 2.01	8357 28.51
GOLDEN SHINER	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00
BLACK BULLHEAD	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
GREEN SUNFISH	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00
LARGEMOUTH BASS	1 0.00	0 0.00	0 0.00	3 0.01	2 0.01	0 0.00	0 0.00	1 0.00	1 0.00	0 0.00	0 0.00	6 0.02	15 0.05
LONGEAR SUNFISH	1 0.00	0 0.00	2 0.01	1 0.00	1 0.00	1 0.00	1 0.00	1 0.00	1 0.00	1 0.00	0 0.00	1 0.00	9 0.03
TOTAL	1962 6.69	9151 31.22	4766 16.26	415 1.41	261 0.89	139 0.47	61 0.21	70 0.24	193 0.66	3323 11.34	2364 8.06	6606 22.54	29311 100.00

(CONTINUED)

TABLE 2 (Cont)

SPECIES WEIGHTS (IN POUNDS) IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
LONGNOSE GAR	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISSISSIPPI	11	17	2	1	1	1	0	0	0	0	0	1	34
SILVERSIDE	0.04	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.12
BLACK CRAPPIE	0	0	1	0	0	0	0	0	0	0	0	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOONEYE	0	0	0	0	0	0	0	0	0	1	0	0	1
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ORANGESPOTTED	0	0	0	0	0	0	0	0	0	0	0	0	0
SUNFISH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RED SHINER	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REDEAR SUNFISH	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RIVER CARPSUCKER	4	0	4	10	0	1	0	0	0	0	0	5	25
	0.01	0.00	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08
RIVER SHINER	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAUGER	0	0	0	0	0	1	1	0	0	0	0	0	2
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
SHORTNOSE GAR	2	0	0	0	0	0	0	0	0	0	0	0	2
	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
BLUE CATFISH	1	14	1	4	3	5	4	8	11	23	8	4	85
	0.00	0.05	0.00	0.01	0.01	0.02	0.01	0.03	0.04	0.08	0.03	0.01	0.29
TOTAL	1962	9151	4766	415	261	139	61	70	193	3323	2364	6606	29311
	6.69	31.22	16.26	1.41	0.89	0.47	0.21	0.24	0.66	11.34	8.06	22.54	100.00

(CONTINUED)

TABLE 2 (Cont)

SPECIES WEIGHTS (IN POUNDS) IMPINGED BY MONTH AT AND FOR 1981

TABLE OF SPECIES BY MONTH

SPECIES / MONTH FREQUENCY PERCENT	01_JAN	02_FEB	03_MAR	04_APR	05_MAY	06_JUNE	07_JULY	08_AUG	09_SEPT	10_OCT	11_NOV	12_DEC	TOTAL
SKIPJACK HERRING	2 0.01	1 0.00	9 0.03	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00	8 0.03	7 0.02	4 0.01	32 0.11
SMALLMOUTH BUFFALO	2 0.01	10 0.03	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	6 0.02	0 0.00	19 0.05
STRIPED BASS	12 0.04	1 0.00	1 0.00	1 0.00	1 0.00	1 0.00	2 0.01	3 0.01	4 0.02	66 0.22	6 0.02	3 0.01	101 0.34
THREADFIN SHAD	455 1.55	7744 26.42	454 1.55	21 0.07	6 0.02	2 0.01	0 0.00	3 0.01	65 0.22	2792 9.52	2085 7.11	5929 20.23	19555 66.72
WHITE BASS	3 0.01	0 0.00	6 0.02	9 0.03	5 0.02	4 0.01	5 0.02	5 0.02	9 0.03	65 0.22	55 0.19	0 0.00	167 0.57
BLUEGILL SUNFISH	3 0.01	4 0.01	9 0.03	6 0.02	5 0.02	5 0.02	17 0.06	15 0.05	4 0.01	15 0.05	1 0.00	1 0.00	84 0.29
WHITE CRAPPIE	1 0.00	0 0.00	7 0.02	28 0.09	12 0.04	7 0.02	2 0.01	3 0.01	5 0.02	13 0.04	1 0.00	1 0.00	79 0.27
WARMOUTH	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 0.00
AMERICAN EEL	1 0.00	8 0.03	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	9 0.03
BROOK SILVERSIDE	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00
TOTAL	1962 6.69	9151 31.22	4766 16.26	415 1.41	261 0.89	139 0.47	61 0.21	70 0.24	195 0.66	3323 11.34	2364 8.06	6606 22.54	29311 100.00

TABLE 3. PERCENTAGE OF FISH NUMBERS BY FAMILY IMPINGED AT ANO IN 1981

TABLE OF SPECIES BY YEAR

SPECIES / PERCENT	YEAR 1981	TOTAL
LAMPREY	0.00	0.00
DRUM	0.42	0.42
MOONEYE	0.00	0.00
MINNOW	0.01	0.01
PERCH	0.00	0.00
GAR	0.00	0.00
CATFISH	0.08	0.08
SUCKER	0.00	0.00
HERRING	99.25	99.25
BASS	0.07	0.07
SUNFISH	0.05	0.05
EEL	0.00	0.00
SILVERSIDE	0.13	0.13
TOTAL	2440055 100.00	2440055 100.00

TABLE 4. PERCENTAGE OF FISH WEIGHTS (POUNDS) BY FAMILY IMPINGED AT AND IN 1981

TABLE OF SPECIES BY YEAR

SPECIES / PERCENT	YEAR 1981	TOTAL
LAMPREY	0.00	0.00
DRUM	2.17	2.17
MOONEYE	0.00	0.00
MINNOW	0.09	0.09
PERCH	0.01	0.01
GAR	0.01	0.01
CATFISH	0.53	0.53
SUCKER	0.15	0.15
HERRING	95.34	95.34
BASS	0.91	0.91
SUNFISH	0.65	0.65
EEL	0.03	0.03
SILVERSIDE	0.12	0.12
TOTAL	29311 100.00	29311 100.00

TABLE 5. AVERAGE MONTHLY WATER TEMPERATURES (F) FOR THE WINTER MONTHS

OCTOBER THROUGH MARCH AT THE ANO INTAKE STRUCTURE

TABLE OF YEAR BY MONTH

YEAR / FREQUENCY	MONTH 01_JAN	02_FEB	03_MAR	10_OCT	11_NOV	12_DEC
1974	.	.	.	65	57	45
1975	43	44	45	69	59	46
1976	40	47	56	66	52	43
1977	36	40	.	68	61	43
1978	36	35	.	68	59	46
1979	34	37	50	70	53	46
1980	44	41	48	67	56	47
1981	41	42	53	68	57	46

TABLE 6. COMPARISON OF PERCENT THREADFIN SHAD IMPINGED
TO
PERCENT THREADFIN SHAD IN THE RESERVOIR
1967 THROUGH 1981

YEAR		% THREADFIN SHAD IN DAILY IMPINGEMENT	% THREADFIN SHAD IN THE RESERVOIR
1967		.	0.02
1968		.	6.40
1969	DATA MISSING	.	.
1970		.	2.00
1971		.	36.90
1972		.	28.60
1973		.	1.60
1974	*ANO ONLINE IN OCTOBER	95.60	47.30
1975		94.00	6.00
1976		94.70	52.20
1977		80.40	36.20
1978		8.70	0.02
1979		0.02	0.02
1980		28.40	0.40
1981		63.30	27.60

FIGURE 1.

PERCENT OF THREADFIN SHAD IN RESERVOIR

AS CALCULATED FROM ROTENONE DATA FOR DARDANELLE RESERVOIR
FOR 1973 THROUGH 1981

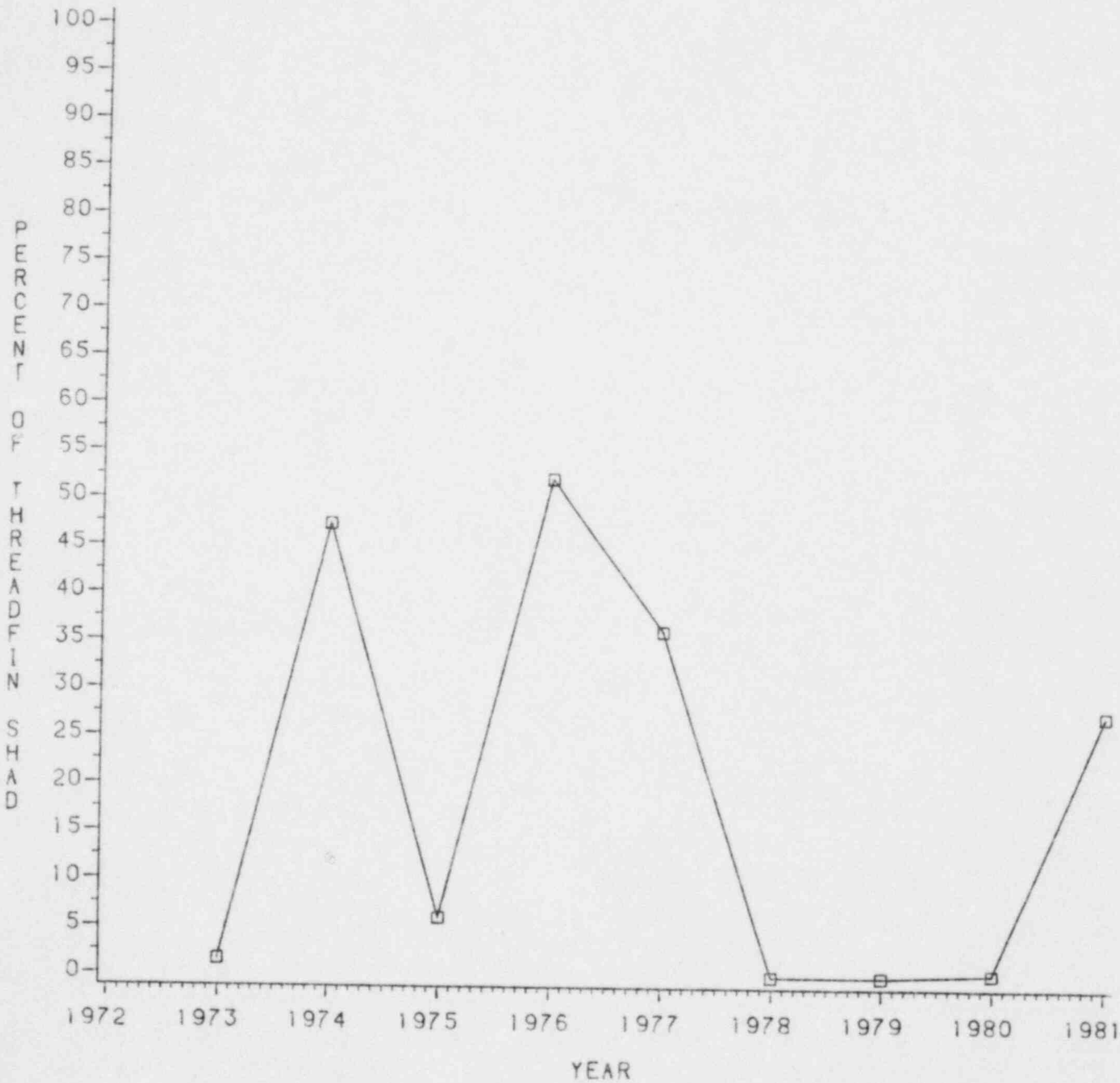


FIGURE 2.

PREDATOR TO NON-PREDATOR RATIO BY WEIGHT

AS CALCULATED FROM ROTENONE DATA FOR DARDANELLE RESERVOIR
FOR 1973 THROUGH 1981

PLOTTED VALUES REPRESENT THE NUMBER OF FORAGE FISH TO ONE PREDATOR FISH

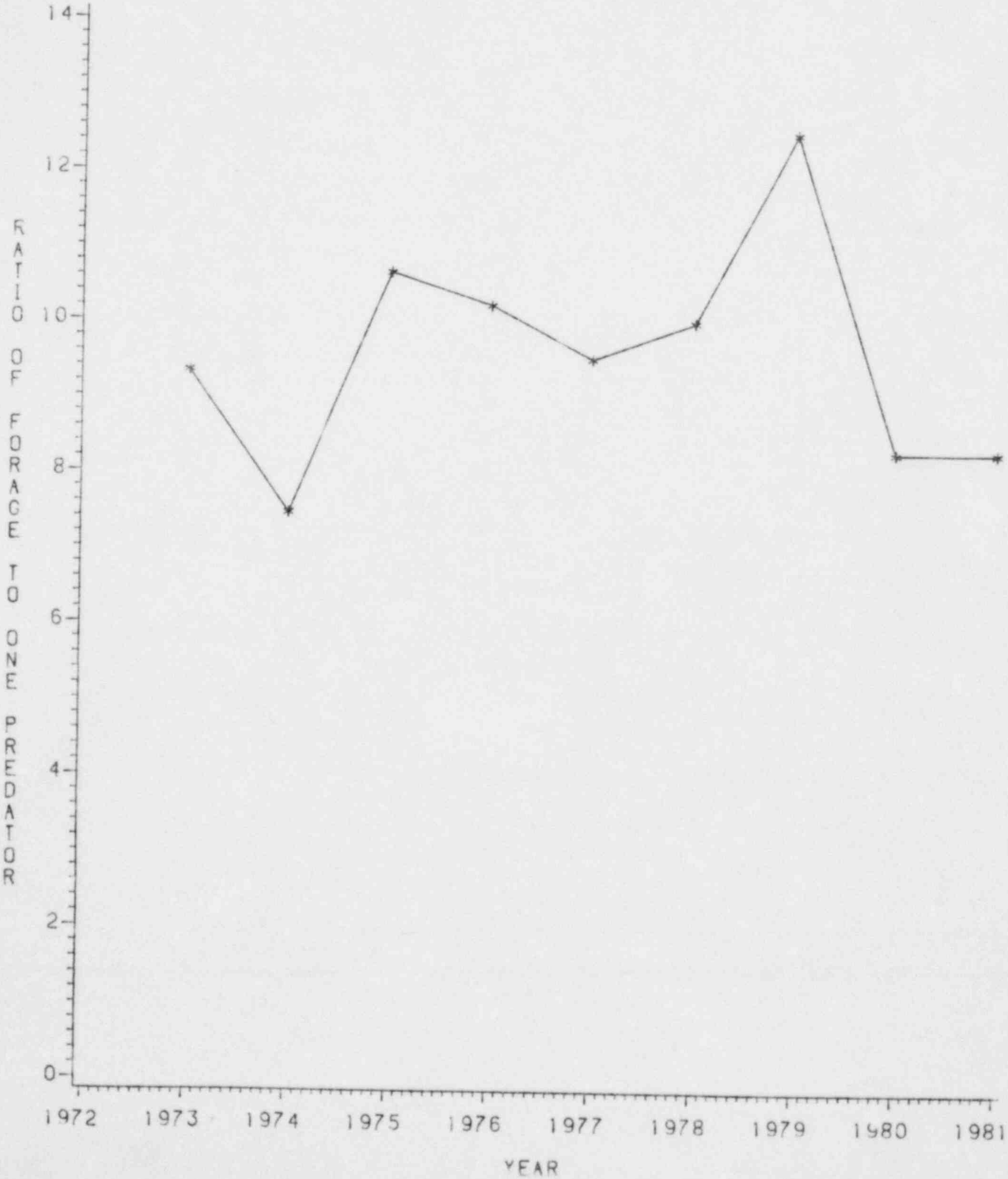


FIGURE 3.

PERCENT GIZZARD SHAD COMPARED TO PERCENT THREADFIN SHAD
IN DARDANELLE RESERVOIR
FOR 1973 THROUGH 1981

SQUARE SYMBOL=GIZZARD SHAD
STAR SYMBOL=THREADFIN SHAD

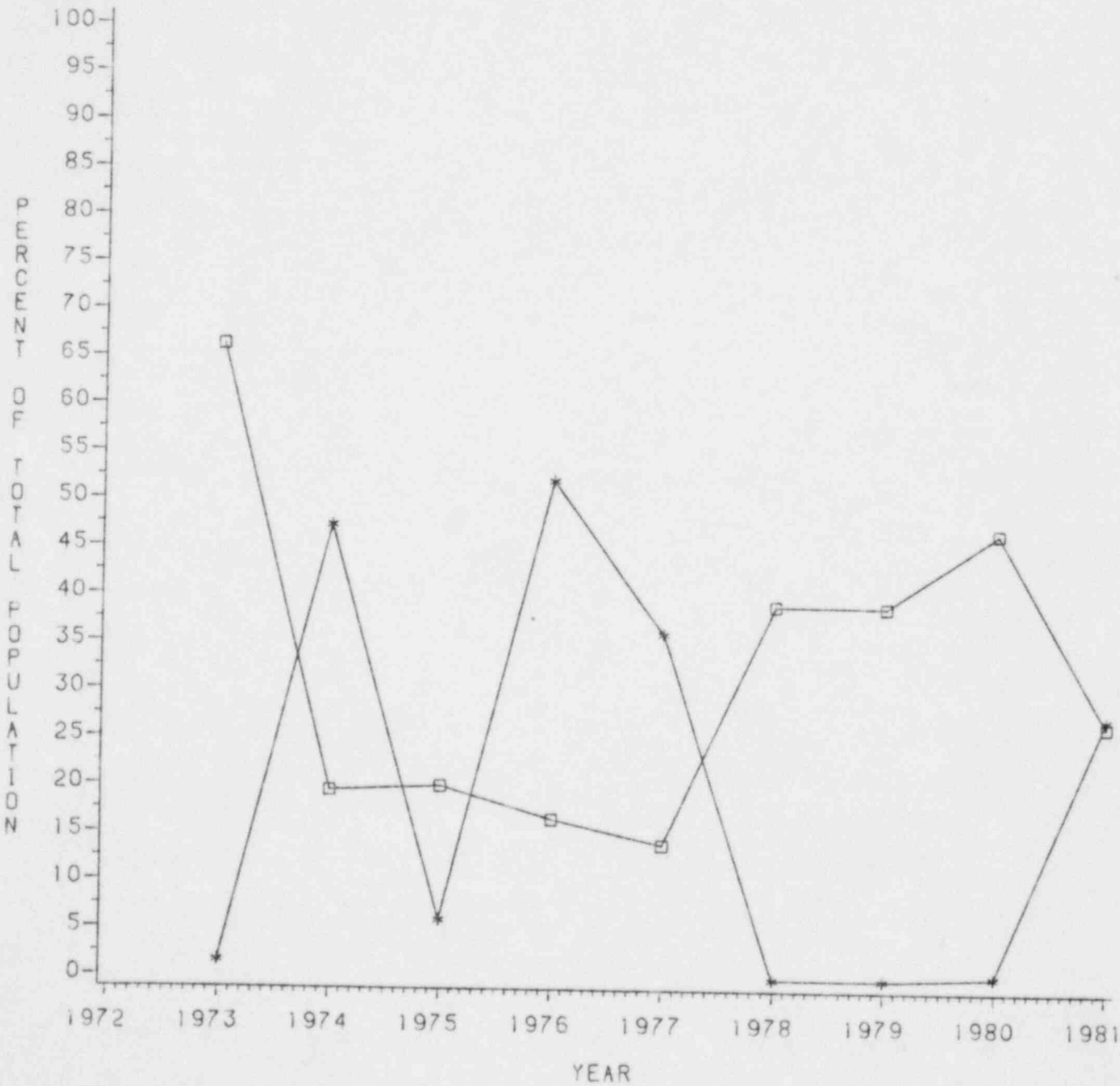


TABLE 7. COMPARISON OF NUMBER AND WEIGHT IMPINGED TO ESTIMATED RESERVOIR TOTAL OF SOME OF THE MORE IMPORTANT COMMERCIAL AND SPORT FISH AND FORAGE FISH FOR 1981

SPECIES	CALCULATED NUMBER IMPINGED FOR 1981	CALCULATED NUMBER IN RESERVOIR FOR 1981	PERCENT IMPINGED FROM RESERVOIR	CALCULATED WEIGHT (LB) IMPINGED FOR 1981	CALCULATED WEIGHT (LB) IN RESERVOIR FOR 1981	PERCENT WEIGHT IMPINGED FROM RESERVOIR
CHANNEL CATFISH	2,012	8,710,800	0.02	222	1,354,200	0.01
FLATHEAD CATFISH	53	65,880	0.08	0	109,800	0.00
BLUE CATFISH	4,598	695,400	0.66	286	146,400	0.19
LARGEMOUTH BASS	50	988,200	0.00	50	292,800	0.02
STRIPED BASS	2,394	606,828	0.39	335	402,600	0.08
WHITE BASS	2,938	292,800	1.00	554	109,800	0.50
BLACK CRAPPIE	20	50,508	0.04	3	10,797	0.03
WHITE CRAPPIE	993	622,200	0.16	262	67,710	0.39
LONGEAR SUNFISH	422	13,249,200	0.00	30	366,000	0.01
BLUEGILL SUNFISH	2,377	22,069,800	0.01	279	805,200	0.03
FRESHWATER DRUM	34,090	24,176,130	0.14	2,108	2,013,000	0.10
GIZZARD SHAD	1,288,917	51,606,000	2.50	27,745	4,318,800	0.64
THREADFIN SHAD	6,750,280	53,106,600	12.71	64,926	512,400	12.67

TABLE 8. AVERAGE WEIGHT (LB) PER SPECIES IMPINGED COMPARED TO AVERAGE WEIGHT (LB) IN RESERVOIR OF SOME OF THE MORE IMPORTANT COMMERCIAL, SPORT AND FORAGE FISH FOR 1981

SPECIES	AVERAGE WEIGHT (LB) IMPINGED FOR 1981	AVERAGE WEIGHT (LB) IN RESERVOIR FOR 1981
CHANNEL CATFISH	0.11	0.16
FLATHEAD CATFISH	0.00	1.67
BLUE CATFISH	0.06	0.21
LARGEMOUTH BASS	1.00	0.30
STRIPED BASS	0.14	0.66
WHITE BASS	0.19	0.38
BLACK CRAPPIE	0.15	0.21
WHITE CRAPPIE	0.26	0.11
LONGEAR SUNFISH	0.07	0.03
BLUEGILL SUNFISH	0.12	0.04
FRESHWATER DRUM	0.06	0.08
GIZZARD SHAD	0.02	0.08
THREADFIN SHAD	0.01	0.01

THERMAL IMPACT EVALUATION AFTER

A SCHEDULED ANO UNIT-1 SHUTDOWN

The purpose of this investigation was to evaluate the rate of thermal decrease in the outfall of Arkansas Nuclear One Unit-1 after a scheduled reactor shutdown on January 1, 1981. This investigation was performed according to Environmental Technical Specification objectives, Appendix B Section 2.1.4, and Arkansas Power and Light Company procedure 1608.02 R2.

Circulating water discharge flume thermal data were recorded hourly during power reduction utilizing the average of the computer output RTD (Resistance Temperature Detector) readings. These data are listed in Appendix 1. RTD's have a 0-150 F range and a ± 0.5% margin of accuracy. Reactor power level was recorded as an average daily percentage.

Discharge embayment stations (Figure 1) were monitored for meteorlogical conditions, water temperature at 20% and 80% depth, and occurrences of fish exhibiting conditions of thermal stress, e.g., disorientation, immobility or death. (Appendix 2).

Discharge flume thermal readings on January 1, 1981, the day before the scheduled shutdown began, ranged from 57.76F to 58.78F. Power reduction on January 2 began at 1902 hours, and at 2000 hours the first significant change in temperature was observed with a reading of 54.72. A gradual decrease in temperature continued for the next few hours at the rate of approximately 2.5 F/hour. ANO Unit-1 went off line at 2308 hours, and the discharge flume temperature dropped an additional 2.66 F by 2400 hours. The decrease in temperature of the ANO Unit-1 circulating water

discharge plume approached, but did not exceed, the maximum specified limit of 5 F/hour. Discharge temperatures varied little over the following 24 hours (Figure 2) and were approximately equal to the ambient lake temperature of about 43 F.

During this investigation, no fish were observed in the discharge embayment which exhibited any obvious signs of trauma resulting from thermal stress. Historically, there has been a low incidence of adverse environmental impact on Dardanelle Reservoir due to a sudden decrease in water temperature following a scheduled shutdown of Arkansas Nuclear One Unit-1. The limited impacts of such activities have been primarily limited to portions of the discharge embayment when Dorosoma petenense (Threadfin Shad) are present. This introduced warm water fish has a minimum threshold temperature of approximately 40 F. When lake temperatures drop below this value, whether from activities at ANO or seasonal conditions, mortalities of Dorosoma petenense have been detected. Because ambient lake temperatures were above the minimum threshold for this organism following this shutdown, no indications of thermal stress were observed.

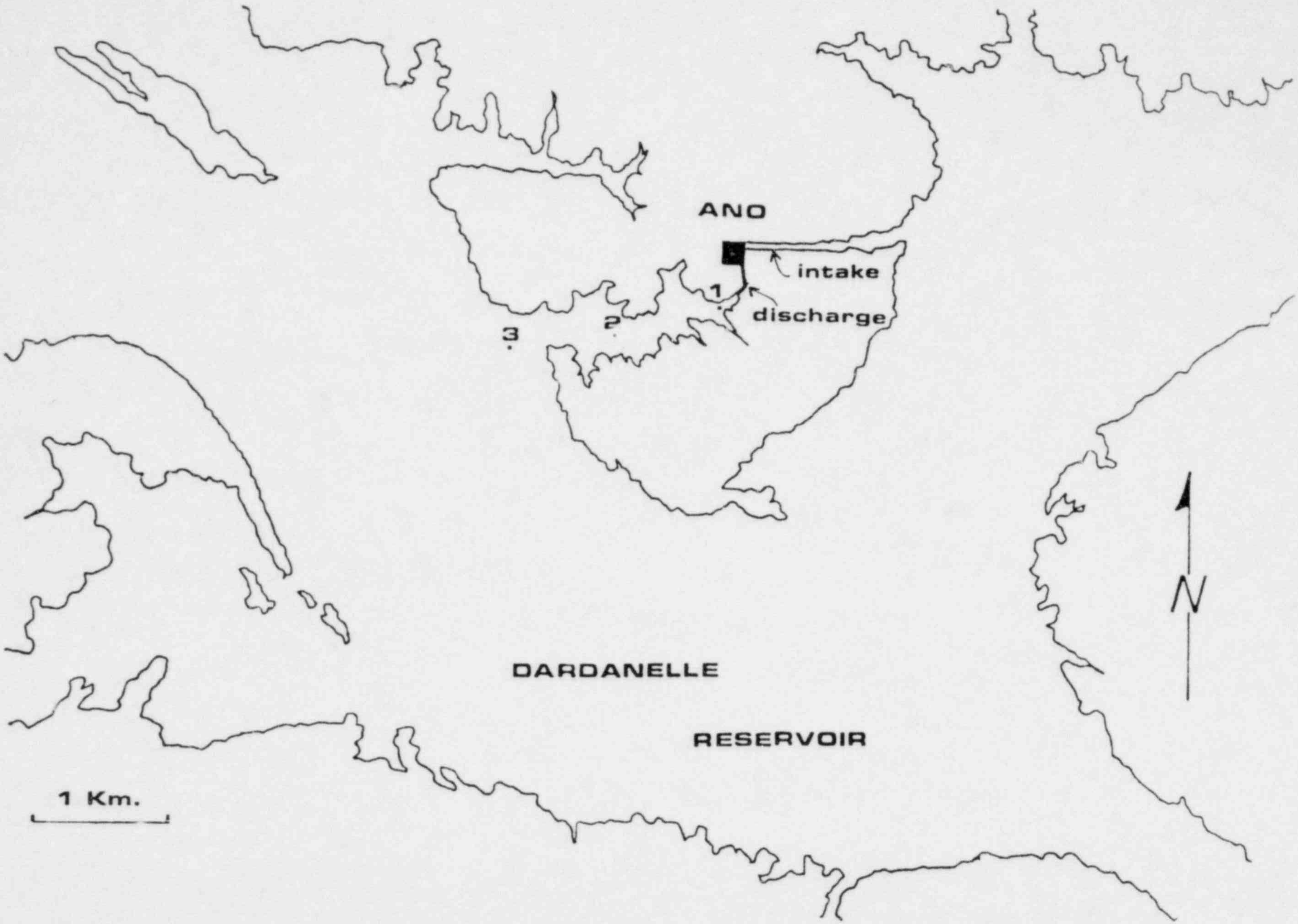


Figure 1. Location of stations monitored during the thermal impact evaluation in 1981.

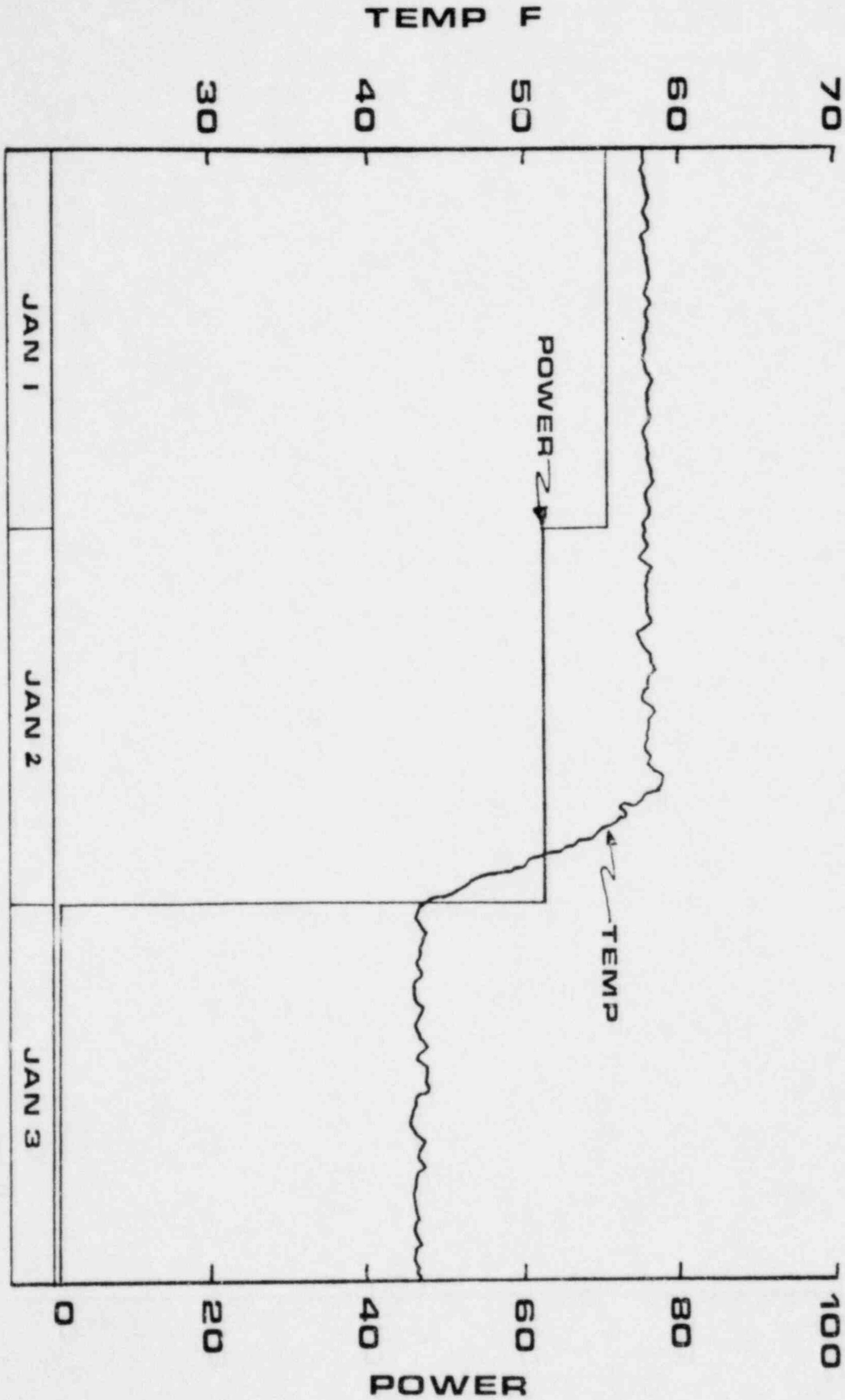


Figure 2. ANO Unit-1 circulating water discharge temperature and average daily reactor power level (percent),January1-3,1981.

APPENDIX I

DATA SHEET

1A

DATE 1 January 81 POWER LEVEL 70.63% (Daily Average)

TIME (hr)	DISCHARGE TEMPERATURE (F)	TIME (hr)	DISCHARGE TEMPERATURE (F)
0100	57.83	2200	58.13
0200	58.08	2300	58.16
0300	58.06	2400	58.01
0400	57.86		
0500	57.76		
0600	57.88		
0700	57.98		
0800	57.78		
0900	57.86		
1000	58.09		
1100	58.30		
1200	58.31		
1300	58.14		
1400	58.26		
1500	58.48		
1600	58.25		
1700	58.78		
1800	58.19		
1900	58.53		
2000	58.45		
2100	58.35		

APPENDIX 1

DATA SHEET

1A

DATE 2 January 81 POWER LEVEL 63.10% (Daily Average)

TIME (hr)	DISCHARGE TEMPERATURE (F)	TIME (hr)	DISCHARGE TEMPERATURE (F)
0100	57.83	2200	58.13
0200	57.08	2300**	46.39
0300	57.71	2400	43.73
0400	57.86		
0500	57.03		
0600	57.66	*Power reduction initiated at 1902 hr	
0700	57.64	**Off line at 2308 hr	
0800	57.62		
0900	57.98		
1000	57.91		
1100	57.94		
1200	58.06		
1300	58.08		
1400	57.93		
1500	58.85		
1600	58.93		
1700	58.81		
1800	56.91		
1900*	56.60		
2000	54.72		
2100	51.44		

APPENDIX 1

DATA SHEET

1A

DATE 3 January 81 POWER LEVEL 0% (Daily Average)

TIME (hr)	DISCHARGE TEMPERATURE (F)	TIME (hr)	DISCHARGE TEMPERATURE (F)
0100	43.76	2200	44.17
0200	43.60	2300	44.12
0300	43.63	2400	43.15
0400	43.56		
0500	43.60		
0600	43.76		
0700	43.73		
0800	43.87		
0900	43.88		
1000	44.01		
1100	44.23		
1200	44.44		
1300	44.54		
1400	44.62		
1500	44.52		
1600	44.42		
1700	44.29		
1800	44.11		
1900	44.16		
2000	44.05		
2100	43.95		

APPENDIX II

DATA SHEET

2A

DATE: 2 January 81 TIME: 2010

WATER TEMP: At 2.5 ft. 56 F
At 9.5 ft. 56 F AIR TEMP: 40F

GENERAL METEOROLOGICAL CONDITIONS:

Station No. 1

- Barometric pressure at 30.18"
- Clear sky
- Winds from the west at 5 mph

FIELD OBSERVATIONS:

- Station depth 12 ft.
- Water visibility 2 ft.
- One beaver observed feeding
- No abnormal fish activity observed

APPENDIX II

DATA SHEET

2A

DATE: 2 January 81 TIME: 2020

WATER TEMP: At 2 ft. 56 F
At 8 ft. 56 F AIR TEMP: 46F

GENERAL METEOROLOGICAL CONDITIONS:

Station No. 2

- Barometric pressure at 30.18"
- Clear sky
- Wind from the south at 0-2 mph

FIELD OBSERVATIONS:

- Station depth 10 ft.
- Water visibility 2 ft.
- Numerous Menidia (Silversides) observed swimming normally
- Two Great Blue Herons observed
- No abnormal fish activity observed

APPENDIX II

DATA SHEET

2A

DATE: 2 January 81 TIME: 2030

WATER TEMP: At 2.5 ft. 56F
At 10.5 ft. 43F AIR TEMP: 47F

GENERAL METEOROLOGICAL CONDITIONS:

Station No. 3

- Barometric pressure 30.18
- Clear sky
- Wind from the south a 5 mph

FIELD OBSERVATIONS:

- Station depth 13 ft.
- Water visibility 2 ft.
- No abnormal fish activity observed

APPENDIX II

DATA SHEET

2A

DATE: 3 January 81 TIME: 0215

WATER TEMP: At 2.5 ft. 43 F
At 8.5 ft. 43 F AIR TEMP: 30F

GENERAL METEOROLOGICAL CONDITIONS:

Station No. 1

- Barometric pressure - 30.12"
- Clear sky
- Winds calm

FIELD OBSERVATIONS:

- Station depth 11 ft.
- Water visibility 2 ft.
- One Great Blue Heron observed
- No abnormal fish activity observed

APPENDIX II

DATA SHEET

2A

DATE: 3 January 81 TIME: 0225

WATER TEMP: At 2.5 ft. 51 F
At 8.5 ft. 46 F AIR TEMP: 37 F

GENERAL METEOROLOGICAL CONDITIONS:

Station No. 2

- Barometric pressure 30.12
- Clear sky
- Winds calm

FIELD OBSERVATIONS:

- Station depth 11 ft.
- Water visibility 2 ft.
- Numerous *Menidia* (Silversides) observed swimming normally
- One Great Blue Heron observed
- No abnormal fish activity observed

APPENDIX II

DATA SHEET

2A

DATE: 3 January 81 TIME: 0235

WATER TEMP: At 2.5 ft. 50 F
At 10.5 ft. 43 F AIR TEMP: 37 F

GENERAL METEOROLOGICAL CONDITIONS:

Station No. 3

. Barometric pressure 30.12

. Clear sky

. Winds calm

FIELD OBSERVATIONS:

. Station depth - 13 ft.

. Water visibility - 2 ft.

. Two Great Blue Herons observed in area

. No abnormal fish activity observed

APPENDIX II

DATA SHEET

2A

DATE: 3 January 81 TIME: 2312

WATER TEMP: At 2 ft. 44 F
At 8 ft. 44 F AIR TEMP: 35 F

GENERAL METEOROLOGICAL CONDITIONS:

Station No. 1

. Barometric pressure 30.28"

. Clear sky

. Winds from the north at 10-15 mph

FIELD OBSERVATIONS:

. Station depth - 10 ft.

. Water visibility - 2 ft.

. No abnormal fish activity observed

APPENDIX II

DATA SHEET

2A

DATE: 3 January 81 TIME: 2325

WATER TEMP: At 2 ft. 44 F
At 8 ft. 44 F AIR TEMP: 34 F

GENERAL METEOROLOGICAL CONDITIONS:

Station No. 2

- Barometric pressure 30.28
- Sky clear
- Winds from the north at 10-15 mph

FIELD OBSERVATIONS:

- Station depth - 10 ft.
- Water visibility - 2 ft.
- Two Menidia (Silversides) observed swimming normally
- One Great Blue Heron observed
- No abnormal fish activity observed

APPENDIX II

DATA SHEET

2A

DATE: 3 January 81 TIME: 2335

WATER TEMP: At 25 ft. 44 F
At 10 ft. 44 F AIR TEMP: 34 F

GENERAL METEOROLOGICAL CONDITIONS:

Station No. 3

- Barometric pressure at 30.28"
- Sky clear
- Winds from north at 10-15 mph

FIELD OBSERVATIONS:

- Station depth - 13 ft.
- Water visibility - 2 ft.
- No abnormal fish activity observed

1981 ANNUAL ENVIRONMENTAL RADIOLOGICAL

MONITORING REPORT FOR

ANO-1 AND ANO-2

1.0 INTRODUCTION

The following report summarizes the Environmental Radiological Monitoring conducted for the Arkansas Nuclear One Units 1 and 2 during the calendar year 1981. All sample analyses and data interpretation were performed by the staff of Arkansas Power and Light Company.

1.1 Plant and Location

Arkansas Nuclear One - Units 1 and 2 are both light-water cooled pressurized water nuclear reactors located approximately 5.0 miles west of Russellville, Arkansas. ANO Unit 1 entered commercial operation December 1974 and the second unit at the same site ANO Unit 2, reached criticality in December 1978. Lake Dardanelle is the source of the circulating cooling water for ANO Unit 1, and ANO Unit 2 is cooled by a cooling tower, also dependent upon Lake Dardanelle water.

1.2 Environmental Monitoring Program

The Environmental Monitoring Program was established based upon the Environmental Technical Specifications for ANO Unit 1. These specifications have remained essentially the same, except for the addition and deletion of sampling stations where milk or food products are collected. The 1981 Environmental Radiological Monitoring Report is governed by present

environmental technical specifications and is patterned after the environmental radiological monitoring program summary found in NUREG-0472. The 1981 report includes summaries, interpretations, and statistical evaluation of the results of the radiological environmental surveillance activities, which are resultant of Amendment 37 to ANO-1 Technical Specifications. Table 1-1 details the surveillance program listing sample type, frequency of collection, and the method of analysis used. Table 1-2 lists the sample location and type of samples collected at each location.

1.3 Control Locations

During the calendar year 1981, the following locations were designated as control stations along with the respective sample type and analysis.

a) AP&L's Substation at Danville, Arkansas (Station #7)
   1) Air Particulate
   2) Air Iodine
   3) Precipitation
   4) Vegetation
   5) Soil
   6) TLD

b) Piney Creek Area (Station #16)

1) Lake Water

2) Bottom Sediment

3) Aquatic Biota (including fish)

c) R. A. Young's Dairy (Station #23)

1) Milk

2) Vegetation

TABLE 1-1

SAMPLE TYPE AND ANALYSIS

I. AIR

A. Particulate

1. Continuous 7-day samples, filters changes weekly (Eberline Model RAP-1 sample pumps, Gelman 47 mm glass fiber filters, calibrated to one cubic foot per minute ($0.028 m^3/min$) air sampling rate), seven (7) locations.

2. Analyses:

a. Gross alpha
b. Gross beta
c. Gamma isotope on a monthly composite (each station) and on high beta levels ($\geq$100 DPM/sample)
d. Radiostrontium on quarterly composite if gamma isotopic analysis shows presence of Cs-137.

B. Iodine-131

1. Continuous 7-day samples, activated charcoal filter trap on inlet of air sampler downstream of particulate filter, changed weekly, seven (7) locations.

2. Analyses:

a. Iodine-131

C. Direction Radiation

1. Four (4) thermoluminescent dosimeters (LiF), seven (7) locations.

a. Two (2) thermoluminescent dosimeters (LiF), thirty-seven (37) locations.

2. Analyses:

a. Change and readout one set dosimeters quarterly at all 44 locations and one set semi-annually at the first 7 locations.

D. Precipitation

1. Four (4) locations, samples collected weekly (as available).

2. Analyses:

   a. Gross beta
   b. Gamma Isotopic

II. WATER

A. Lake Water

1. Samples (one gallon) monthly from five (5) locations (discharge canal, intake canal, and lake south of plant between discharge and intake). (Sample stations 8, 9, 10, 15, 16)

2. Analyses:

   a. Gross beta (monthly)
   b. Gamma isotopic (monthly if gross beta exceeds 30 pCi/L and on quarterly composites)
   c. Tritium (quarterly composites)
   d. Radiostrontium (quarterly composites)

B. Bottom Sediments

1. Samples (≈Kg) semi-annually from near the same locations as lake water. Station 15 sample to be taken in pool above dam.

2. Analyses:

   a. Gamma isotopic
   b. Radiostrontium (annual composites)

C. Ground Water

1. Samples (one gallon) quarterly from one onsite and two offsite wells.

2. Analyses:

   a. Gross alpha
   b. Gross beta
   c. Gamma isotopic
   d. Tritium

D. Russellville City Water

1. Samples (one gallon) monthly from system intake.

2. Analyses:

   a. Gross alpha
   b. Gross beta

c. Gamma isotopic
d. Tritium (quarterly composite)
e. Radiostronium (quarterly composite)

E. Aquatic Biota

1. Semi-annual samples are taken as available at or near the same sample points as lake water and bottom sediments. Samples will be as large as practicable not to exceed 2Kg.

2. Analyses:

   a. Gross beta (plankton)
   b. Gamma isotopic (fish flesh, plankton, benthic organisms, aquatic plants)
   c. Radiostrontium (benthic organisms, aquatic plants)

F. Fish Bone

1. Annual sample (≈500g bone) in the Fall. Sampled as in E.1 above.

2. Analyses:

   a. Strontium 89-90

III. TERRESTRIAL

A. Milk

1. One gallon samples will be taken monthly from farms or dairies within a ten-mile radius of plant.

2. Analyses — Frequency

Analyses	Frequency
a. Iodine-131	Monthly
b. Strontium 89,90	Quarterly
c. Gamma isotopic	Monthly

B. Vegetation

1. Samples (≈1Kg) of grass and leafy portions of other vegetation in the vicinity of the seven air sampling locations are taken in the Spring, Summer, and Fall seasons.

2. Similar samples of pasturage vegetation of dairies of farms sampled for milk within a ten-mile radius of the plant will be taken at time coinciding with those of 1 above.

3. Food crops and leafy vegetables in the vicinity of the plant shall be collected as available at harvest time.

4. Analyses:

   a. Radioiodine (upon collection) by gamma analysis
   b. Gamma isotopic

C. Soil

1. Samples (≈1.5 liters) are taken at each of the air sampler sites semi-annually.

2. Analyses:

   a. Gamma isotopic
   b. Strontium 89-90 are determined annually.

TABLE 1-2

SAMPLE LOCATION AND SCHEDULE

Sample Station #	Direction and Distance from Plant	Sample Station Location	Sample Types	Sample Frequency	Remarks
1	92° - 0.5 miles	Near Meteorology tower on site	1) Air Sample 2) TLD 3) Soil Sample 4) Vegetation 5) Precipitation	1) Weekly 2) Quarterly 2) Semi-annually 3) Semi-annually 4) 3 times/year 5) Weekly, as available	1) 7-day continuous-weekly 2) Readout and record at stated frequency 3) Spring and Fall 4) Spring, Summer and Fall
2	235° - 0.5 miles	Near AP&L lodge on site	1) Air Sample 2) TLD 3) Soil Sample 4) Vegetation	1) Weekly 2) Quarterly 2) Semi-annually 3) Semi-annually 4) 3 times/year	1) 7-day continuous-weekly 2) Readout and record at stated frequency 3) Spring and Fall 4) Spring, Summer and Fall
3	4° - 0.4 miles	South of Hershel Bennet home	1) Air Sample 2) TLD 3) Soil Sample 4) Vegetation 5) Precipitation	1) Weekly 2) Quarterly 2) Semi-annually 3) Semi-annually 4) 3 times/year 5) Weekly, as available	1) 7-day continuous-weekly 2) Readout and record at stated frequency 3) Spring and Fall 4) Spring, Summer and Fall
4	171° - 0.4 miles	Near the May Cemetery	1) Air Sample 2) TLD 3) Soil Sample 4) Vegetation	1) Weekly 2) Quarterly 2) Semi-annually 3) Semi-annually 4) 3 times/year	1) 7-day continuous-weekly 2) Readout and record at stated frequency 3) Spring and Fall 4) Spring, Summer and Fall

TABLE 1-2 (Contd)

SAMPLE LOCATION AND SCHEDULE

Sample Station #	Direction and Distance from Plant	Sample Station Location	Sample Types	Sample Frequency	Remarks
5	298° - 8.5 miles	At Ray Walter's residence, Knoxville, Johnson County	1) Air Sample 2) TLD 3) Soil Sample 4) Vegetation 5) Precipitation	1) Weekly 2) Quarterly 2) Semi-annually 3) Semi-annually 4) 3 times/year 5) Weekly, as available	1) 7-day continuous-weekly 2) Readout and record at state frequency 3) Spring and Fall 4) Spring, Summer and Fall
6	109° - 6.8 miles	At AP&L's Russellville Local Office	1) Air Sample 2) TLD 3) Soil Sample 4) Vegetation	1) Weekly 2) Quarterly 2) Semi-annually 3) Semi-annually 4) 3 times/year	1) 7-day continuous-weekly 2) Readout and record at stated frequency 3) Spring and Fall 4) Spring, Summer and Fall
7	209° - 19.3 miles	At AP&L's Sub-station in Danville, Yell County	1) Air Sample 2) TLD 3) Soil Sample 4) Vegetation 5) Precipitation	1) Weekly 2) Quarterly 2) Semi-annually 3) Semi-annually 4) 3 times/year 5) Weekly, as available	1) 7-day continuous-weekly 2) Readout and record at stated frequency 3) Spring and Fall 4) Spring, Summer and Fall
8	180° - 0.1 miles	Mouth of Discharge Canal	1) Lake Water 2) Aquatic Biota 3) Bottom Sedi-ments	1) Monthly 2) Semi-annually 3) Semi-annually	1) Record status of plant discharge operations 2) Summer and Winter 3) Summer and Winter

TABLE 1-2 (Contd)

SAMPLE LOCATION AND SCHEDULE

Sample Station #	Direction and Distance from Plant	Sample Station Location	Sample Types	Sample Frequency	Remarks
9	160° - 1.8 miles	South of Bunker Hill near main river channel	1) Lake Water 2) Aquatic Biota 3) Bottom Sediments	1) Monthly 2) Semi-annually 3) Semi-annually	1) Record status of plant discharge operations 2) Summer and Winter 3) Summer and Winter
10	90° - 1.0 miles	Mouth of inlet canal	1) Lake Water 2) Aquatic Biota 3) Bottom Sediments	1) Monthly 2) Semi-annually 3) Semi-annually	1) Record status of plant discharge operations 2) Summer and Winter 3) Summer and Winter
11	240° - 0.5 miles	Near AP&L Lodge	1) Ground Water	1) Quarterly	
12	310° - 2.0 miles	London Water Co. off U.S. Highway 64, 0.5 mile west of London, Pope County	1) Ground Water (NOTE: Sample unavailable because well is no longer used.)	1) Quarterly	
13	95° - 2.0 miles	Ouita Lake Recreation Area on Illinois Bayou off Dyke Road	1) Ground Water	1) Quarterly	
14	65° - 5.8 miles	Inlet to City Water System from Illinois Bayou	1) City of Russellville Water Supply	1) Monthly	
15	150° - 5.0 miles	Discharge of Dardanelle Dam Pool above Dardanelle Dam	1) Lake Water 2) Bottom Sediments 3) Aquatic Biota	1) Monthly 2) Semi-annually 3) Semi-annually	1) Record status of plant discharge operations

TABLE 1-2 (Cont'd)

SAMPLE LOCATION AND SCHEDULE

Sample Station #	Direction and Distance from Plant	Sample Station Location	Sample Types	Sample Frequency	Remarks
16	295^{o} - 6.0 Miles	Piney Creek Area	1) Lake Water 2) Bottom Sediment 3) Aquatic Biota	1) Monthly 2) Semi-annually 3) Semi-annually	
19	99^{o} - 8.0 Miles	Arkansas Tech. Dairy	1) Milk 2) Pasturage	1) Monthly 2) 3 times/year	2) Spring, Summer & Fall
20	29^{o} - 8.0 Miles	Odom-Meyers Dairy	1) Milk 2) Pasturage	1) Monthly 2) 3 times/year	2) Spring, Summer & Fall
23	73^{o} - 12 Miles	R. A. Young Dairy	1) Milk 2) Pasturage	1) Monthly 2) 3 times/year	2) Spring, Summer & Fall
29	11^{o} - 8.0 Miles	H. Steuber's Dairy	1) Milk 2) Pasturage	1) Monthly 2) 3 times/year	2) Spring, Summer & Fall
30	160^{o} - 0.8 Mile	James Taylor Resid.	1) Leafy and Tuberous Veg.	1) Seasonal	
32	155^{o} - 0.8 Mile	Cliff Stewart Resid.	1) Ground Water	1) Quarterly	
33	98^{o} - 4.8 Miles	Ouita Use Area	1) Ground Water	1) Quarterly	
34	295^{o} - 6.6 Miles	Flat Rock Rec. Area	1) Ground Water	1) Quarterly	

TABLE 1-3

TLD Locations

AP&L TLD No.	Location
1	0.5 miles 92°
2	0.5 miles 235°
3	0.4 miles 4°
4	0.4 miles 171°
5	8.5 miles 298°
6	6.8 miles 109°
7	19.3 miles 209°
8	1.8 miles 313°
9	1.2 miles 308°
10	0.8 miles 136°
11	2.3 miles 108°
12	3.3 miles 60°
13	1.4 miles 48°
14	1.4 miles 24°
15	1.5 miles 343°
16	1.9 miles 315°
17	17.2 miles 305°
18	5.8 miles 291°
19	4.8 miles 313°
20	4.2 miles 330°
21	5.5 miles 338°
22	3.5 miles 12°
23	3.5 miles 48°
24	3.3 miles 62°

TABLE 1-3

TLD Locations (Cont'd)

AP&L TLD No.	Location
25	9.2 miles 47°
26	5.6 miles 78°
27	5.7 miles 103°
28	8.5 miles 115°
29	7.5 miles 118°
30	4.6 miles 245°
31	2.7 miles 253°
32	4.8 miles 274°
33	3.8 miles 231°
34	2.8 miles 207°
35	3.1 miles 186°
36	4.3 miles 166°
37	8.5 miles 152°
38	5.8 miles 195°
39	19.2 miles 178°
40	21.8 miles 151°
41	3.3 miles 134°
42	5.2 miles 127°
43	17.5 miles 106°
44	13.0 miles 314°

2.0 INTERPRETATIONS AND CONCLUSIONS

Data collected from radiological analyses of environmental samples collected in the area surrounding ANO-1 and ANO-2 indicate no significant impact caused by liquid and gaseous discharges from the ANO site during 1981. Also, no non-routine environmental radiological monitoring reports resulting from analyses of environmental samples were submitted to the U.S. NRC during 1981.

Sample types that indicated activation or fission-produced radioisotopes present are discussed in the paragraphs below:

2.1 Samples Associated With Air Monitoring

None of the 311 samples collected from indicator locations for iodine in air (using activated charcoal filters) indicated iodine-131 activities greater than the lower limit of detection which is 0.050 pCi/m^3 of air.

Of the 84 monthly composites for particulates in air collected in the calendar year 1981, 49 monthly composite samples at the seven air sample locations, including the control air particulate samples from Danville, Arkansas indicated some fission products present. The fission products were detected in the January through August 1981 monthly composites.

Gamma spectroscopy analysis identified zirconium-95, niobium-95, ruthenium-103, cerium-141, cerium-144, and cesium-137 present in the monthly composites of air particulate samples.

Also, gross beta analysis of single air particulate samples collected during the weeks of March 26-April 1, 1981 and April 2-8, 1981 indicated gross beta activity greater than 100 dpm/sample for 10 of the 14 air particulate samples collected. To fulfill the requirements of ANO Environmental Technical Specifications for ANO-Unit I, Appendix B, Table 4-1, I.A.2.c., each air particulate sample whose activity exceeded 100 dpm/sample was analyzed by gamma spectroscopy. The same isotopes identified in the monthly composite air particulate samples were also identified in the single air particulate samples analyzed by gamma spectroscopy.

These increases in radioactivity levels in air particulate samples are attributable to continued worldwide fallout from nuclear testing. A "spring peak" such as this has been detected in previous years. The size of the 1981 "spring peak" was probably influenced by the weapons test of October 15, 1980, conducted by the People's Republic of China.

TLD data collected for the calendar year 1981 was divided into two categories. The first category includes the lithium floride (LiF) TLDs which were collected and read quarterly and

the second category included (LiF) TLDs which were collected and read semi-annually in 1981. The quarterly TLD data indicated a total yearly average dose for the indicator locations to be 64 mrem per year at each location compared to the total yearly average dose of 54 mrem for 1980 and 56 mrem for 1979. The control location at Danville, Arkansas (209° - 19.3 miles) indicated a total dose, based upon quarterly TLD's, of 60 mrem per year for 1981 compared to 47 mrem per year for 1980 and 49 mrem for 1979.

There are no statistically significant differences in the last three years of data collection because the "matched" lithium fluoride thermoluminescent dosimeters used respond to the same radiation exposure at these low exposure levels to variations up to fifteen percent between all TLDs.

Other factors that may affect the variation in recorded dose include TLD chips which may contain impurities, variations in the response of the TLD reader, and environmental differences resulting in different exposure levels.

The TLDs collected every six months during 1981 indicated slightly lower readings than the quarterly TLDs, which is consistent with TLD readings recorded in 1980. The TLDs collected every six months indicated a total yearly average dose for the indicator locations of 52 mrem per location,

compared to 44 mrem per year for 1980 and 42 mrem in 1979. The control location indicated a total dose, based upon TLDs collected and read semi-annually, of 54 mrem. These data are also statistically equal, since there is a fifteen percent variability among the "matched" TLDs. The TLDs collected and read every six months have lower dose values than the quarterly TLDs, probably due to the lithium fluoride chips experiencing some "fading".

2.2 Samples Associated With Water Monitoring

As in previous years, especially 1979 and 1980, bottom sediments collected from the discharge canal at ANO (0.1 mile 180°) was the major sampling station which indicated several radioisotopes attributable to operations at ANO.

To determine the total dose to an individual (a teenager) from shoreline exposure from sediments, dose calculations were performed according to the mathematical model for determining external dose from sediment given by U.S. Nuclear Regulatory Commission Regulatory Guide 1.109.

The maximum external dose to the skin of a teen from sediment collected in the discharge canal for all measurable radioisotopes was approximately 0.2 mrem per year.

The table below details the calculation of these dose measurements.

CALCULATION OF MAXIMUM ANNUAL DOSE
TO MAN FROM BOTTOM SEDIMENT SAMPLE
082981BS08

Isotope	Activity (pCi/Kg)	Dose to Skin (mrem/yr)
Mn-54	97	0.0018
Co-58	654	0.0144
Co-60	1184	0.0635
Cs-134	1143	0.0430
Cs-137	4723	0.0620
Nb-95	261	0.0042
		0.1889

*Maximum external dose to skin of a teen.

NOTE: Dose calculations made according to the guidance of Nuclear Regulatory Commission Regulation Guide 1.109, using the equation:

$R(mrem/yr)=C(pCi/kg)(40\ Kg/m^2) \cdot U(hr/yr) \cdot D(mrem/hr\ per\ pCi/m^2)$

Where: R is the annual dose to an organ,
C is concentration of a particular nuclide,
U is the maximum exposure time (67 hrs. for teen),
D is the dose factor.

According to ANO Technical Specifications, the design objectives for the dose to the whole body or any organ of an individual is 5 mrem per year as the result of release of liquid wastes. The value of 0.20 mrem per year for maximum external dose to skin of a teen is well within the design objective criteria.

The highest level of fission and activation radioisotopes found in fish attributed to operations at ANO were the bottom feeder fish collected November 1, 1981 from the mouth of the ANO discharge canal (0.1 mile 180°). Bottom feeder fish are generally composed of carp and buffalo fish. Dose calculations were performed according to the mathematical model for determining maximum total dose to total body from fish consumption given by U.S. NRC Regulatory Guide 1.109. The table below identifies the isotopes found in the bottom feeder fish, the amount of activity present, and the contribution of the total dose calculated according to either whole body or specific body organs.

Isotopes in Bottom Feeder Fish	Activity (pCi/kg)	Maximum Dose to Man (mrem/year)
Co-58	36	0.0114 (GI-LLI)
Cs-134	41	0.127 (Liver)
Cs-137	123	0.258 (Liver)
	TOTAL	0.40 mrem/year

According to the above calculations, the maximum dose to adults to total body from fish consumption is 0.40 mrem per year. The value of 0.40 mrem per year is well within the design objective criteria of 5 mrem per year per unit as defined in the ANO Technical Specifications for liquid wastes.

Carnivorous fish (catfish, bass, crappie) from the ANO Discharge and Intake Canals were collected by and split with the Arkansas Department of Health on December 8, 1981. In the gamma spectral analysis of the edible portions of the two samples, 18 pCi/Kg of cesium-137 were detected in fish collected from the ANO Discharge Canal, and fish collected from the ANO Intake Canal indicated 8 pCi/Kg of cesium-134 and 44 pCi/Kg of cesium-137 present.

In comparison to previous years of fish samples split with the Arkansas Department of Health, no significant differences in radioactivity have been detected.

Split fish samples analyzed in 1980 indicated 12 pCi/Kg of cesium-137, and in samples collected by and split with the Arkansas Department of Health in 1978 and 1979, cobalt-58, cesium-134 and cesium-137 were detected. Because of the small populations collected, no conclusions can be made at this time as to whether any decrease in uptake of radionuclides in fish populations in the discharge canal has occurred.

Lake water samples, including monthly samples collected from the mouth of the ANO discharge canal and the Russellville city water supply, and ground water samples indicated no gamma emitters attributable to reactor-produced isotopes, and gross alpha and gross beta analyses of lake water and ground water have not varied significantly from pre-operational data or the data collected since ANO-1 has been in commercial operation.

Two plankton samples collected in February 1981 indicated some niobium-95 activity, probably resulting from the Chinese nuclear weapons test.

Whole mollusk samples were collected May 1981 and November 1981. Again, as in 1980, samples caged in the ANO discharge canal (0.1 mile 180°) and samples caged at Station No. 9 (1.8 miles 160°) indicated fission and activation radioisotopes present. Radioisotopes found in mollusks included manganese-54, cobalt-58, cobalt-60, cesium-134 and cesium-137. Almost all values of gamma activity for specific isotopes were lower in 1981 when compared to 1980 data.

2.3 Samples Associated With Terrestrial Monitoring

In June 1981, the Harold Steuber Dairy near Dover, Arkansas was established as a permanent milk sampling station, No. 29. Also, vegetation will be collected at the Steuber Dairy three

times a year. In all, three indicator locations for collection of milk and one control location, the R. A. Young Dairy, were active during 1981.

In comparison with 1980 data, no iodine-131 was detected in any milk samples collected in 1981. In November and December 1980, iodine-131 was detected in samples from all three existing permanent milk sampling stations. The iodine-131 activity detected in the 1980 milk samples collected in November and December 1980 was attributed to the People's Republic of China atmospheric nuclear test conducted on October 15, 1980.

In 1981, small quantities of cesium-137 was detected in two indicator location samples, although all activities were less than 8 pCi per liter of milk.

Strontium-89 and strontium-90 analysis indicated no significant differences in strontium activities from previous years. Strontium-89 activity in milk samples was highest (8.5 and 16.6 pCi/l) in March 1981.

In vegetation samples collected May 13, 1981 and May 20, 1981, several reactor-produced radioisotopes were detected, including manganese-54, zirconium-95, niobium-95, ruthenium-103, cesium-137, cerium-141 and cerium-144. Subsequent collection and gamma analysis of vegetation samples in July and October 1981 indicated relatively little radioactivity when compared

with the May 1981 vegetation samples. Niobium-95 and cerium-144 were the only major radioisotopes detected in the July and October 1981 samples. Again, the radioactivity detected in the vegetation samples collected in 1981 is attributed to the Chinese atmospheric nuclear test conducted on October 15, 1980, or some subsequent nuclear weapons testing.

As required by ANO Technical Specifications, food crops were twice collected during 1981 from the James Taylor garden, approximately 0.8 mile northeast of ANO. Cabbage and okra were analyzed for gamma activity and no radionuclides attributable to operations at ANO were detected.

In soil samples, niobium-95 and cesium-137 were detected in all samples collected May 1981; however, the soil samples collected in October 1981 indicated very little or no niobium-95 activity and equivalent or higher activity of cesium-137.

Both isotopes are attributed to worldwide fallout; however, the shorter-lived niobium-95 was probably a direct product of the Chinese nuclear weapons testing on October 15, 1980.

2.4 Samples Not Collected in 1981

Samples not collected during the calendar year of 1981 included aquatic plants at the five surface water sampling sites because

sufficiently large quantities of sample matter needed to perform a useful analysis were not present at or near these locations.

Caged mollusks were sampled as representatives of benthic organisms. It is impossible to place a cage at location 15, Dardanelle Dam area, because of the water depth. Naturally occuring benthos in the bottom sediment are not present in quantities sufficient for analysis. Therefore, no benthic organisms were analyzed at location 15.

Also, the air particulate sample and the air iodine cartridge sample from sampling station No. 3 collected November 3, 1981 were lost by sample collectors and were not analyzed for radioactivity. The rain sample collected February 25, 1981 at sampling station No. 7 near Danville, Arkansas was discarded after gamma analysis was completed, and no gross alpha and gross beta analysis was performed.

In July 1981, two ground water sampling stations, the ANO Lodge Well (0.5 mile 240°) and the Ouita Use Area Well (1.4 miles 48°) were discontinued because the pumps were no longer operative. Environmental Technical Specifications require that one onsite well and two offsite wells be sampled quarterly for ground water. To comply with these specifications, three new

ground water sampling stations were identified in August 1981. Permission to sample was obtained at these locations and sampling began in October 1981.

The onsite well newly identified is a privately owned well at the Cliff Stewart residence (0.8 mile 155°). The two offsite wells newly identified are the Lake Dardanelle State Park Well near Ouita Use Area on Causeway 64 (4.8 miles 98°) and the Flat Rock Recreational Use Area Well (6.6 miles 295°). If either of these offsite wells are not in service, an alternative well at the Delaware Use Area (3.3 miles 240°) would become an offsite ground water sampling station.

A new permanent milk sampling station, station No. 29, was established in June 1981 at the Harold Steuber Dairy near Dover, Arkansas. Also, vegetation is collected three times a year at the Steuber Dairy. This sampling site replaces the Harms Dairy that was sampled in previous years.

2.5 Comparison of Results of EPA Cross-Check Program

The Technical Analysis Section Laboratory of Arkansas Power and Light Company participates in the U.S. Environmental Protection Agency's Environmental Radioactivity Laboratory Intercomparison Studies Program. The major objective of this program is to assist laboratories involved in environmental radiation measurements to develop and maintain both an intralaboratory

and an interlaboratory quality control program. This is partially accomplished through a laboratory intercomparison studies program involving environmental media (milk, water and air) and a variety of radionuclides with activities at or near environmental levels.

During the calendar year 1981, the following sample types were received and analyzed:

1) Gross Alpha-Beta in Water - A one-liter sample for the analysis of gross alpha and gross beta activity.
2) Gamma in Water - A one-liter sample containing chromium-51, zinc-65, cobalt-60, ruthenium-106, cesium-134 and cesium-137.
3) Tritium in Water - A fifty-milliliter sample of water containing tritium.
4) Iodine-131 in Water - A four-liter sample containing iodine-131.
5) Strontium in Water - A one-liter sample containing strontium-89 and strontium-90.
6) EPA Blind in Water - A one-liter blind sample containing a mixture of radionuclides.
7) Milk - A four liter milk sample containing potassium, strontium-89, strontium-90, iodine-131, cesium-137 and barium-140.

8) Air - A two-inch diameter air filter is distributed quarterly for gross alpha, gross beta, cesium-137 and strontium-90 analyses.

A report listing the results of the analysis containing the laboratory standard deviation, calculation of the normalized range, normalized deviation, sample standard deviation, and the grand average of all laboratories is mailed after each participating laboratory performs three independent determinations for each radionuclide involved in the study.

Table 2.5.1 lists the various analyses that are performed, the radioactivity levels found in the EPA cross-check samples, and one standard deviation for a single determination.

If the Technical Analysis Section Environmental Laboratory results differ from the known results given in the EPA cross-check reports, the instrument and procedure are checked for error. If the experimental results differ from the known results more than three standard deviations, the suspect instrument and procedures are checked for error and spiked radioactive samples are prepared and analyzed.

Table 2.5.2 lists the types of EPA cross-check samples received, the total number of analyses performed, and the average sample standard deviation, based upon three independent determinations for each radionuclide in each sample.

Most of the results were well within two standard deviations of the known values supplied by the U.S. EPA. The two analyses which consistently fell out of the three standard deviation limit were gross alpha and gross beta results of EPA blind samples. Several steps were taken to correct the incorrect results, but results from the October 1981 EPA Blind Water sample indicated the gross alpha and gross beta results were still significantly below the standard value. However, gross beta results from EPA Gross Alpha and Gross Beta in Water samples consistently were within one standard deviation in error. It should also be noted that the grand average of all labs reporting gross beta results in the October 1981 sample was approximately 2.5 standard deviations below the known average. New efficiency curves for gross beta and gross alpha were developed using U.S. EPA-supplied radioactive standards, specifically cesium-137 radioactive standard for the gross beta curve and americium-241 radioactive standard for the gross alpha curve. Neither new efficiency curve corrected the problems associated with the EPA Blind Water samples. Investigation into this problem is continuing. Strontium-89 and strontium-90 results were somewhat erratic, but overall the strontium in water and milk results were satisfactory.

All gamma emitters detected and reported in the EPA Blind samples and Gamma in Water samples fell within two standard deviations except for zinc-65 results. The reported results

were both greater and lesser than the known value in different samples therefore, no correction in efficiency curves for gamma isotopes in water has been implemented at this time.

Overall, all results agreed satisfactorily with the EPA known values, except for gross alpha and gross beta results in the EPA Blind Water samples.

TABLE 2.5.1 LABORATORY PRECISION: ONE STANDARD DEVIATION VALUES FOR VARIOUS ANALYSES

Analysis	Level	One Standard Deviation for Single Determination
Gamma Emitters	5 to 100 pCi/liter or kg	5 pCi/liter
	>100 pCi/liter or kg	5% of known value
Strontium-89	5 to 100 pCi/liter or kg	5 pCi/liter
	>100 pCi/liter or kg	5% of known value
Strontium-90	2 to 30 pCi/liter or kg	1.5 pCi/liter
	>30 pCi/liter of kg	5% of known value
Potassium	≥0.1 g/liter or kg	5% of known value
Gross Alpha	≤20 pCi/liter	5 pCi/liter
	>20 pCi/liter	25% of known value
Gross Beta	≤100 pCi/liter	5 pCi/liter
	>100 pCi/liter	5% of known value
Tritium	<4,000 pCi/liter	1s (pCi/liter) = 169.85 x $(\text{known})^{.0933}$
	>4,000 pCi/liter	10% of known value
Radium-226, Radium-228	≤0.1 pCi/liter	15% of known value
Iodine-131	≤55 pCi/liter	6 pCi/liter
	>55 pCi/liter	10% of known value

TABLE 2.5.2 STANDARD DEVIATIONS FROM KNOWN VALUES OF EPA CROSS-CHECK SAMPLES

Sample Type	Analyses Performed	Total No. Analyses Performed	Number of Standard Deviations From Known Value				Comments
			Nov. 80	Mar. 81	July 81	Nov. 81	
1. Gross Alpha and Gross Beta in Water	Gross Alpha	12	-1.3	-3.3	-3.5	-3.2	
	Gross Beta	12	0.5	0	0	-1.4	
			Oct. 80	Feb. 81	June 81	Oct. 81	
2. Gamma in Water	chromium-51	12	0.2	0	-	-	
	zinc-65	12	-0.3	2.1	-	3.3	
	cobalt-60	12	-0.1	-0.7	-0.2	-0.1	
	ruthenium-106	12	-0.8	0	-	-	
	cesium-134	12	-0.8	-2.1	0	-0.3	
	cesium-137	12	0.3	0	0.9	-0.3	
			Jan. 81	Apr. 81	Aug. 81	Dec. 81	
3. Tritium in Water	H-3	12	0	0	0	0.2	
			Dec. 80	Apr. 81	Aug. 81	Dec. 81	
4. Iodine-131 in Water	iodine-131	12	0	-1.3	0.6	-1.3	
			May 81	Sept. 81			
5. Strontium in Water	strontium-89	6	-3.2	-1.7			
	strontium-90	6	-0.8	-0.8			
			Oct. 80	Apr. 81	Oct. 81		
6. EPA Blind in Water	Gross Alpha	9	-3.0	-1.6	-3.1		
	Gross Beta	9	-6.2	-1.9	-8.0		
	strontium-89	9	0.2	-3.6	-0.9		
	strontium-90	9	0	-1.5	-1.6		
	cobalt-60	9	-0.2	-	-		
	cesium-134	9	-0.6	0	-0.5		
	cesium-137	9	0	0.5	-0.5		

TABLE 2.5.2 (CONT'D)

Sample Type	Analyses Performed	Total No. Analyses Performed	Number of Standard Deviations From Known Value			Comments
			Oct. 80	May 81	Oct. 81	
7. Milk	strontium-89	9	-1.4	-0.6	-2.2	
	strontium-90	9	0	-3.5	-1.5	
	potassium	9	-1.9	0.7	1.7	
	iodine-131	9	0.3	-0.8	-1.3	
	cesium-137	9	0.1	-0.7	1.6	
	barium-140	9	0	0	0	
			Mar. 81	June 81	Dec. 80	
8. Air Filter	Gross Alpha	9	See 1	0	1.6	[1]Results lost in mail.
	Gross Beta	9	See 1	1.5	2.0	
	cesium-137	9	See 1	0.5	3.9	
	strontium-90	9	See 1	0.8	-	

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
I. Air A. Particulate (pCi/m^3)	Gross α 364	3.0	53.6(308/312) (2.2-268)	#1 Near Met Tower Onsite (0.5 Mile 92°)	64.2 (51/52) (4.3-260)	53.5(51/52) (6.7-320)	0
	Gross β 364	2.0	102.7(308/312) (17.2-421)	#2 Near AP&L Lodge Site (0.5 Mile 235°)	106.3(52/52) 19.4-398)	106.5(52/52) (3.7-524)	0
(E-3)	Gamma 84						
	^{95}Zr	10	49(29/72) (21-88)	#6 AP&L Russellville Office (6.8 Miles 108°)	56(5/12) (33-78)	52(5/12) (20-78)	0
	^{95}Nb	10	125(42/72) (16-258)	#3 South of H. Bennett Homesite (0.4 Mile 4°)	170(6/12) (66-255)	127(7/12) (31-271)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368

Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean Name Distance and Direction	Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
I. Air							
A. Particulate (pCi/m^3) (E-3)	^{103}Ru	10	30 (29/72) (19-41)	#3 South of H. Bennett Homesite (0.4 Miles 4°)	32 (4/12) (24-38)	34 (5/12) (24-46)	0
	^{137}Cs	10	4 (3/72) (3-4)	#4 Near the May Cemetery (0.4 Mile 171°)	4 (1/12)	4 (1/12)	0
	^{141}Ce	20	23 (28/72) (13-49)	#5 Ray Walters' residence in Knoxville, AR (8.5 Miles 298°)	28 (5/12) (19-49)	21 (5/12) (11-31)	
	^{144}Ce	20	44 (26/72) (8-82)	#3 South of H. Bennett Homesite (0.4 Mile 4°)	63 (3/12) (36-82)	58 (3/12) (44-69)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
I. Air A. Particulate (pCi/m^3) (E-3)	^{89}Sr 28	3.	8.4 (14/24) (1.04-14.1)	#6 AP&L's Russellville Ofs. (6.8 Miles 109°)	11. (2/4) (7.9-14.1)	9.7 (3/4) (5.4-10.5)	0
	^{90}Sr 28	0.6	1.5 (13/24) (0.27-8.9)	#4 Near the May Cemetery (0.4 Mile 171°)	4.6 (2/4) (0.36-8.9)	1.4 (1/4)	0

[b] Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas Reporting Period Jan.-Dec., 1981
(County, State)

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean Name Distance and Direction	Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
I. Air B. ^{131}I (pCi/m^3)	^{131}I by Gamma 364	0.050	<LLD	-	<LLD	<LLD	0

[b] Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
I. Air C. Direct Radiation (mrem/quarter)	TLDs 335	5 mrem	16 (327/327) (10-27)	TLD Location #9 (1.2 Miles 308°)	20 (8/8) (14-24)	15 (8/8) (11-18)	0
I. Air C. Direct Radiation (mrem/6 months)	TLDs 28	5 mrem	26 (24/24) (13-35)	#2 Near AP&L Lodge Site (0.5 Mile 235°)	30 (4/4) (27-32)	27 (4/4) (25-30)	0

b Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
I. Air D. Precipitation (pCi/l)	Gross α 102	3	5.3 (49/74) (2.5-21.2)	#5 Ray Walters' Knoxville, AR (8.5 Miles 298°)	5.7 (13/24) (2.6-21.2)	6.5 (15/28) (2.5-28.2)	0
	Gross β 102	2	14.2 (64/74) (2.3-53.6)	#3 South of H. Bennett's Home-site (0.4 Mile 4°)	15.5 (22/25) (3.2-45.1)	12.0 (25/28) (2.1-57.3)	0
	Gamma 103						
	^{95}Zr	15	15 (3/73) (11-18)	#5 Ray Walter's Knoxville, AR (8.5 Miles 298°)	18 (1/24)	12 (1/30)	0
	^{95}Nb	15	12 (18/73) (4.2-38)	#1 Near Met Tower Onsite (0.5 Mile 92°)	14 (4/25) (4.2-38)	15 (5/30) (5.2-26)	0
	^{103}Ru	20	7 (7/73) (3.5-14)	#5 Ray Walter's Knoxville, AR (8.5 Mile 298°)	14 (1/24)	4 (1/30)	0

b Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
II. Water A. Lake Water	Gross α 60	3	6.5 (8/48) (3.7-14.8)	#15 Lake Dardanelle above Dardanelle Dam (5.0 miles 150°)	9.4 (3/12) (3.4-14.8)	4.1 (2/12) (3.9-4.3)	0
(pCi/l)	Gross β 60	2	6.0 (42/48) (2.3-13.8)	#10 Mouth of Intake Canal (1.0 Mile 90°)	6.8 (10/12) (4.4-12.7)	4.0 (8/12) (2.3-5.9)	0
	Gamma 37		<LLD	-	<LLD	<LLD	0
	^{89}Sr 20	5	<LLD	-	<LLD	<LLD	0
	^{90}Sr 20	2	2.2 (5/16) (1.3-3.1)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	2.3 (1/14)	1.3 (2/4) (1.1-1.5)	0

[b] Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368

Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water A. Lake Water (pCi/l) Cont.	^{3}H 20	280	271 (4/16) (188-319)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	319 (1/4)	185 (1/4)	0

[b] Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean Name Distance and Direction	Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
II. Water	Gamma 10						
B. Bottom Sediments	^{54}Mn	100	63 (3/8) (33/97)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	65 (2/2) (33/97)	<LLD	0
	^{58}Co	80	198 (6/8) (51/654)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	374 (2/2) (93/654)	12 (1/2)	0
(pCi/Kg)							
	^{60}Co	40	403 (8/8) (76/1184)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	964 (2/2) (744/1184)	46 (2/2) (30/63)	0
	^{95}Nb	40	148 (5/8) (108/261)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	261 (1/2)	95 (1/2)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water							
B. Bottom Sediments	^{134}Cs	80	356 (8/8) (122/1143)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	798 (2/2) (452/1143)	60 (2/2) (25/95)	0
	^{137}Cs	60	1750 (8/8) (531/4723)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	3838 (2/2) (2954/4723)	242 (2/2) (82/403)	0
(pCi/Kg)							
dry weight	^{144}Ce	80	<LLD	-	<LLD	32 (1/2)	0
(Cont.)	^{95}Zr	40	<LLD	-	<LLD	18 (1/2)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368

Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.- Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water B. Bottom Sediments (pCi/g)	^{89}Sr 5	0.5	10.3 (1/4)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	10.3 (1/1)	<LLD	0
	^{90}Sr 5	0.2	<LLD	-	<LLD	<LLD	0

b Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
I. Water							
	Gross α 8	3	<LLD	-	<LLD	5.9 (1/4)	0
C. Ground Water[1]	Gross β 8	2	4.8 (3/4)	#11 Onsite Near AP&L Lodge (0.5 Mile 240°)	4.8 (3/3) (4.0-5.4)	2.8 (1/4)	0
(pCi/l)	Gamma 8		<LLD	-	<LLD	<LLD	0
	^{3}H 8	280	<LLD	-	<LLD	<LLD	0

[1] Three new ground water sampling stations were added in October 1981, including two control locations.

[b] Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water D. Russellville	Gross α 24	3	5.0 (1/12)	#14 Russellville City Water (5.8 Miles 65°)	5.0 (1.0)	4.1 (2/12) (3.9-4.3)	0
City Water	Gross β 24	2	3.8 (4/12) (2.3-5.4)	#14 Russellville City Water (5.8 Miles 65°)	3.8(4/12) (2.3-5.4)	4.0 (8/12) (2.4-5.9)	0
(pCi/l)	Gamma 17		<LLD	-	<LLD	<LLD	0
	^{89}Sr 8	5	5.4 (1/4)	#14 Russellville (5.8 Miles 65°)	5.4 (1/4)	<LLD	0
	^{90}Sr 8	2	<LLD	-	<LLD	2.6 (1/4)	0
	^{3}H 8	280	158 (1/4)	#14 Russellville City Water (5.8 Miles 65°)	158 (1/4)	185 (1.4)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean Name Distance and Direction	Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water	Gamma 10						
E. Aquatic Biota	^{95}Nb	80	<LLD	-	<LLD	65 (1/2)	0
1.) Carnivorous Fish	^{134}Cs	80	22 (7/8) (8 - 64)	#8 Mouth of Discharge Canal (0.1 mile 180°)	40 (2/2) (16 - 63)	<LLD	0
(Wet Weight) (pCi/Kg)	^{137}Cs	50	65 (8/8) (30 - 161)	#8 Mouth of Discharge Canal (0.1 mile 180°)	102 (2/2) (43 - 161)	20 (2/2) (18 - 23)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean Name Distance and Direction	Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water	Gamma 10						
E. Aquatic Biota	^{58}Co	50	36 (1/8)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	36 (1/8)	63 (1/2)	0
2. Bottom Feeder Fish	^{60}Co	30	<LLD	-	<LLD	11 (1/2)	0
(Wet Weight) (pCi/Kg)	^{134}Cs	80	34 (3/8) (23 - 41)	#8 Mouth of Discharge Canal (0.1 mile 180°)	39 (2/2) (37 - 41)	36 (1/2)	0
	^{137}Cs	30	69 (7/8) (18 - 123)	#8 Mouth of Discharge Canal (0.1 mile 180°)	112 (2/2) (102 - 123)	62 (2/2) (16 - 107)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water	Gamma 10						
E. Aquatic Biota	^{60}Co	30	38 (1/8)	#8 Mouth of Discharge Canal (0.1 mile 180°)	38 (1/8)	<LLD	0
3.) Plankton Feeder Fish	^{134}Cs	80	24 (7/8) (11 - 60)	#8 Mouth of Discharge Canal (0.1 mile 180°)	37 (2/2) (14 - 60)	<LLD	0
(Wet Weight) (pCi/Kg)	^{137}Cs	50	74 (8/8) (36 - 157)	#8 Mouth of Discharge Canal (0.1 mile 180°)	103 (2/2) (48 - 157)	32 (2/2) (27 - 38)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water							
E. Aquatic Biota	Gamma 2						
4.) Edible Portion of Carnivorous fish split with Ark. Dept. of Health (Wet Weight) (pCi/Kg)	^{134}Cs	80	<LLD	-	-	7.9 (1/1)	0
	^{137}Cs	50	18.2 (1/1)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	18.2 (1/1)	44.2 (1/1)	0

[b] Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368

Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec. 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water E. Aquatic Biota 5.) Mollusks Wet Weight of Whole mollusks (pCi/Kg)	Gamma 9						
	^{54}Mn	50	41 (3/7) (10/60)	#8 Mouth of Discharge Canal (0.1 Mile 180°)	56 (2/3) (51/60)	<LLD	0
	^{58}Co	50	27 (3/7) (20 - 31)	#8 Mouth of Discharge Canal (0.1 mile 180°)	31 (2/2) (30 - 31)	<LLD	0
	^{60}Co	30	19 (1/7)	#8 Mouth of Discharge Canal (0.1 mile 180°)	19 (1/7)	<LLD	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368

Location of Facility Pope Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean Name Distance and Direction	Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water E. Aquatic Biota 5.) Mollusks Wet Weight of Whole Mollusks (pCi/Kg)	^{134}Cs	80	31 (1/7)	#8 Mouth of Discharge Canal (0.1 mile 180°)	31 (1/7)	<LLD	0
	^{137}Cs	50	28 (6/7) (7 - 69)	#8 Mouth of Discharge Canal (0.1 mile 180°)	44 (3/3) (19 - 69)	9 (1/2)	0
Cont.							

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water	Gross β 10	5	10.0 (8/8) (4.5-21.8)	#10 Mouth of Intake Canal (1.0 Mile 90°)	11.6 (2/2) (7.0-16.1)	10.0 (2/2) (4.6-15.5)	0
E. Aquatic Biota							
6. Plankton	Gamma 10						
Filtered and dried (pCi/l)	95 Nb	30	12 (2/8) (5-19)	#9 Lake Dardanelle South of Bunker Hill (1.8 Miles 160°)	19 (1/2)	<LLD	0

b
Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope Arkansas Reporting Period Jan.-Dec., 1981
(County, State)

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water E. Aquatic Biota Mollusk Shells pCi/g of Ash	^{89}Sr 4	2.0	2.2 (1/3)	#10 Mouth of Intake Canal (1.0 Mile 90°)	2.2 (1/1)	<LLD	0
	^{90}Sr 4	0.3	2.5 (3/3) (1.7-3.8)	#10 Mouth of Intake Canal (1.0 Mile 90°)	3.8 (1/1)	2.1 (1/1)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas Reporting Period Jan.-Dec., 1981
(County, State)

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean Name Distance and Direction	Location with Highest Annual Mean Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
II. Water F. Fish Bone	^{89}Sr 3	2.0	6.4 (1/3)	#9 Lake Dardanelle South of Bunker Hill (1.8 Miles 160°)	6.4 (1/1)	-	0
1) Carnivorous Fish* (pCi/g) of Ash	^{90}Sr 3	0.3	5.1 (2/3) (1.3-8.9)	#10 Mouth of Intake Canal (1.0 Mile 90°)	8.9 (1/1)		0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)
*Samples from Stations numbers 15 and 16, the control location were lost during strontium analysis.

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan. - Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water F. Fish Bone	^{89}Sr 5	2.0	7.5 (1/4)	#10 Mouth of Intake Canal (1.0 mile 90°)	7.5 (1/1)	7.8	0
2. Bottom Feeder Fish	^{90}Sr 5	0.3	1.7 (4/4) (1.4-2.3)	#8 Mouth of Discharge Canal (0.1 mile 180°)	2.3 (1/1)	<LLD	0
(pCi/g) of ash							

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
II. Water F. Fish Bone	^{89}Sr 5	2.0	9.8 (2/4) (6.6-13.0)	#9 Lake Dardanelle South of Bunker (1.8 miles 160°)	13.0 (1/1)	<LLD	0
3) Plankton Feeder Fish	^{90}Sr 5	0.3	1.0 (2/4) (0.5-1.4)	#15 Lake Dardanelle above Dardanelle Dam (5.0 mile 150°)	1.4 (1/1)	0.7	0
(pCi/g) of ash							

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean Name Distance and Direction	Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
III. Terrestrial							
A. Milk	Gamma 53						
	^{137}Cs	15	6.5 (3/38) (5.0-7.9)	#29 Harold Steuber Dairy (8 Miles 11°)	7.2 (2/9) (6.5/7.9)	6.5 (7/15) (3.0/12.2)	0
(pCi/l)	^{131}I by Chemical Extraction 47	0.5	<LLD	-	<LLD	<LLD	0
	^{89}Sr 43	5	6.4 (23/31) (2.6-16.6)	#20 Odom-Meyers Dairy (8 Miles 29°)	7.7 (11/12) (1.6-16.6)	6.9 (9/12) (2.6-12.8)	0
	^{90}Sr 43	2	4.5 (27/31) (1.6-11.1)	#29 Harold Steuber's Dairy (8 Miles 11°)	6.1 (7/7) (3.6-11.1)	5.5 (12/12) (2.1-8.8)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
III. Terrestrial	Gamma 33						
B. Vegetation pCi/Kg	^{54}Mn	30	62 (4/27) (26/100)	#4 Near the May Cemetery (0.4 Mile 171°)	100 (1/3)	45 (1/6)	0
	^{95}Zr	50	1024 (10/27) (591-1455)	#4 Near the May Cemetery (0.4 Mile 171°)	1455 (1/3)	1001 (2/5) (912-1090)	0
	^{95}Nb	50	1437 (22/27) (87-3710)	#19 Ark. Tech. Dairy (5.0 Miles 99°)	2486 (1/3)	1326 (4/6) (105-2741)	0
	^{103}Ru	50	318 (9/27) (39-554)	#4 Near the May Cemetery (0.4 Mile 171°)	554 (1/3)	334 (2/6) (272-395)	0

[b] Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368

Location of Facility Pope Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean Name Distance and Direction	Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
III. Terrestrial	^{106}Ru	200	419 (1/27)	#6 AP&L's Russellville Office (6.8 miles 109°)	419 (1/3)	<LLD	0
B. Vege*.tion pCi/Kg	^{137}Cs	50	141 (11/27) (15 - 305)	#4 near the May Cemetery (0.4 mile 171°)	305 (1/3)	136 (2/6) (121 - 150)	0
(dry weight)	^{141}Ce	50	427 (9/27) (49 - 645)	#4 near the May Cemetery (0.4 mile 171°)	645 (1/3)	360 (2/6) (320 - 401)	0
Cont.	^{144}Ce	50	1859 (16/27) (436 - 3600)	#4 near the May Cemetery (0.4 mile 171°)	3600 (1/3)	1490 (3/6) (233 - 229C)	0

Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368

Location of Facility Pope, Arkansas (County, State) Reporting Period Jan. - Dec. 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurements
III. Terrestrial B. Vegetation 1. Food Crops including okra, cabbage and carrots pCi/Kg	Gamma 4 ^{137}Cs	50	<LLD	-	<LLD	57 (1/1)	0

b Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility ANO-1 and ANO-2 Docket No. 50-313 and 50-368
Location of Facility Pope, Arkansas (County, State) Reporting Period Jan.-Dec., 1981

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name, Distance and Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range	Number of Nonroutine Reported Measurement
III. Terrestrial							
C. Soil	Gamma 14						
	^{95}Nb	60	151 (9/12) (30/321)	#1 Near Met Tower Onsite (0.5 Mile 92°)	321 (1/2)	136 (2/2) (53/218)	0
(pCi/Kg) (dry weight)	^{137}Cs	60	450 (12/12) (108-968)	#5 Ray Walter's Knoxville, AR (8.5 Miles 298°)	624 (2/2) (508-741)	280 (2/2) (194-366)	0
	^{144}Ce	80	774 (1/2)	#6 AP&L Russellville Ofs. (6.8 Miles 109°)	774 (1/2)	<LLD	0
	^{89}Sr	500	858 (3/6) (473-1310)	#1 Near Met Tower Onsite (0.5 Mile 92°)	1310 (1/1)	1290 (1/1)	0
	^{90}Sr	200	<LLD	-	<LLD	<LLD	0

b) Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

SURVEY OF MILK-PRODUCING ANIMALS WITHIN AN

AREA OF TEN (10) MILES OF ARKANSAS NUCLEAR ONE

APRIL 14-15, 1981

In accordance with Environmental Technical Specification 4.2.10, a survey was conducted April 14-15, 1981 to determine the location of animals which produce milk for human consumption. Milk-producing animals (milk cows) are divided into two categories defined as:

1. Class A Dairies - Dairies in which milk is intended primarily for human consumption as Grade A milk.
2. Individual Milk Cows - Family cows in which the milk is intended primarily for home use.

CLASS A DAIRIES WITHIN A 10-MILE RADIUS OF ANO

	Dairy	No. of Cows	Azimuth-Distance
1.	Ark. Tech Univ. Dairy	50	105° - 5.5
2.	Bill Harms Dairy	100	21° - 7.75
3.	J. Odom - R. Meyer Dairy	100	287° - 9.0
4.	R. A. Young Dairy (CONTROL)	100	74° - 12.0
5.	Harold Steuber	80	22° - 7.0
6.	Lawrence Steuber	70	358° - 7.5
7.	Buddy Boxnick	50	23° - 7.0
8.	Robberson Dairy	60	183° - 10.5

INDIVIDUAL MILK COWS

	Name	No. of Cows	Azimuth-Distance
1.	J. D. Henderson *	1	70° - 1.5
2.	Bobby Steuber	1	346° - 8.3
3.	B. W. Troglin	1	296° - 8.3
4.	J. Robinson	1	45° - 9.0
5.	Ken Cash	1	312° - 7.5
6.	Carl Roden	1	300° - 8.3
7.	Jess Austin	1	22° - 7.1

*Dry cow according to information provided by owners.

SURVEY OF MILK-PRODUCING ANIMALS WITHIN AN

AREA OF TEN (10) MILES OF ARKANSAS NUCLEAR ONE

AUGUST 13-14, 1981

In accordance with Environmental Technical Specification 4.2.10, a survey was conducted August 13-14, 1981 to determine the location of animals which produce milk for human consumption. Milk-producing animals (milk cows) are divided into two categories defined as:

1. Class A Dairies - Dairies in which milk is intended primarily for human consumption as Grade A milk.
2. Individual Milk Cows - Family cows in which the milk is intended primarily for home use.

CLASS A DAIRIES WITHIN A 10-MILE RADIUS OF ANO

	Dairy	No. of Cows	Azimuth-Distance
1.	Ark. Tech Univ. Dairy	50	105° - 5.5
2.	Bill Harms Dairy	100	21° - 7.75
3.	J. Odom - R. Meyer Dairy	100	287° - 9.0
4.	R. A. Young Dairy (CONTROL)	100	74° - 12.0
5.	Harold Steuber	80	22° - 7.0
6.	Lawrence Steuber	70	358° - 7.5
7.	Buddy Boxnick	60	23° - 7.0
8.	Robberson Dairy	80	183° - 10.5

INDIVIDUAL MILK COWS

	Name	No. of Cows	Azimuth-Distance
1.	Bobby Steuber	1	346° - 8.3
2.	J. Robinson	1	45° - 9.0
3.	Gaylin Smith	1	270° - 7.1
4.	Ken Cash	1	312° - 7.5
5.	Carl Roden	1	300° - 8.3

SUMMARY OF ARKANSAS NUCLEAR ONE

CHEMICAL USAGE FOR 1981

WP-0145
Attachment to
ANO-82-2063

1981 ANO CHEMICAL USAGE

(Qty. Used lbs.)

Chemical (lbs)	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Unit #1												
Sulf. Acid 66 Baume	1,540	16,845	46,448	77,454	50,854	47,728	42,225	45,625	27,607	88,385	65,183	67,668
Sodium Hydroxide 50%	798	30,389	64,576	54,953	85,259	75,617	102,447	51,243	54,599	95,991	93,546	90,381
Ammonium Hydroxide	561	0	5,984	7,689	8,976	5,984	5,236	26,180	4,615	7,854	7,106	8,976
Hydrazine 35%	1,800	0	1,350	2,250	4,050	1,350	3,600	3,375	3,600	1,125	1,575	1,350
Sodium Nitrite	100	0	50	100	75	150	225	200	100	50	225	225
Borax	10	20	40	25	25	30	20	40	20	30	25	25
Boron	1,479	114	3,374	229	343	229	1,030	972	0	515	400	401
Lithium Hydroxide	0	0	0	0	0	0	0	0	0	0	0	0
Unit #2												
Sulf. Acid 66 Baume	12,592	4,466	462	0	0	12,530	14,253	6,616	10,914	27,439	778	11,265
Cooling Tower Acid Sulf. Acid 66 Baume	359,636	309,544	196,709	0	0	5,442	240,108	312,624	374,781	270,185	280,382	273,492
Sodium Hydroxide 50%	15,954	5,698	796	0	0	22,107	22,576	10,788	9,065	45,583	4,559	11,421
Ammonium Hydroxide	0	0	0	0	0	0	0	0	441	524	1,953	3,276
Hydrazine 35%	3,600	2,250	4,500	450	0	2,250	3,600	3,375	3,600	1,125	1,575	1,350
Sodium Nitrite	300	200	50	200	75	150	300	250	100	100	225	225
Borax	40	30	10	25	25	20	10	20	30	20	25	25
Boron	114	1,659	1,544	686	1,030	3,432	858	1,144	458	1,030	629	286
Lithium Hydroxide	0	0	0	0	0.4	0	42	7.7	39.7	4.7	5.3	0.6
Cooling Tower												
Calgon (CL-246W)	9,101	7,070	5,269	0	0	2,874	7,348	7,348	7,348	9,101	590	5,748
Calgon (CL-2490)	0	0	0	0	0	0	0	0	0	0	0	30,096
Calgon (CL-95)	2,080	2,600	1,820	0	0	0	520	780	1,300	1,040	1,300	520
Calgon (CL-5)	2,020	1,820	260	0	0	520	780	1,300	1,040	1,300	1,560	1,820
Unit #1 & #2												
Chlorine	1,125	1,000	1,125	1,125	1,000	1,125	1,125	1,000	1,125	1,125	1,125	1,125
Detergents	447	225	126	255	32	32	172	38.2	32.1	45	8.4	8.3

SUMMARY OF RCS ANALYSIS OF I-131

Enclosed are monthly computer plots of Iodine Dose Equivalent (DE) values and listings of Iodine Dose Equivalent (DE) values for both Unit 1 and Unit 2 Reactor Coolant Systems. The values are in μ Ci/ml.

****
************ AP&L-ANO RADIOCHEMISTRY DEPT.   20 JAN 1982   2:07:50 PM ************
****

PLOT OF UNIT #1 I-131 DOSE EQUIVALENT ACTIVITY
FOR 1/81 THROUGH 12/81

UCI/ML: 1E-4, 1E-3, 1E-2, 1E-1, 1E+0, 1E+1

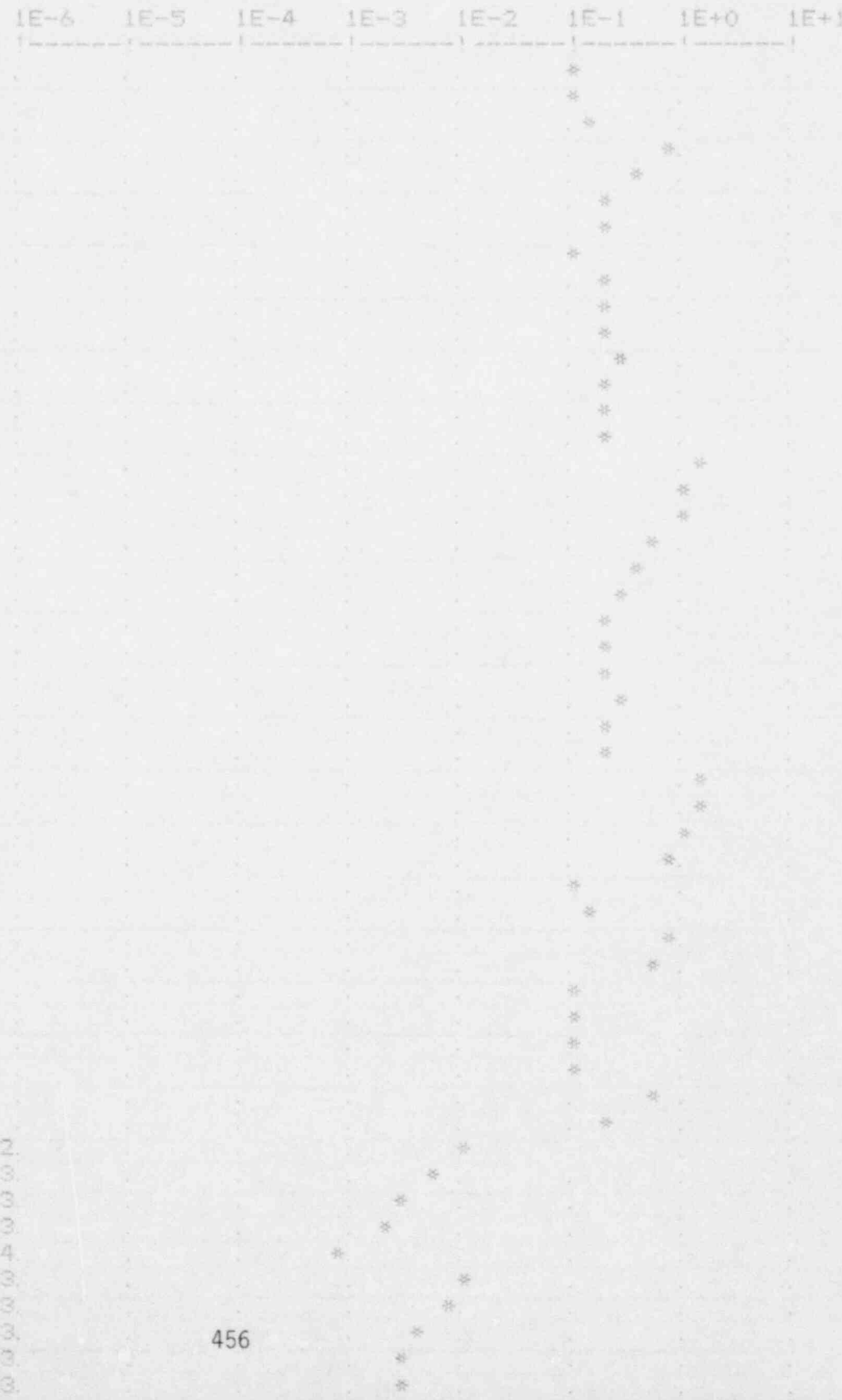
DATE	TIME	VALUE
1/ 2/81	820	0.176
1/ 5/81	1350	0.167
1/ 7/81	805	0.749
1/ 9/81	826	0.233
1/12/81	848	0.128
1/16/81	810	0.123
1/19/81	750	2.893E-02
1/21/81	807	2.126E-02
1/23/81	1517	1.091E-02
1/26/81	850	8.048E-03
1/30/81	817	2.573E-03
2/ 2/81	835	2.562E-03
2/ 6/81	825	5.638E-04
2/ 9/81	930	4.095E-04
2/11/81	830	2.201E-03
2/13/81	830	4.148E-04
2/16/81	832	7.780E-04
2/20/81	815	2.816E-04
2/23/81	800	2.817E-04
2/27/81	820	2.179E-04
3/ 2/81	1015	1.235E-04
3/ 6/81	750	1.158E-04
3/13/81	800	1.240E-04
3/16/81	805	1.454E-04
3/18/81	1312	1.319E-03
3/19/81	855	7.281E-03
3/20/81	850	7.098E-03
3/23/81	1006	1.849E-02
3/27/81	923	3.016E-02
3/30/81	1958	3.618E-02
4/ 1/81	1012	3.922E-02
4/ 3/81	900	4.006E-02
4/ 6/81	821	4.157E-02
4/ 8/81	815	4.275E-02
4/ 9/81	805	0.233
4/10/81	852	6.842E-02
4/13/81	840	4.050E-02
4/15/81	1330	3.620E-02
4/17/81	825	3.840E-02
4/20/81	845	4.388E-02
4/22/81	825	3.907E-02
4/24/81	900	4.254E-02
4/27/81	837	4.047E-02
4/29/81	847	4.021E-02
5/ 1/81	844	3.881E-02
5/ 4/81	815	5.205E-02
5/ 6/81	830	3.782E-02
5/ 8/81	818	3.851E-02
5/11/81	755	3.769E-02
5/13/81	821	3.597E-02
5/14/81	823	0.216

5/18/81	810	3.650E-02	*
5/20/81	812	3.505E-02	*
5/22/81	830	3.440E-02	*
5/25/81	840	3.598E-02	*
5/27/81	815	3.580E-02	*
5/29/81	835	3.176E-02	*
6/ 1/81	837	3.242E-02	*
6/ 3/81	825	0.361	*
6/ 4/81	831	8.139E-02	*
6/ 5/81	819	3.687E-02	*
6/ 8/81	832	3.598E-02	*
6/10/81	846	3.419E-02	*
6/12/81	800	3.257E-02	*
6/15/81	810	3.359E-02	*
6/17/81	815	3.181E-02	*
6/19/81	830	3.539E-02	*
6/22/81	830	3.165E-02	*
6/24/81	820	3.068E-02	*
6/26/81	1324	3.493E-02	*
6/29/81	855	3.241E-02	*
7/ 1/81	910	3.470E-02	*
7/ 3/81	737	3.267E-02	*
7/ 6/81	821	3.257E-02	*
7/ 8/81	822	3.184E-02	*
7/ 9/81	810	0.233	*
7/10/81	843	5.122E-02	*
7/13/81	845	3.754E-02	*
7/15/81	827	0.304	*
7/17/81	1505	5.996E-02	*
7/20/81	925	3.239E-02	*
7/22/81	858	1.238E-02	*
7/24/81	902	9.548E-03	*
7/27/81	913	2.452E-02	*
7/28/81	914	1.617E-02	*
7/29/81	808	2.644E-02	*
7/31/81	808	3.044E-02	*
8/ 3/81	837	2.976E-02	*
8/ 5/81	827	3.124E-02	*
8/ 7/81	817	2.454E-02	*
8/10/81	824	2.691E-02	*
8/12/81	846	3.062E-02	*
8/14/81	921	3.145E-02	*
8/17/81	815	3.219E-02	*
8/19/81	752	3.310E-02	*
8/21/81	812	0.117	*
8/24/81	855	3.298E-02	*
8/26/81	855	1.854E-02	*
8/28/81	1031	4.200E-02	*
8/31/81	906	3.636E-02	*
9/ 1/81	937	0.125	*
9/ 2/81	940	2.930E-02	*
9/ 4/81	818	1.669E-02	*
9/ 7/81	832	1.821E-02	*
9/ 9/81	828	3.205E-02	*
9/11/81	846	2.931E-02	*
9/14/81	817	2.991E-02	*
9/16/81	826	2.955E-02	*
9/18/81	825	2.967E-02	*
9/21/81	836	3.010E-02	*
9/23/81	1005	3.096E-02	*
9/25/81	917	3.201E-02	*
9/28/81	948	3.330E-02	*
9/30/81	915	3.338E-02	*
10/ 2/81	933	3.597E-02	*
10/ 5/81	915	3.497E-02	*

10/ 7/81	1058	3.575E-02	*
10/ 9/81	934	3.600E-02	*
10/12/81	1005	3.931E-02	*
10/13/81	1011	3.040E-02	*
10/14/81	1012	2.844E-02	*
10/16/81	1028	3.567E-02	*
10/19/81	922	3.117E-02	*
10/21/81	6045	3.293E-02	*
10/23/81	913	3.329E-02	*
10/26/81	951	3.314E-02	*
10/28/81	958	2.575E-02	*
10/30/81	934	3.747E-02	*
11/ 2/81	953	3.150E-02	*
11/ 4/81	1040	3.528E-02	*
11/ 6/81	927	3.304E-02	*
11/ 9/81	948	3.292E-02	*
11/11/81	930	3.570E-02	*
11/13/81	927	3.666E-02	*
11/16/81	945	3.637E-02	*
11/18/81	939	3.680E-02	*
11/20/81	1539	3.570E-02	*
11/23/81	1131	3.393E-02	*
11/25/81	758	3.826E-02	*
11/27/81	910	3.498E-02	*
11/30/81	932	3.741E-02	*
12/ 2/81	1352	4.098E-02	*
12/ 4/81	920	3.700E-02	*
12/ 7/81	952	4.466E-02	*
12/ 9/81	915	4.597E-02	*
12/11/81	930	4.563E-02	*
12/14/81	925	4.478E-02	*
12/16/81	1022	4.234E-02	*
12/18/81	1305	4.170E-02	*
12/21/81	835	3.930E-02	*
12/23/81	825	4.390E-02	*
12/26/81	900	4.260E-02	*
12/28/81	932	4.160E-02	*
12/30/81	1123	4.500E-02	*

************ AP&L-ANO RADIOCHEMISTRY DEPT. 20 JAN 1982 2:34:44 PM ************

PLOT OF UNIT #2 I-131 DOSE EQUIVALENT ACTIVITY
FOR: 1/81 THROUGH 12/81



DATE	TIME	VALUE
1/ 2/81	803	0.113
1/ 5/81	1410	0.104
1/12/81	912	0.160
1/15/81	850	0.860
1/16/81	817	0.454
1/19/81	810	0.196
1/21/81	835	0.254
1/23/81	1510	0.130
1/30/81	1252	0.218
2/ 2/81	817	0.203
2/ 6/81	800	0.237
2/ 9/81	833	0.293
2/11/81	910	0.220
2/13/81	856	0.245
2/16/81	837	0.202
2/17/81	1312	1.59
2/17/81	1730	1.30
2/17/81	2130	1.04
2/18/81	115	0.692
2/18/81	815	0.391
2/20/81	835	0.337
2/23/81	835	0.242
2/25/81	837	0.200
2/27/81	835	0.206
3/ 2/81	1040	0.265
3/ 6/81	812	0.216
3/ 9/81	825	0.213
3/10/81	725	1.66
3/10/81	1100	1.41
3/10/81	1445	1.01
3/10/81	1720	0.777
3/13/81	805	0.129
3/16/81	840	0.184
3/17/81	35	0.901
3/18/81	1000	0.531
3/20/81	835	0.131
3/23/81	1002	0.124
3/25/81	850	0.116
3/27/81	850	0.120
3/28/81	725	0.556
3/30/81	830	0.229
4/ 3/81	839	1.280E-02
4/ 6/81	745	6.410E-03
4/ 8/81	805	2.909E-03
4/10/81	800	2.460E-03
4/13/81	805	7.370E-04
4/15/81	803	9.999E-03
4/17/81	803	8.121E-03
4/20/81	755	3.972E-03
4/22/81	547	3.374E-03
4/24/81	832	3.492E-03

[illegible]	[illegible]	[illegible]
4/28/81	920	1.670E-03
4/29/81	835	1.607E-03
5/ 1/81	825	1.898E-03
5/ 4/81	815	1.503E-03
5/ 6/81	750	7.713E-04
5/ 8/81	755	6.700E-04
5/11/81	756	4.948E-04
5/13/81	810	4.030E-04
5/15/81	803	3.643E-04
5/18/81	755	9.323E-05
5/20/81	817	3.471E-05
5/22/81	815	2.310E-05
5/25/81	813	3.474E-05
5/27/81	757	1.811E-04
5/29/81	825	094E-05
6/ 1/81	800	4.123E-05
6/ 5/81	753	9.482E-05
6/ 8/81	817	1.441E-04
6/10/81	835	1.911E-05
6/12/81	807	8.600E-06
6/17/81	820	3.462E-06
7/ 1/81	805	8.588E-06
7/ 3/81	847	1.999E-05
7/ 6/81	817	8.039E-04
7/ 8/81	902	1.379E-02
7/10/81	820	1.970E-02
7/13/81	821	3.016E-02
7/15/81	815	1.662E-02
7/17/81	815	2.460E-02
7/19/81	25	2.888E-02
7/20/81	829	3.239E-02
7/22/81	833	8.710E-02
7/24/81	827	0.133
7/27/81	932	0.118
7/29/81	847	7.746E-02
7/31/81	849	4.288E-02
8/ 3/81	854	0.127
8/ 5/81	851	0.112
8/ 7/81	918	0.125
8/ 8/81	915	0.426
8/10/81	918	0.177
8/11/81	1745	0.193
8/12/81	813	0.201
8/14/81	859	6.693E-02
8/17/81	825	0.426
8/19/81	823	0.494
8/21/81	828	0.623
8/24/81	820	0.159
8/26/81	831	0.122
8/28/81	1508	0.125
8/31/81	1453	0.121
9/ 2/81	1020	0.132
9/ 4/81	919	3.016E-02
9/ 7/81	829	0.129
9/ 9/81	854	0.119
9/11/81	824	0.130
9/14/81	844	0.147
9/16/81	850	0.115
9/18/81	815	0.124
9/21/81	822	0.108
9/23/81	1619	0.242
9/25/81	1531	0.135
9/28/81	1526	5.016E-02
9/30/81	1530	1.246E-02
10/ 2/81	1430	8.843E-03
[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]
10/ 7/81	1410	4.035E-03
10/ 9/81	1050	5.324E-03
10/11/81	330	2.531E-02
10/12/81	1532	6.832E-02
10/14/81	933	6.547E-02
10/16/81	1002	6.249E-02
10/19/81	1511	0.104
10/21/81	1349	9.909E-02
10/23/81	958	0.113
10/25/81	1100	0.236
10/25/81	1901	0.367
10/26/81	1032	0.216
10/28/81	1449	0.101
10/30/81	946	0.114
11/ 2/81	943	9.942E-02
11/ 4/81	923	0.111
11/ 4/81	1506	0.131
11/ 6/81	956	0.107
11/ 9/81	922	6.259E-02
11/11/81	1547	7.136E-02
11/13/81	956	0.117
11/16/81	1031	0.107
11/18/81	954	0.107
11/20/81	937	9.301E-02
11/23/81	932	0.116
11/23/81	1332	0.315
11/25/81	1102	0.130
11/27/81	1215	0.320
11/30/81	1043	0.104
12/ 2/81	1106	0.110
12/ 4/81	1042	0.107
12/ 7/81	1055	0.136
12/ 9/81	1345	0.138
12/11/81	1024	0.421
12/14/81	755	0.254
12/14/81	1558	0.356
12/16/81	1347	0.170
12/18/81	922	0.134
12/19/81	1135	0.156
12/21/81	1410	0.151
12/23/81	745	0.167
12/26/81	1021	0.119
12/28/81	1340	0.174
12/30/81	1310	0.118

SUMMARY OF ENVIRONMENTAL NON-COMPLIANCES AND CHANGES

There were no violations of the Environmental Technical Specification (ETS) during 1981.

There were no changes to State or Federal permits or certificates.

There were no changes to procedures or designs affecting either the Environmental Impact Statement or the Environmental Technical Specifications.

There was a minor change in the AP&L organizational structure portion of the Environmental Technical Specification (Section 5.1 and Figure 5-1).

ATTACHMENT I

ARKANSAS NUCLEAR ONE SITE:

REMOTE SENSING AND VEGETATION GROUND TRUTH PROGRAM

FINAL REPORT

Prepared for

ARKANSAS POWER AND LIGHT COMPANY
P. O. Box 551
Little Rock, Arkansas 72203

Prepared by

NORMANDEAU ASSOCIATES, INC.
1710 Firman Drive
Richardson, Texas 75081

January 1982

FOREWORD

Normandeau Associates, Incorporated (NAI) is pleased to submit this report summarizing the methodology and results of the fourth year (1981) of the remote sensing and ground truth program in the prescribed area near the site of Arkansas Nuclear One on Dardanelle Reservoir, Arkansas. A summary of the results obtained during the four years of the program (1978-1981) also is included in this report.

During the course of the 1981 study year, NAI acquired Texas Instruments' (TI) Ecological Services group, which began the remote sensing and ground truth monitoring program for Arkansas Power and Light Company's Arkansas Nuclear One-Unit 2. Complete transition of TI Ecological Services to NAI maintained all records and files and allowed continuation of the 1981 program with former TI personnel and facilities. For reference purposes, citations of past reports on the Arkansas Nuclear One monitoring program will remain Texas Instruments, and reference to NAI will apply only to the 1981 report.

EXECUTIVE SUMMARY

The Arkansas Nuclear One (ANO) vegetation stress surveillance program was designed to fulfill Nuclear Regulatory Commission requirements for monitoring the effects of natural draft cooling tower operation on surrounding vegetation. Information obtained from aerial color infrared photography, ground truthing, and cooling tower drift analysis has been incorporated into a series of annual reports, beginning in 1978, which describe the status of vegetation in the study area during preoperational and operational phases of the power plant. This report establishes conditions present in August 1981, the second year of operational phase monitoring, and summarizes the types of stress observed over the four-year monitoring program.

During the 1981 survey, minimal vegetation stress was observed in the vicinity of the ANO site. The majority of the stress was due to continued response to the prolonged drought, high temperatures, and fire which caused extensive stress in 1980. The 1980 conditions left trees weakened and susceptible to secondary invaders, such as the fungal disease which was common on oaks in the 1981 survey. Insect damage in the study area was varied, but not severe. Mechanical injury was minor and primarily due to right-of-way maintenance along roads and construction activities.

The principal causes of vegetation stress observed during the 1978-1981 surveys were natural factors, particularly climatic extremes such as the 1980 drought. No evidence of vegetation stress due to cooling tower drift was detected, and stress areas showed no correlation with expected salt deposition patterns.

TABLE OF CONTENTS

ILLUSTRATIONS

ILLUSTRATIONS (CONTD)

TABLES

SECTION I

INTRODUCTION

A. PROGRAM OBJECTIVES

The specific objectives of the Arkansas Nuclear One (ANO) remote sensing and vegetation ground truthing program respond to Nuclear Regulatory Commission (NRC) requirements that prescribe development and installation of a monitoring program for determining the existence or absence of vegetation stress caused by operation of the ANO natural draft cooling tower. This program was designed to meet NRC requirements through documentation of the existing vegetation cover types and vegetation stress in the vicinity of the ANO Generating Station and to provide reference information necessary to monitor the potential effects of cooling tower operation and salt deposition on local vegetation.

B. PROGRAM SCHEDULE AND STATUS

The completion dates for each major task are listed below.

Aerial color infrared photography	8 August 1981
Photointerpretation	18 August 1981
Ground truth investigation	21 August 1981
Reports	
Draft	30 November 1981
Final	31 December 1981

Methods of data collection, reduction, and analysis are documented in Section II - Methodology; data are summarized in Section III - Results and Discussion, which includes both 1981 stress survey results and a summary of survey information for the entire 1978-1981 monitoring period.

SECTION II
METHODOLOGY

The objectives of this study have been addressed through application of appropriate methods of data acquisition, handling, analysis, and interpretation. The three major tasks proposed to fulfill the program objectives included:

- o Aerial color infrared photography
- o Vegetation cover type mapping
- o Vegetation stress delineation

Methods applied to each task are described below.

A. AERIAL COLOR INFRARED PHOTOGRAPHY

Aerial color infrared (CIR) photographs were obtained in August 1981. Seven north-south flight lines were required to cover the designated area (Figure II-1) and maintain a 30-percent side lap. Color infrared photographs using Kodak Aerochrome Infrared Film 2443 (Estar base) were obtained with a 6-inch focal length lens from an altitude of 3,300 feet to ensure a working scale of 1:6000 (1 inch = 550 feet). A Kodak Wratten No. 12 (yellow) filter was employed to enhance color differences in the red and near infrared portion of the spectrum (500 to 900 nanometers) (Eastman Kodak Company 1972). The forward overlap attained was 60 percent, which provided the specified stereoscopic viewing conditions. Film was processed to positive transparencies; these were encased in plastic sleeves for protection during the mapping phase of the study and for marking during the ground truthing phase of the study.

B. MAPPING VEGETATION TYPES

Methods for delineating vegetation cover types were presented in the 1978 report (Texas Instruments 1978). Cover type nomenclature and boundary delineations used in 1981 were essentially the same as those used in previous reports.

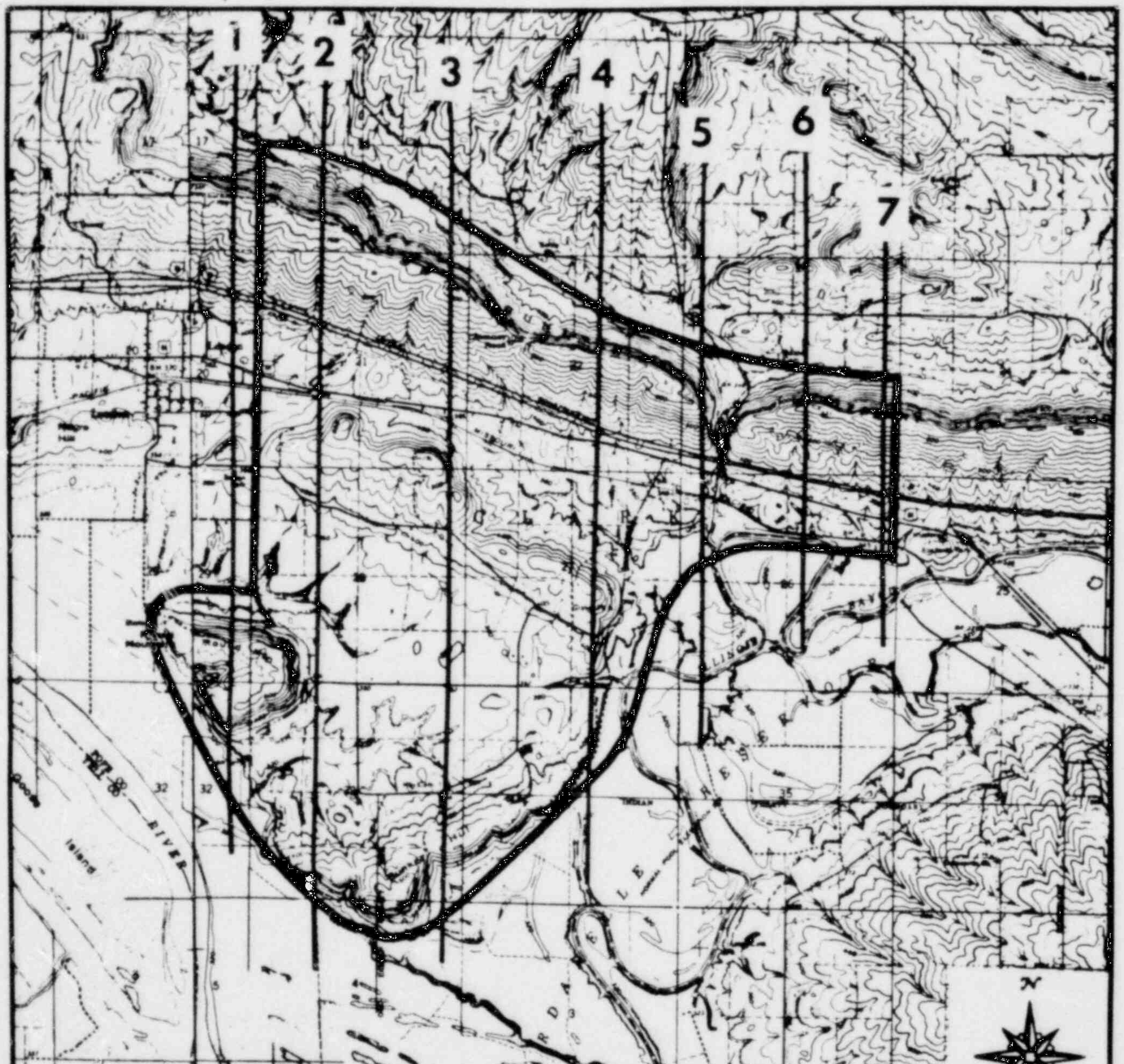


Figure II-1. Arkansas Nuclear One Study Area and Flight-Line Map of Color Infrared Photographic Coverage, August 8, 1981

C. MAPPING VEGETATION STRESS

Vegetation stressed from disease, insects, weather, or other factors was detected on color infrared transparencies as areas lacking infrared reflectance (Figure II-2). The reddish photographic rendition of healthy vegetation grades to magenta, purple, green, and yellow as the loss of infrared reflectance progresses due to increased stress. Areas of apparent vegetation stress were delineated on plastic sleeves containing the CIR transparencies by a photointerpreter in Dallas, and verified by a field botanist during ground truth reconnaissance. Locations of stressed vegetation were recorded and causal agents identified when possible. These locations were then plotted on the current ANO vegetation cover type map.

To further document vegetation stress, plant specimens and insects were collected and color photographs taken. Plant specimens were prepared following procedures outlined in Radford et al. (1974). Insects were preserved in alcohol.

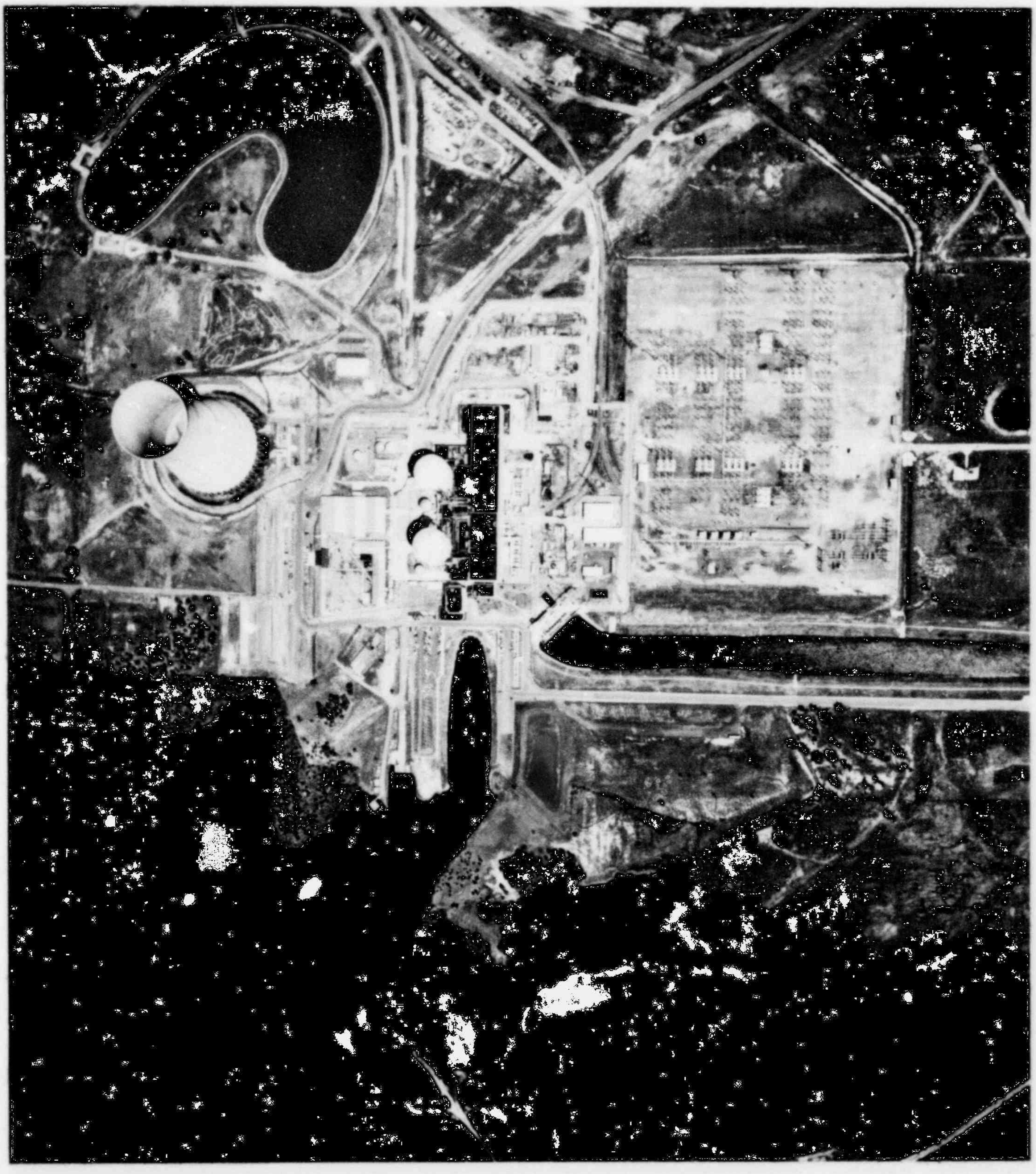


Figure II-2. Color Infrared Photograph of a Portion of the ANO Site Showing the Generating Station and Associated Cooling Tower, August 8, 1981

SECTION III

RESULTS AND DISCUSSION

A. COVER TYPE AND LAND USE DESCRIPTIONS

Descriptions of the study area's cover types and land uses, together with descriptions of the regional vegetation of the Arkansas River Valley, were presented in 1978 (Texas Instruments 1978). The horizontal acreage of the survey area used in the 1978, 1979, and 1980 reports was estimated by dot count to be 3,543 acres. Use of an updated topographic base map for the 1981 report resulted in a slightly higher estimate of 3,586 acres due to variations in the shoreline along the Dardanelle Reservoir. Acreages by map unit for 1978, 1979, 1980, and 1981 are presented in Table III-1.

Table III-1

Estimated Horizontal Acreage for Each Cover Type (Map Unit), ANO Survey Area, August 1978-1981

Map Unit	Cover Type	Acreage 1978	1979	1980	1981
	Deciduous forest				
1a	Mature	327	325	325	332
1b	Mixed	915	909	907	919
1c	Xeric	192	192	190	198
	Total	1,434	1,426	1,424	1,449
	Coniferous forest				
2a	Mature	19	19	19	19
2b	Mixed	432	432	430	438
	Total	451	451	449	457
	Successional stages				
3a	Early	409	398	334	310
3b	Advanced	85	84	76	85
	Total	494	482	410	395
4	Orchards	33	33	33	43
5	Pasture and cropland	449	446	403	396
	Rights-of-way				
6a	Electrical transmission	114	114	114	114
	Transportation	235	240	244	242
6b	Total	349	354	358	356
7	Residential	192	192	195	185
8	Industrial	112	125	240	265
9	Water	29	34	33	40
	Total	3,543	3,543	3,543	3,586

The distribution of land use and land cover types over the entire survey area is depicted in Figure III-1 (1:12,000 scale map located in the plastic pocket in the back of the report). No major changes have occurred in vegetation cover and land use in the ANO survey area in the past four years. Over 50% of the survey area is forested, with deciduous forest as the predominate cover type. Oaks and hickories dominate the deciduous forest type, although species composition varies with the site and age of the forest stand. The coniferous forest cover type is mainly mixed pine and deciduous hardwoods, with shortleaf pine (*Pinus echinata*) and eastern redcedar (*Juniperus virginiana*) as the principal coniferous species. Both the deciduous and coniferous forest cover types showed little change in acreage from 1978 to 1981, with the slight variations in 1981 due to use of a more current and accurate topographic base map. Agricultural areas showed somewhat more variation since most of the land occupied by ANO was either in the successional stages (abandoned fields) cover type or the pasture and cropland cover type. As expected, completion of the ANO facilities reduced the acreage of successional stage and cropland and pasture cover types and increased industrial land use. Other land use/land cover types showed little change.

B. VEGETATION STRESS

The Arkansas Nuclear One remote sensing and vegetation ground truth program was initiated in 1978 to document existing vegetation cover types and vegetation stress in the vicinity of the ANO generating station and to provide reference information for monitoring potential effects of cooling tower operation and salt deposition on local vegetation. Commercial operation of the ANO-Unit 2 facility began in April 1980. The monitoring program thus encompasses two years of pre-operational and two years of operational information. The following sections describe the vegetation stress identified in the 1981 survey and then summarize stress patterns, common causal agents, and general characteristics of vegetation stress observed during the four-year monitoring program.

1. Vegetation Stress Survey, 1981

The 1981 stress survey encompasses the second year of ANO cooling tower operation. Minimal vegetation stress was detected, and most stress

locations were continuing stress areas initially affected the previous year (Figure III-1). No vegetation stress attributable to cooling tower operation was observed. A total of approximately 30 acres of stressed vegetation was identified by aerial color infrared photography and field-checked during ground truthing. This represents less than one percent of the total acreage of the survey area and is a substantial decrease from the 775 acres stressed in 1980. However, many of the areas identified as stressed in 1980 (Figure III-1) now contain numerous dead trees, ranging in extent from scattered individuals to several acres. Most tree mortality was due to drought or an intense fire that burned several hundred acres on London Mountain. By 1981, most of the vegetation affected by stress agents in 1980 had either died or recovered, resulting in minimal ongoing stress.

Causes of 1981 vegetation stress mapped in Figure III-1 are listed in Table III-2. In many cases a combination of factors are involved; in particular, the 1980 drought left trees weakened and susceptible to secondary invaders such as fungi and insects. All references in the table to drought and fire apply to 1980 conditions which induced continued stress response in 1981. Pines and eastern redcedar, especially, had a more delayed response to drought conditions and fire injury than did the hardwoods.

Stress agents identified during the 1981 survey were grouped into four categories for discussion: 1) climatic factors; 2) insects; 3) fungal, viral, and bacterial diseases; and 4) mechanical injury.

a. Climatic Factors

The return to more normal temperatures and precipitation levels in the summer of 1981 eliminated the major climatic stress factors of the previous year. Climatological data from the Clarksville, Arkansas recording station show precipitation for June, July, and August 1981 to be at or above normal levels (U. S. Department of Commerce 1981). Compared with historic normal precipitation levels at the Russellville, Arkansas recording station, total precipitation for the same 3-month period in 1980 was 9.6 inches below normal (U. S. Department of Commerce 1980). Average monthly temperatures for the summer of 1981 ranged from 3.3° F above normal in June to 1.0° F below normal in August. This compares to a 3.3° F to 6.6° F above normal average temperature range for the same months in 1980.

Table III-2

Characteristics of Vegetation Stress Areas within the ANO Survey Area, August 1981

*Location	Cover Type	Number of Stress Areas	Species	Comments
3D	1A, 2A 2B, 1C	23	Shortleaf pine	Fire/drought
3E	1A, 1C	19	Shortleaf pine, few hardwoods	Fire/drought
4C	3A	1	Eastern redcedar	Drought
4G	1B, 1C	9	Shortleaf pine, few hardwoods	Drought
5B	1B	1	Oaks	Hypoxylon canker/ drought
5C	1B, 2B	3	Eastern redcedar	Drought
5C	1B	6	Hardwoods	General decline/ drought
5D	1B	6	Hardwoods	General decline/ drought
5E	3A, 1B, 3B	8	Eastern redcedar, hardwoods	Fire/drought
5E	1B	1	Shortleaf pine	Drought (poor site)
5E	2B	1	Silver maple; oaks; Oaks, sweetgum, persimmon, hawthornes	General decline (wind exposure; fungal disease aphids/feeders
5G	1B	2	Eastern redcedar	Drought
7A	1B, 2B	1	Oaks, other hardwoods	General decline/insects
7B	3A, 3B	2	Eastern redcedar	Drought
7C	3A	3	Eastern redcedar	Drought
7C	3B	1	Mimosa, catalpa, black cherry	General decline
7D	1B, 2B	2	Hardwoods	General decline (Hypoxylon on oaks, crown die-back on hickories)
7D	2B	1	Eastern redcedar	Drought
8C	3A, 1B	2	Oaks; eastern redcedar	Aphids; drought/cedar apple rust
8C	3A, 1B 2B	8	Oaks; elms; shortleaf pine	Drought/Hypoxylon; general decline; drought
8D	1B, 2B	4	Hardwoods	General decline/drought

*Keyed to location grid on vegetation cover type map (Figure III-1).

As noted in the 1980 report (Texas Instruments 1980a), susceptibility to drought stress is influenced by species, age of individuals, and local site variations. Oaks, particularly in the red oak group, were apparently more susceptible than other hardwoods and conifers. Oak stress was not restricted to the vicinity of the survey area, but was common throughout Arkansas following the drought. Preliminary findings of a study in southeast Arkansas indicate greater sensitivity of red oaks to heat and drought (University of Arkansas at Monticello, personal communication 1981). Out of a set of 75 oaks studied, 4 red oaks for every white oak showed stress, and 12 red oaks were killed for every white oak that died. In the survey area, common species in the red oak group include northern red oak (*Quercus rubra*), southern red oak (*Q. falcata*), black oak (*Q. velutina*), blackjack oak (*Q. marilandica*), and Shumard oak (*Q. shumardii*). Typical species in the white oak group include white oak (*Quercus alba*), post oak (*Q. stellata*), and bur oak (*Q. macrocarpa*). Post oak and blackjack oak typically occupy xeric sites with poorly developed rocky soils. These marginal sites increase likelihood of stress during periods of prolonged drought. Other hardwoods in the survey area, such as hickories and elms, showed general decline due to stress from the drought, but did not have the widespread mortality of the oaks.

Although coniferous species are typically more drought-resistant than hardwoods in this region (Barrett 1962), the conifers usually occupy poorer, less fertile sites with shallow, rocky soils. Conifers on these less favorable sites were affected by the 1980 drought, although symptoms generally were slow in appearing. Areas of greatest conifer stress, particularly to eastern red-cedar (Figure III-2), tend to be locations where soil moisture holding capacity is low and depth to bedrock is shallow (U.S.D.A. Soil Conservation Service and Forest Service 1981). Two common soil types in these locations are Linker fine sandy loam which has a 35 inch depth to bedrock, low fertility, and low available water capacity and Mountainburg stony fine sandy loam which has 15 inch depth to bedrock, low fertility, and very low available water capacity. During times of severe drought even tolerant vegetation on these sites is stressed.

In a similar situation, a stand of shortleaf pine which exhibited symptoms similar to little leaf disease (caused by the fungus, *Phytophthora cinnamomi*) appears to have been responding to drought stress on a poor site.

Figure III-2. Drought Effects on Eastern Redcedar Growing on Shallow Soils with Low Available Water Capacity, ANO Site, August 1981

Pathologists for the U. S. Forest Service examined similar infestations in other locations in the region and found the causal agent for little leaf disease was not present and determined the symptoms of dwarfed needles were typical of young pines stressed from poor site conditions (U.S.D.A. Forest Service, personal communication 1981). The Cane loam soil type on the pine stand site in the survey area has low fertility and a fragipan at 24 to 48 inches which restricts water movement.

Another result of the dry conditions in the late summer of 1980 was a large fire which burned a portion of London Mountain between Chimney Rock and Mill Creek and across Highway 40 to the south. Although most of the vegetation in the intensively burned areas was consumed, grasses, composites, ragweed, sumac, pokeweed, mullein, and other pioneer species had become established in the herbaceous and shrub strata by the time of the 1981 survey (Figure III-3). Most hardwoods in the overstory had been killed, but sprouting was evident, especially among hickories (Figure III-4). Pine survival was slightly greater than hardwoods, although many sizeable trees were killed. Needle-browning was evident on some of the surviving shortleaf pine, with this being the predominant ongoing stress noted in this area in the 1981 survey. In areas where the fire was less intense, Shumard oak, sweetgum (Liquidambar styraciflua), and black gum (Nyssa sylvatica) survived well and appeared healthy.

Figure III-3. Reestablishment of Vegetation in Burned Area on London Mountain, ANO Survey Area, August 1981

Figure III-4. Hardwood Sprouting and Herbaceous Growth One Year After Fire on London Mountain, ANO Survey Area August 1981

b. Insects

Although various minor insect damage was detected, no species were present in outbreak numbers. Leaf feeder damage was observed on oaks, as well as less frequently noted on sweetgum, persimmon (Diospyros virginiana), and hawthornes (Crataegus sp.). Some minor infestation from variable oak leaf caterpillars (Heterocampa maneto) and walkingsticks (Diapheromera femorata) on oaks in uplands in the region was reported (Arkansas State Forestry Commission, personal communication 1981). Pin oak sawfly larvae (Caliroa lineata) were observed on oaks in the survey area. Although pin oak (Quercus palustris) is the preferred host, other red oaks and white oak may be affected (U.S.D.A. Forest Service 1979).

Oak lace bug (Corthucha arcuata) which was common in 1980 on white oak and post oak, again was reported in the area in 1981 (U.S.D.A. Forest Service, personal communication 1981). The stippling pattern of elm lace bug (C. ulmi) was commonly observed on winged elm (Ulmus alata) leaves, but trees did not appear to be seriously injured.

Aphids were frequently observed throughout the survey area, and were especially noticeable on milkweed (Asclepias spp.). Although large populations of aphids can be built up in a relatively short time, their numbers are controlled by numerous parasites and predators (Borror et al. 1976). Heavy infestation of a plant can cause curling and wilting of leaves and stems due to feeding.

Insect damage to pines from Nantucket pine tip moth (Rhyociona frustrana) and bark beetles was reported in the area but not observed in the vicinity of the ANO site (Arkansas State Forestry Commission, personal communication 1981). According to the U. S. Forest Service (personal communication 1981), engraver beetles (Ips spp.) and turpentine beetles (Dendroctonus spp.) are the most common pine bark beetles in the area, although neither is a severe problem at this time. Pine tip moth, while common on pine plantations, rarely causes mortality, and the trees generally grow out of the susceptible stage within a few years (U.S.D.A. Forest Service 1972).

c. Fungal, Viral, and Bacterial Diseases

The most widespread disease in 1981 was Hypoxylon canker caused by the fungus Hypoxylon atropunctatum. This disease primarily attacks oaks, although hickory and beech trees can also be affected (Thompson 1963). Older trees weakened by drought or injury are especially susceptible (Price 1977; Thompson 1963). Usual symptoms of the disease are the mottled grayish bark and the sloughing-off of bark on the trunk and branches exposing patches of the crust-like fungus. Once affected, trees decline quickly, and death can be sudden. Typically, branches in the upper crown will turn brown and die one to two years prior to death of the entire tree (Price 1977).

Hypoxylon canker has shown widespread increase throughout Arkansas and surrounding states following the drought of 1980. Loss of large, mature oak trees is common in many other regions besides the survey area, and continued mortality in the next few years is likely.

No other fungal diseases were common, and no viral or bacterial diseases were observed. Powdery mildew, which was common in 1978 and 1979, was not detected in 1980 or 1981.

d. Mechanical Injury

Mechanical injury to vegetation was minimal and restricted to road maintenance and building construction locations within the ANO site boundary. Bark scrapes and wounds, branch removal, and soil compaction affected vegetation in areas where roads were widened and ditches were cut. Minor mechanical damage was also noted around the newly constructed building northeast of the power plant on Route 333.

2. Summary of Vegetation Stress Surveys, 1978-1981

Natural draft cooling towers are one means of dissipating into the atmosphere heat that cannot be converted into electricity by power plants. The small droplets of water emitted in the plume from the top of the cooling tower contain salt and other dissolved materials which were in the water used as coolant in the tower. This saline drift is deposited in the area surrounding the cooling tower and could potentially stress vegetation through build-up in the soils or impingement on the leaf surfaces.

Unit 2 of the ANO generating station utilizes a natural draft cooling tower which draws coolant water from Dardanelle Reservoir. Maximum annual salt deposition from cooling tower operation is estimated to be 488 grams/square meter (g/m^2) at a distance of 600 meters (0.4 mile) from the tower (Ark' ısas Power & Light 1974). Deposition beyond that point rapidly decreases and is approximately 134 g/m^2 at 1400 meters (0.9 mile). Based on these rates, the area monitored for vegetation stress included an approximately one mile radius from the cooling tower (extending to the shoreline of Dardanelle Reservoir east, west, and south of the site) plus additional area extending approximately two miles north of the ANO site.

Investigation of vegetation stress in the vicinity of ANO following start-up of cooling tower operation showed no evidence of stress due to cooling tower drift. Areas expected to receive greatest salt deposition did not contain unusual or increased amounts of stress compared with other portions of the survey area. Most of the stress observed during the monitoring period was caused by natural agents, particularly climatic factors.

Although the occurrence of foliar injury, as detected by aerial color infrared photography and field investigation, was the primary means of identifying vegetation stress, a foliar analysis survey conducted by AP & L in 1981 provided an indication of any salt build-up in leaf tissues of salt-sensitive vegetation. Flowering dogwood (Cornus florida) is common in the area and has been shown to be sensitive to salt accumulation (Boyce Thompson Institute 1980, Curtis et al. 1977). Chloride and sodium levels in leaf samples from dogwoods near the ANO site were compared with similar samples from dogwoods in Jefferson County, Arkansas as a control. Results of the foliar analysis indicate that chloride and sodium levels in dogwoods near the ANO site are comparable to levels in dogwoods not exposed to cooling tower drift. Near the site, chloride levels ranged from 2800 ppm to 4000 ppm, and sodium levels were 0.02%. In the control, chloride levels were 3600 ppm to 4200 ppm and sodium was 0.01% to 0.02%. Thus, neither the color infrared photography and field investigation program nor the foliar analysis survey detected any vegetation stress due to cooling tower drift. The following sections summarize the major stress agents in the ANO study area identified over the four-year monitoring period.

Climatic Factors. Meteorological extremes were responsible for the majority of stress observed both prior to and following start-up of cooling tower operation. Drought, especially, affected vegetation in the survey area (Figure III-5). Figure III-6 compares average monthly precipitation for 1978-1981 with "normal" values in the vicinity of ANO (U.S. Department of Commerce 1978, 1979, 1980, and 1981). Normal precipitation values and monthly measurements from January 1978 through November 1979 are based on climatological data from Russellville recording station, approximately 6 miles southeast of the ANO site. Data was not recorded at the Russellville station after November 1979, so measurements from the Clarksville station, 40 miles northwest of the site, are used for the more recent values. Note that most of the values over the four years fall below the normal precipitation level (shaded portion of the graph). Low moisture levels in the summer months, when combined with high temperatures, can produce widespread vegetation stress. Low rainfall in 1978 was followed by a more severe drought in 1980, with the lowest average monthly precipitation value of 0.17 inches recorded in July 1980. Rainfall in 1979 and 1981 was at or above normal levels for much of the year. Although data for 1981 has been published only through August, precipitation measurements

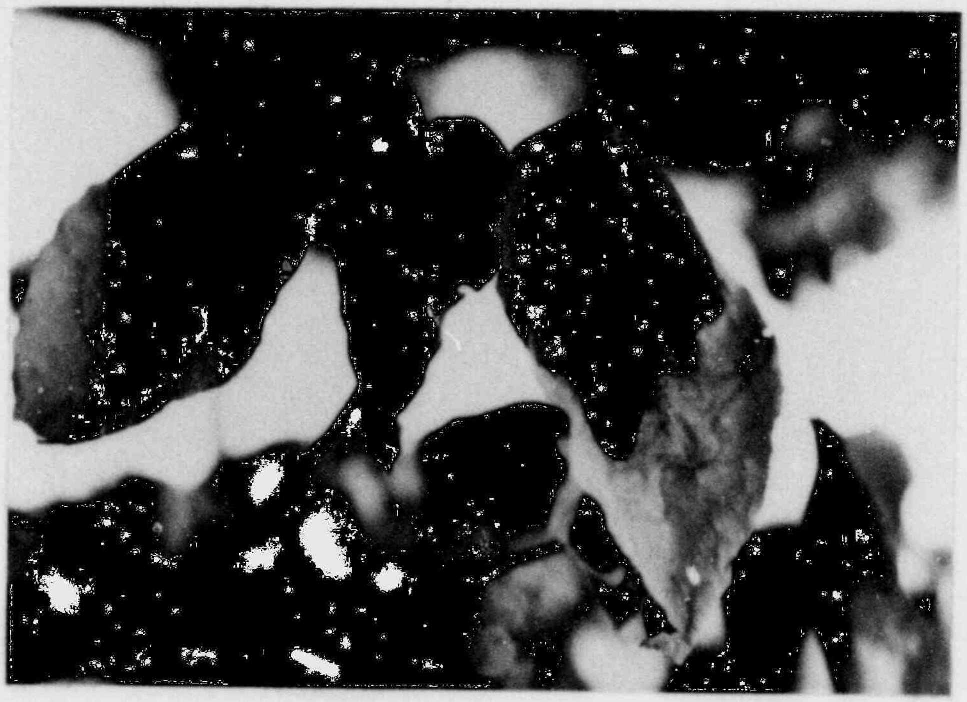
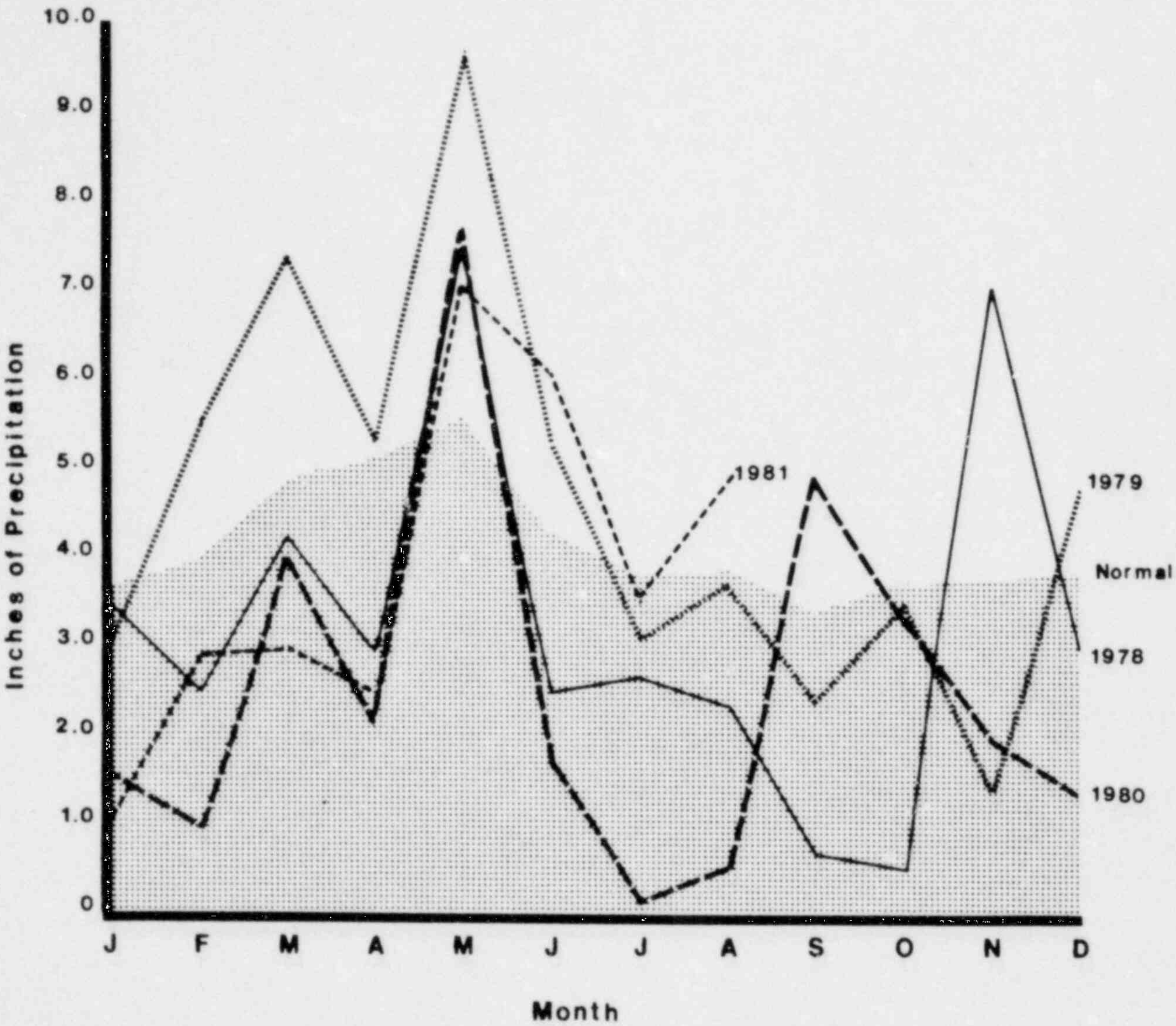


Figure III-5. Leaf Scorch on Flowering Dogwood, ANO Survey Area, August 1980

for June, July, and August show the highest rainfall during the summer of any of the four years. Variations in rainfall are normal, although extremes such as the severe drought in 1980, which was at its worst during the summer months when there were also extended periods of abnormally high temperatures, are not common. Nevertheless, meterological fluctuations are expected and are part of the natural climatic variation in the survey area.

Other than drought, vegetation stress also has been induced by floods, freezing temperatures, wind, lightning, and fire. Incidence of stress caused by these climatic factors generally was infrequent in the survey area and usually was restricted to specific sites. Flooding, caused by higher water levels in Dardanelle Reservoir, was greatest in 1979 and affected mainly moist-site forest species such as sycamore (Platanus occidentalis), eastern cottonwood (Populus deltoides), and black willow (Salix nigra) (Texas Instruments 1979). Freezing temperatures and wind contributed to stress observed in 1978 and 1979 in the peach orchard and on a few individual forest trees. Lightning strikes



Source: Russellville, Arkansas Reporting Station, January 1978 through Nc.ember 1979.
Clarksville, Arkansas Reporting Station, December 1979 through August 1981.

Figure III-6. Average Monthly Precipitation in the Vicinity of the ANO Survey Area from January 1978 Through August 1981 and Comparison with Normal Precipitation Levels

were most common along the ridgetops of London and Pleasant mountains. Fire caused the most extensive damage of any of these minor climatic stress factors when it burned several hundred acres on London Mountain during the dry summer of 1980.

Insects. Although insect-induced vegetation stress varied throughout the monitoring period, no insect populations occurred in outbreak numbers. Webworm (*Seirarctia echo*) and elm lace bug were important stress agents in 1978 and 1979 and were most commonly observed on persimmon (Figure III-7) and winged elm, respectively. Bark beetles were the most damaging insects to pines over the four years. Aphid populations varied, being most noticeable in 1978 and 1981. Pine tip moth and variable oak leaf caterpillar were reported in the area in 1980 and 1981, and pin oak sawfly larvae were observed in 1981.

Figure III-7. Webworm Damage on Persimmon, ANO Survey Area, August 1978

Fungal, Viral, and Bacterial Diseases. Diseases caused minimal vegetation stress over the four-year survey. The most notable stress was in 1981 due to Hypoxylon atropunctatum infestation of oak trees weakened by the previous year's drought. The disease progresses rapidly and is usually fatal, so continued mortality in the next few years is expected. Powdery mildew was the most common fungal disease in 1978 and 1979 (Figure III-8). The only notable bacterial disease was leaf blotch, which was common on persimmon in 1979 and 1980.

Figure III-8. Powdery Mildew on Winged Elm, ANO Survey Area, August 1978

Mechanical Injury. Stress from mechanical damage was usually limited to individual plants and was not widespread. The most common causes of stress were girdling of trees by chainsaw, fence wire (Figure III-9), and vehicle scrapes and clearing of vegetation for construction and right-of-way maintenance. Mechanical injury due to construction of ANO facilities was restricted to areas within the site boundary. Other minor damage included felling and girdling of trees by beaver in the vicinity of Illinois Bayou.

Figure III-9. Mechanical Damage Due to Partial Girdling of Tree from Fence Wire, ANO Survey Area, August 1979

Peach Orchard Stress. A special investigation was conducted in 1979 to determine the causes of peach tree mortality in the Bennett orchard adjacent to the northern boundary of the ANO site. Stress symptoms, which began in 1977, included yellowing or wilting of foliage and partial or complete branch or tree mortality (Figure III-10). By 1979, orchard mortality was substantial, with more than 1200 trees dying (Texas Instruments 1980b). Extensive field studies determined that a high population of ring nematodes was the principal causal agent, although other factors contributing to the stress included winter injury in 1977 which killed and weakened trees; moisture stress due to drought in 1978; minimal maintenance practices in some portions of the orchard; and damage from other insects, particularly peachtree borer (*Sanninoidea exitiosa*) and lesser peachtree borer (*Synanthedon pictipes*) (Puls, personal communication 1979; Texas Instruments 1980b).

Figure III-10. Peach Tree Mortality in the Bennett Orchard North of the ANO Site, August 1979

SECTION IV

LITERATURE CITED

Arkansas Power & Light Company. 1981. Personal communication.

Arkansas Power & Light Company. 1974. Arkansas Nuclear One - Unit 2 Environmental Report, Volumes I and II.

Arkansas State Forestry Commission. 1981. Personal communication with Bill Sprinkle, Arkansas Forestry Commission forester, Clarksville, Arkansas.

Barrett, J. W. 1962. Regional silviculture of the United States. The Ronald Press Company, New York. 610 pp.

Borror, D. J., D. M. DeLong, and C. A. Triplehorn. 1976. An introduction to the study of insects. Holt, Rinehart, and Winston, New York. 852 pp.

Boyce Thompson Institute. 1980. A study of botanical effects of simulated saline cooling tower drift. Cornell University, Ithaca, New York. 87 pp.

Curtis, C. R., T. L. Lauver, and B. A. Francis. 1977. Field research on native vegetation. Water Resources Research Center, University of Maryland, College Park, Maryland. 179 pp.

Eastman Kodak Company. 1972. Kodak aerial films and photographic plates. Rochester, New York. 27 pp.

Price, T. S. 1977. Hypoxylon canker of oaks and hickories in Georgia. Georgia Forestry Commission, Macon, Georgia.

Puls, E. 1979. Personal communication: letters dated October 10, 1979 and October 16, 1979 to Arkansas Power & Light and Arkansas Dept of Health. Louisiana State University, Baton Rouge, Louisiana.

Radford, A. E., W. C. Dickinson, J. R. Massey, and R. C. Bell. 1974. Vascular plant systematics. Harper and Row, New York. 891 pp.

Texas Instruments. 1980a. Arkansas Nuclear One site: remote sensing and vegetation ground truth program. Final report.

Texas Instruments. 1980b. Investigation of vegetation stress in peach orchards near London, Arkansas.

Texas Instruments. 1979. Arkansas Nuclear One site: remote sensing and vegetation ground truth program. Final report.

Texas Instruments. 1978. Arkansas Nuclear One site: remote sensing and vegetation ground truth program. Final report.

Thompson, G. E. 1963. Decay of oaks caused by Hypoxylon atropunctatum. Plant Disease Reporter 47:202-205.

LITERATURE CITED (CONTD)

United States Department of Agriculture, Forest Service. 1981. Personal communication with Lew Ebling, forestry disease pathologist, Regional Office, Russellville, Arkansas.

United States Department of Agriculture, Forest Service. 1979. A guide to common insects and diseases of forest trees in the northeastern United States. Forest Insect and Disease Management NA-FR-4, Northeastern Area, State and Private Forestry, Broomall, Pennsylvania. 126 pp.

United States Department of Agriculture, Soil Conservation Service and Forest Service. 1981. Soil survey of Pope County, Arkansas. 128 pp.

United States Department of Commerce. 1981. Climatological data, Arkansas. Volume 86, Number 1-8.

United States Department of Commerce. 1980. Climatological data, Arkansas. Volume 85, Number 13.

United States Department of Commerce. 1979. Climatological data, Arkansas. Volume 84, Number 13.

United States Department of Commerce. 1978. Climatological data, Arkansas. Volume 83, Number 13.

University of Arkansas at Monticello. 1981. Personal communication with Dr. James Yeiser, Department of Forestry, Monticello, Arkansas.

DOCUMENT/ PAGE PULLED

ANO. 8205190161

NO. OF PAGES 1

REASON

☐ PAGE ILLEGIBLE

☐ HARD COPY FILED AT: PDR CF

OTHER ____________

☐ BETTER COPY REQUESTED ON ___/___/___

☒ PAGE TOO LARGE TO FILM

☒ HARD COPY FILED AT: PDR CF

OTHER ____________

☒ FILMED ON APERTURE CARD NO 8205190161-01