

PROCEEDINGS
of the
1987 1988 and 1989
ANNUAL MEETINGS
of the
MISSISSIPPI CHAPTER
of the
AMERICAN FISHERIES SOCIETY

UNIVERSITY OF MISSISSIPPI
OXFORD, MISSISSIPPI
FEBRUARY 4 & 5 1987

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MARCH 2 & 3 1989

PROCEEDINGS MISSISSIPPI CHAPTER
AMERICAN FISHERIES SOCIETY
VOLUMES XI XII XIII

Printed by Mississippi Department of Wildlife Fisheries & Parks
(formerly the Dept. of Wildlife Conservation)

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VOLUME XI

ANNUAL MEETING OF THE MISSISSIPPI CHAPTER AMERICAN FISHERIES SOCIETY
FEBRUARY 4 & 5 1987
University of Mississippi, Oxford, Mississippi

OFFICERS

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VOLUME XII

ANNUAL MEETING OF THE MISSISSIPPI CHAPTER AMERICAN FISHERIES SOCIETY
FEBRUARY 4 & 5 1988
U.S. Army Corps of Engineers, Waterways Experiment Station,
Vicksburg, Mississippi

OFFICERS

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Waterways Experiment Station	National Marine Fisheries Service
Scott Knight, Sec. Treas.	Jim Pennington, Local Arrangements
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VOLUME XIII

ANNUAL MEETING OF THE MISSISSIPPI CHAPTER AMERICAN FISHERIES SOCIETY
MARCH 2 & 3, 1989
Mississippi Museum of Natural Sciences, Jackson, Mississippi

OFFICERS

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The President-Elect also serves as Program Chairman.

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PROCEEDINGS
ANNUAL MEETING
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VOLUME XI

MISSISSIPPI CHAPTER, AMERICAN FISHERIES SOCIETY
1987 ANNUAL MEETING
University of Mississippi, Oxford

ABSTRACTS

ROSS BARNETT RESERVOIR CREEL SURVEY: RECENT TRENDS IN THE RECREATIONAL FISHERY. Tim Cross and John Burris, Mississippi Department of Wildlife Conservation, Turcotte Lab, Rt. 3, Box 99, Canton, MS 39046.

Creel surveys of sportfishermen on 33,000-acre Ross Barnett Reservoir have been performed on a continuous basis since 1963. In 1978 a roving-type creel with nonuniform probability sampling was adopted and has been used since. Creel surveys enable the MDWC to measure fisherman effort and success, and to describe the fishery taking place.

From 1985 to 1986 approximately 50% of the sportfishermen indicated crappie (*Pomoxis* spp.) as the preferred target species, and 25% indicated black bass (*Micropterus* spp.). More than half of the annual fishing effort typically occurs during March through May. Seasonal patterns of crappie and bass fishing were divergent. Also, few crappie fishermen reported releasing fish, whereas bass fishermen frequently released fish. The popularity of crappie, and a trend toward smaller crappie in the creel, justifies management efforts directed toward this species.

WHAT AN ECONOMIST MEANS BY FISHERY VALUE. Trellis G. Green, University of Southern Mississippi, Southern Station Box 5072, Hattiesburg, MS 39406.

The economist's notion of value as applied to recreational and commercial fishing is discussed in non-technical detail with simple-to-understand graphs. Because so much confusion stems from the recreational side, considerable attention is focused on the nonmarket valuation issue. Discussion revolves around the simple notion that sportfishing involves the existence of implied property rights, which are inclusive of much more than fish caught or what an angler actually spends. Anglers need not pay for these rights, and therein lies the confusion. Economists focus on the whole "fishing experience" as an economic good, the rights to which sport anglers are willing to pay for in a demand context. This is differentiated from spending, market fish price, and biological replacement value. Marginal changes in harvest allocations, such as that contemplated for red drum, require the economist's notion of fishery value be computed for recreational fishing impacts.

HYBRID BASS (*MORONE SAXATILIS* X *M. CHRYSOPS*) PREDATION ON BLUEGILL: A PRELIMINARY REPORT. Gary Owen Dick, Department of Biology, University of Mississippi, Box 3514, University, MS 38677.

Beginning in May 1984, at the University of Mississippi Biological Field Station, eight warmwater impoundments averaging 0.42 acres in surface area and 1.10 m in depth have been in use to ascertain the effects of hybrid bass predation on stunted bluegill populations. The experimental design includes stock rate assessment, estimates of growth rates and population structure of bluegill, and survivorship and growth of hybrid bass. Present data indicate differences between control and experimental groups, particularly in age-class distribution and condition of bluegill. First year survival of hybrid bass was 82%, with relatively low growth rates.

EFFECT OF A REDUCTION OF SUSPENDED SEDIMENT ON THE LARGEMOUTH BASS POPULATION OF MOON LAKE. Garry Lucas and Ron Garavelli, Mississippi Department of Wildlife Conservation, Box 3324, Delta State University, Cleveland, MS 38733.

Seining and shoreline rotenone sampling of Moon Lake during 1984 to 1986 showed largemouth bass populations to have improved for each of those three years. This improvement in bass populations is believed to be due to reduced levels of suspended sediment during the spawning period (May). Suspended sediment concentrations during May, as indicated by secchi disk visibility, decreased each year due to reduced rainfall. May rainfall for the three years was 127%, 62%, and 51%, respectively, of the area average, and visibility was 8, 15, and 56 cm, respectively. The number of young-of-year bass captured per day in June increased from 0 in 1984 to 8 in 1985 and 21 in 1986. Fall electrofishing during 1983 to 1986 also showed an improvement in the bass population, with catches per hour of 4, 4, 16, and 14, respectively, for all bass, and .75, .75, 4.5, and 8.3 for young-of-year bass. It appears that minimally acceptable bass spawning success occurs when May secchi disk visibility is not less than 15 cm (or the approximate equivalent suspended sediment concentration is not greater than 160 mg/l of nonfilterable residue).

USE OF LANDSAT IMAGERY IN DETERMINING AN ORGANIC MATTER BUDGET FOR SARDIS RESERVOIR. Nicholas G. Aumen and Cindy L. Crist, Department of Biology, University of Mississippi, University, MS 38677.

An organic matter budget is being constructed for Sardis Reservoir in an attempt to analyze trophic-dynamic relationships within the forage fish populations. The major goal of this analysis is to determine whether organic matter available as food for forage fish is being supplied by primary production within the reservoir itself, transport from tributaries, or from shoreline and mudflat organic matter. The first stage of this project employed Landsat satellite multispectral scanner (MSS) imagery and computer enhancement techniques to determine the extent of mudflat exposure at various stage heights of the reservoir, which is subjected to substantial seasonal fluctuations in water level. Field measurements of plant tissue biomass on mudflats were then used to determine the potential annual contribution of this organic matter to the reservoir as higher water stages inundate previously exposed mudflats.

THE NEW NATIVE FISH OF MISSISSIPPI AQUARIA AT THE MISSISSIPPI MUSEUM OF NATURAL SCIENCE. Michael A. Stegall, Mississippi Museum of Natural Science, 111 N. Jefferson St., Jackson, MS 39202.

In July 1984 the Mississippi Museum of Natural Science received a grant from the Institute of Museum Services to build a new aquarium. Construction began in December 1985 and was completed in May 1986. The grand opening was held on 18 August 1986. The aquarium is maintained through a Dingell-Johnson aquatic education grant. The goal of the aquatic education program is to show the different fishes, and aquatic environments, that exist in Mississippi. There is an emphasis on sport fish, but non-game species are not ignored.

FISH COMMUNITY CHANGES IN THE DIVIDE SECTION OF THE TENNESSEE-TOMBIGBEE WATERWAY FOLLOWING IMPOUNDMENT OF BAY SPRINGS LAKE. L.E. Miranda and R.J. Muncy, Mississippi Cooperative Fish & Wildlife Research Unit, P.O. Drawer BX, Mississippi State, MS 39762-5603.

A survey was conducted to monitor fish dispersal between the Yellow Creek Arm of Pickwick Lake in the Tennessee River and recently joined Bay Springs Lake in the Tombigbee River, and to study selected elements of the dynamics of game fish populations in the two lakes. White bass, yellow bass, and sauger, historically not present in the upper Tombigbee River, were found to have entered and possibly reproduced in Bay Springs Lake. Bay Spring's game fish community did not develop according to expectations for a new reservoir. Dynamics of the initial year-class of largemouth bass were adversely impacted by the lack of adequate forage resulting from limited shad reproduction. Sunfish were the main forage of largemouth bass in Bay Springs Lake; the sunfish populations benefitted from intense predation and responded by producing large individuals. The events that shaped Bay Springs Lake's game fish community were analyzed, and vital statistics of largemouth bass populations in Bay Springs Lake and the Yellow Creek Arm were compared to spotlight the importance of shad as forage for largemouth bass in reservoirs.

MERISTIC AND MORPHOMETRIC CHARACTERISTICS OF AN UNDESCRIBED SHINER, NOTROPIS SP., FROM NORTHERN MISSISSIPPI STREAMS. Scott S. Knight and Charles M. Cooper, USDA-ARS Sedimentation Laboratory, Oxford, MS 38655.

Morphometric and meristic characteristics of 100 specimens of an undescribed shiner, Notropis sp., collected from Long, Tillatoba, Otoucalofa, and Batupan Bogue creeks in northern Mississippi were compared with the same characteristics found in the sabine shiner (Notropis sabinae) and the longnose shiner (N. longirostris). Notropis sabinae typically has a pharyngeal tooth count of 4-4, or sometimes 1,4-4,1; 7 anal rays; 34-37 scales in the lateral line; and is straw-colored. Notropis longirostris is characterized by a tooth count of 1,4-4,1; 7 anal rays; 34-37 scales in the lateral series; and by lemon-yellow fins in breeding specimens. Notropis sp. was found to have a pharyngeal tooth count of 4-4; 6-7 anal rays; 30-34 lateral line scales; and bright red-orange coloration in breeding fish.

USE OF RDB FEED INGREDIENT IN CHANNEL CATFISH FEEDS. H. Randall Robinette, Department of Wildlife & Fisheries, P.O. Drawer LW, Mississippi State, MS 39762.

Channel catfish fingerlings were stocked in ponds at 9,880 fish per hectare and fed one of the following experimental feeds: (1) control — a 32% protein commercial catfish feed; (2) a formulation identical to the control except that a meat, bone, and blood product (RDB) replaced one-half of the fish meal; (3) a formulation identical to the control except that RDB replaced all of the fish meal. Feeds were replicated four times. There were no significant ($P < .05$) differences for average weight gain, feed conversion, or survival among fish fed the three feeds.

Papers Read by Abstract Only

AN ASSESSMENT OF INLAND FISHERIES AND FISHERIES MANAGEMENT IN THE DOMINICAN REPUBLIC. Donald C. Jackson, Department of Wildlife & Fisheries, P.O. Drawer LW, Mississippi State, MS 39762.

Administrative and system surveys were conducted in the Dominican Republic from March through December 1985. In conjunction with personnel from the National Agroaquaculture Program, nine reservoirs, two major river systems, and three natural lakes were included in the investigation. Tilapia provided the foundation for the artisanal fisheries on most systems. Where present, largemouth bass were a valuable supplement and also provided sportfishing opportunities.

The professional staff with the National Agroaquaculture Program is well-trained and prepared to manage the inland fisheries. Appropriate governmental support relative to logistics was recognized to be critical for conducting field investigations. Catch Assessment Surveys were determined to be the most economical means for providing the needed broad-based data sets. However, logistical realities may necessitate alternative programs which do not depend on randomly selected sample days.

DEVELOPMENT OF SUITABILITY INDEX CURVES FOR WARMWATER FISHES. K. Jack Killgore, US Army Engineer Waterways Experiment Station, WESER-A, P.O. Box 631, Vicksburg, MS 39180-0631.

The Habitat Evaluation Procedures and the Instream Flow Incremental Methodology both use Suitability Index (SI) curves to determine the value of aquatic habitat to fishes. SI scores range from 0.0 (poor habitat) to 1.0 (optimum habitat). The size of the habitat of interest is multiplied by the SI scores to obtain a weighted quantity of usable habitat, commonly referred to as Habitat Units or Weighted Usable Area. This information is used in planning and environmental assessment studies to document the impacts of water resource projects to fish habitat. We have developed SI curves from field data that describe site-specific habitat utilization for 12 species of warmwater fishes using water depth, water velocity, and type of instream cover. Various habitat types (backwater, shoreline, side channel, and main channel) were sampled for fishes using a boat-mounted electroshocker. Data on the three habitat variables were recorded for each sample site. Over 2,000 observations were made during the study. The raw field data were grouped into class intervals, and histograms were prepared for each variable and species. Preference for specific habitat conditions was tested from the grouped frequency distributions using a chi-square goodness of fit test with the null hypothesis that fish distribution was proportional to sampling effort. If a preference was determined, the SI curve was constructed by drawing a line through the center of each class interval. By convention, the line was drawn across the top of the class interval which contained the highest frequency. Multivariate SI curves are currently being developed from these data.

ZOOPLANKTON POPULATION DYNAMICS IN HYBRID STRIPED BASS CULTURE PONDS. J.E. Morris, W.M. Wingo, and R.J. Muncy, Mississippi Cooperative Fish & Wildlife Research Unit, P.O. Drawer BX, Mississippi State, MS 39762.

The survival of striped bass and hybrid striped bass fry to stage-1 (fry stocked and then harvested 4-6 weeks later) is important to hatchery personnel and field biologists. Hatchery managers have attributed survival below 40% to depletion of desired zooplankters, copepods and cladocerans, by fry predation. A study was initiated during spring 1986 to study zooplankton populations of eight culture ponds at the Turcotte Laboratory, Canton, MS.

Zooplankton samples, concentrated to 120 ml from 15 liters of water filtered through an 80-micron mesh plankton net, revealed that rotifer populations decreased toward the end of the culture period. Other zooplankters, such as copepod nauplii and cladocerans, increased through the third week of culture, and then decreased sharply thereafter. Main prey items from stomach analysis were copepods and the cladoceran Ceriodaphnia. Fish survival ranged from 11-70% for the seven ponds. Total production ranged from 45.6-291.0 kg per ha and could not be attributed directly to feeding artificial diets.

PLASMID DNA: POTENTIAL FOR THE RAPID IDENTIFICATION OF EDWARDSIELLA ICTALURI. Craig J. Lobb and Marc Rhoades, Department of Microbiology, University of Mississippi Medical Center, Jackson, MS 39216.

Edwardsiella ictaluri is a major bacterial pathogen of cultured channel catfish. Although diagnosis of infected fish can often be made by external signs such as the classical "hole-in-the-head" lesion, clinical signs are often absent. Diagnosis often requires the bacteria to be identified by classical biochemical analysis. Recent investigations have shown that E. ictaluri harbors two characteristic plasmids, or extra-chromosomal DNA molecules. These plasmids, designated pCL1 and pCL2, have a molecular size of 5700 and 4900 base pairs. Both plasmids have been identified in each of the channel catfish isolates of E. ictaluri which have been examined. A rapid agarose electrophoresis technique has been defined which can rapidly identify these plasmids. This technique can reduce the 3-5 days presently required for biochemical identification to 2-3 hours.

A FORMULA FOR USE ON MISSISSIPPI DELTA LAKES FOR PREDICTING SUSPENDED SEDIMENT CONCENTRATIONS FROM SECCHI DISK READINGS. Garry Lucas, Henry Outlaw, and Joseph Paul Hollomon, Mississippi Department of Wildlife Conservation, P.O. Box 3324, Delta State University, Cleveland, MS 38733.

A formula was developed during studies conducted in 1984 on Mississippi Delta lakes that predicts the concentration of suspended sediment (nonfilterable residue) from secchi disk readings. Five delta lakes that appeared to contain some degree of suspended sediment were involved in the analysis. The formula estimates only nonfilterable residue and does not separate plankton turbidity from sediment turbidity when both contribute to the overall turbidity of the water. The formula determined was: $\text{Log (Filterable Residue, mg/l)} = -.0666607 (\text{Secchi, cm}) + 6.068445$; $r = .941$, $n = 20$.

Abstracts for Grass Carp Mini-Symposium

WHITE AMUR — THE TWO YEARS AFTER THE YEAR BEFORE. David H. Webb and A. Leon Bates (speaker will be Ben Jaco), Tennessee Valley Authority, 130 Summer Place Building, Knoxville, TN 37902.

TVA stocked 4557 white amur in a 444-acre reservoir embayment in September 1984. Prestocking data was collected on this and a control embayment in 1983. Poststocking data was collected in 1984-1986. Fish grew well, but aquatic plant control varied by species and location. Complete plant control will require at least an additional year.

GRASS CARP LARVAE IN THE LOWER MISSISSIPPI RIVER VALLEY. S.P. Zimpfer, C.H. Pennington, and C.F. Bryan. US Army Engineer Waterways Experiment Station, P.O. Box 631, Vicksburg, MS 39180-0631; and Louisiana Cooperative Fish & Wildlife Research Unit, Louisiana State University, Baton Rouge, LA 74060.

Grass carp increased from 2% to 23% of the total ichthyoplankton in collections from lower Mississippi River drainages in 1981-1983. Numbers and period of occurrence expanded each year; i.e., 91 larvae were taken from late May until mid-June in 1981, and in 1983 a total of 914 were collected from early May through early July. The smallest individuals (estimated to be less than 6 hours post-hatch) were taken from the Red River near Shreveport, and the largest downstream near Simmesport, LA. Greatest catches were associated with increasing river stages, current speeds of 0.8-2.2 m/sec, water temperatures of 23.5-28.2 C, secchi disc readings of 9-12 cm, pH of 6.5-7.8, and dissolved oxygen from 4.0-7.8 mg/l. Since natural spawning populations of grass carp are apparently established in the lower Mississippi Valley, and since juveniles and adults are common in local commercial catches, we conclude that indigenous stocks of fishes and crustaceans will be affected.

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TITLE: The abundance of fishes in submersed aquatic plants

ABSTRACT: Submersed aquatic plants are an important component of aquatic ecosystems that can influence the density and distribution of fishes. Recent studies have shown that fish abundance is substantially higher in submersed aquatic plant beds (>100,000 fish/acre) than in areas devoid of aquatic plants. However, the fish assemblage in areas with dense aquatic plants is usually dominated by small Lepomis. Intermediate densities of aquatic plants are considered optimum for foraging efficiency and growth rates of piscivorous fishes such as Micropterus salmoides. In addition, plant species composition, plant morphology (degree of canopy formation near the water surface), volume of water occupied by plant, distance of plant bed from deep water, dissolved oxygen, and pH are also important in regulating the fish community structure in plant beds. Studies will continue in an effort to predict changes in fish abundance and distribution resulting from aquatic plant management programs.

Andrew C. Miller and C. Rex Bingham, USAE Waterways Experiment Station,
Vicksburg, MS

TITLE: An Environmental Study of a Man-Made Gravel Bar: A Summary of Findings.

ABSTRACT: A habitat consisting of two riffles and a pool was constructed in an abandoned channel of the Tombigbee River below Columbus Dam, near Columbus, Mississippi. The habitat, completed in March 1985, was made with 24,000 cu m of 2 - 80 mm gravel. In June 1985, approximately 20 taxa of macroinvertebrates were collected in each riffle. The community was dominated by immature flies (family: Chironomidae), which comprised 96 and 80% of the assemblage in June and October 1985, respectively. The exotic Asiatic clam Corbicula fluminea, and aquatic oligochaete worms became more abundant during the study. Forty-two species of fishes were collected in a four-season survey in 1985-86. Dominant species included gizzard shad (Dorosoma cepedianum), threadfin shad (D. petenense), bluegill (Lepomis macrochirus), largemouth bass (Micropterus salmoides), bullhead minnow (Pimephales vigilax), white crappie (Pomoxis annularis), and orange spotted sunfish (Lepomis humilis). After more than two years the physical habitat is stable with no obvious signs of erosion or sediment accretion.

TITLE: Fish Stock Structure in the Lower Yalobusha River

ABSTRACT: Fish stocks in the Lower Yalobusha River were assessed with electrofishing, experimental gill nets and hoop nets from 5 November 1986 through 2 May 1987. Electrofishing yielded a mean of 10.4 kg/hr, gill nets yielded 3.0 kg/net-night and hoop nets yielded 2.8 kg/net-night. Electro-fishing produced 21 species, gill nets produced 15 species and hoop nets produced 23 species. Principal species captured were bigmouth buffalo, smallmouth buffalo, blue catfish, flathead catfish, white bass, white crappie, blue sucker, river carpsucker, longnose gar, and shortnose gar. These ten species contributed 82.5%, 87.3% and 92.2% to the catch (biomass) from electrofishing, hoopnets and experimental gill nets, respectively. Using hoop net data for comparative purposes among reaches, diversity of fish stocks was relatively consistent within this system. Mean catch per unit effort increased from the Grenada Dam tailwater downstream to Avalon and declined thereafter.

Richard E. Coleman and Richard L. Kasul, USAE Waterways Experiment Station, Vicksburg, MS

TITLE: USE OF HYDROACOUSTICS IN LARGE RIVERS

ABSTRACT: Acoustic sampling in freshwater fishery research was almost non-existent five years ago, but today, it is finding many uses. Acoustics is a non-destructive remote sensing tool that is being used to determine fish biomass and density, to estimate fish size, to profile vertical distributions, to map spatial distributions, and to identify physical habitat features and fish proximity to habitat. Acoustics is ideally suited to sampling large rivers and other aquatic environments that are too fast flowing or too deep to be effectively sampled with other gears. Acoustics also complement other sampling gears by increasing sample area coverage and providing unique types of fishery information. Research-grade acoustics hardware is designed for a high level of system stability, is highly calibrated for system performance, and includes specialized features to meet scientific information needs.

Dawn E. Miller and Nicholas G. Aumen, Freshwater Biology Research Program,
Department of Biology, University of Mississippi, University, MS

**TITLE: GUT CONTENT ANALYSIS OF GIZZARD SHAD (Dorosoma cepedianum)
IN SARDIS RESERVOIR, MISSISSIPPI**

ABSTRACT:

As part of research examining the relationship of organic C to forage fish populations in Sardis Reservoir, an analysis of gut contents was performed. The occurrence frequencies of inorganic material (sand and clay) and organic material (unknown detritus, chlorophytes, cyanophytes, chrysophytes, plant, and insect material) were computed. Shad were collected by electroshocking from riverine (R), upper reservoir limnetic (UL), and lower reservoir limnetic (LL). Sand and clay were the most frequently observed gut materials from all collection sites (R, 98.0%; UL, 99.5%; LL, 99.5%). Organic materials had the following frequency of occurrence; unknown detritus: R, 91.5%; UL, 65.0%; LL, 25.5%; algae: R, 4.9%; UL, 24.6%; LL, 61.1%; plant material: R, 2.1%, UL, 5.6%, LL, 9.0% and insect parts: R, 0.4%, UL, 2.0%, LL, 3.2%. Shad in close proximity to the river channel (R, UL) appear to be preferential benthic foragers whereas shad most distant from the effects of the river channel (LL) appear to be predominately filter feeders. Water column samples taken at each collection site support these findings.

Cindy L. Crist and Nicholas G. Aumen, Freshwater Biology Research Program,
Department of Biology, University of Mississippi, University, MS

**TITLE: ALLOCHTHONOUS AND AUTOCHTHONOUS ORGANIC CARBON
SOURCES IN SARDIS RESERVOIR, MISSISSIPPI**

ABSTRACT:

As part of research examining the relationship of organic C supply to forage fish populations, a study was conducted comparing potential C sources. The contribution of C from mudflats exposed during reservoir drawdown was (4.61×10^4 kg C/day). Limnetic primary production was the largest source of C for forage fish and exhibited little spatial variation between sampling sites or depths. Primary production was maximum in the spring (7.97×10^5 kg C/day) and minimum in the fall (4.22×10^4 kg C/day). The addition of phosphate resulted in as much as a 200% increase in primary production, suggesting P limitation in the reservoir. The major allochthonous source of C examined was coarse particulates transported in from the tributaries and averaged 7.44×10^3 kg C/day. Autochthonous C sources seem to contribute more to the food web than allochthonous sources. Preliminary data from gizzard shad (Dorosoma cepedianum) gut content analyses indicate that riverine shad depend primarily on detrital carbon from allochthonous sources, while shad from the lower end of the reservoir depend primarily on autochthonous sources.

TITLE: Can Fishery Workers Predict Angler Preferences?

ABSTRACT: Fishery managers, researchers, and administrators are always making decisions which directly or indirectly affect fishery resources and angler experiences. Many of these decisions are partly based on what the individual thinks the angler would prefer or desire. However, since our perspective of aquatic resources is often different from that of the public, we may not be able to accurately predict angler preferences. In an attempt to settle this controversy, a questionnaire designed to survey angler preferences was mailed to randomly selected Mississippi fishing license holders, and to freshwater fishery workers throughout Mississippi. Anglers were asked to respond accordingly to their preferences, and fishery workers based on what they thought the average Mississippi angler would respond. Responses were compared using the chi-square test of independence. Results indicated that fishery workers were able to predict accurately ($P < 0.05$) most answers related to fisheries programs and to factors which affect fishing quality, but failed to predict accurately the most popular fishing months, number of days fished per year, average number of miles traveled, waterbody preferences, and species preferences.

Forrest Wynne and L. E. Miranda, Mississippi Cooperative Fish & Wildlife
Research Unit, Mississippi State, MS

TITLE: Temporal spawning order in length-segregated largemouth bass

ABSTRACT: Largemouth bass (*Micropterus salmoides*) collected from Columbus and Aliceville Lakes, Mississippi, were segregated into length groups and stocked into 0.04-hectare rearing ponds to determine if fish of different lengths spawned at different times. Spawning boxes were provided to observe when spawning started, but their use by breeding bass was inconsistent as bass often favored natural substrates. Although the time at which bass in each length group started spawning could not be accurately determined, larger adult bass produced larger young of year than smaller adults ($P < 0.05$) by May of 1986 and 1987 when the ponds were drained. Results from this study suggest that larger adults may produce young-of-year largemouth bass that have a better chance of surviving and eventually recruiting into a fishery.

TITLE: Zooplankton Production and Pond Fertilization for Largemouth Bass Fingerling Production in Colorado

ABSTRACT: Inorganic fertilizers were tested in various combinations with heavy organic fertilization to study enhancement of zooplankton communities in largemouth bass (Micropterus salmoides) state hatchery rearing ponds in southeast Colorado. The effects of grazing and feeding selectivity by largemouth bass fry on zooplankton populations were also studied. Additions of triple superphosphate produced the greatest number of zooplankton/liter, a combination of liquid ammonium nitrate and phosphoric acid produced the greatest growth, and the highest yields were found in ponds treated with phosphoric acid alone. Largemouth bass fry stocked at 96,369/hectare did not significantly deplete zooplankton populations. The stocking rate was higher than in previous years, yet, fish were returned at the desired length of 50 mm which was higher than in previous years. Although total zooplankton/liter was lower than in previous years at the Las Animas hatchery, steadier numbers of cladocerans were maintained with no significant declines. The fry were selective for Daphnia spp.

H. Randall Robinette, Constance H. Young, and James H. Tidwell, Department of Wildlife & Fisheries, Mississippi State University, Mississippi State, MS (Tidwell presently at Kentucky State University)

TITLE: Growth and Survival of Striped Bass (Morone saxatilis) and White Bass (M. chrysops) Hybrid Fingerlings in Mississippi

ABSTRACT: This study represents the initial effort to evaluate the commercial potential of hybrid striped bass culture in Mississippi. Phase I fingerlings averaging 2.2 g and trained to take artificial feed were stocked into 0.05 ha ponds at 10,675/ha on June 2, 1987. Fish in all ponds received the same daily amount of trout chow, but four ponds received equal portions four times/day (0200, 0800, 1400, 2000) while four ponds received equal portions twice daily (0800 and 2000). Fish fed four times/day had a significantly higher average harvest weight than fish fed twice/day. Fish were sampled monthly over six months to establish growth curves which are presented along with feed conversion and survival data. The influence of selected water quality parameters on the above factors is discussed.

TITLE: Effect of artificial feeds upon hybrid striped
bass fry survival and growth.

ABSTRACT: Concept used in this study is that timing of initial feeding of trout chow, may affect survival and growth of hybrid striped bass fry (Morone saxatilis X M. chrysops). Data from field work from April to June 1987 at the Mississippi Agricultural and Forestry Experimentation Aquaculture Unit, Mississippi State University campus, indicate that in ponds fed at the time of stocking, fingerlings had a mean survival 40%. In ponds, whose initial feeding was 2 weeks later, fingerlings had a mean survival of 20%. Ponds in both treatments were fed trout chow at 13.4 kg/ha/day. Four of the eight experimental ponds had total fry mortality. Probable causes were high levels of total ammonia nitrogen and pH. Fry fed earlier were larger at 3 weeks of age than those fed after two weeks. Upon being harvested, one pond from each treatment contained the larger fish. Most likely fry density affected final growth of fish.

Nathan W. Baldwin, C. A. Busack, and Keith D. Meals, Department of Biology, University of Mississippi, University, MS (Baldwin & Busack), and Mississippi Department of Wildlife Conservation (Meals)

TITLE: INDUCTION OF TRIPLOIDY IN WHITE CRAPPIE, POMOXIS ANNULARIS,
BY TEMPERATURE SHOCK.

ABSTRACT: Triploidy was induced in white crappie by application of thermal shock 5 to 7 minutes after in vitro fertilization of the eggs. Both heat and cold shock was attempted. Cold shock at 5° C for 45 minutes gave the best results with 20-25% triploids. Triploids were initially identified by chromosome counts with diploids and triploids having 48 and 72 chromosomes, respectively. Erythrocytes of triploids are significantly larger than those of diploids, providing a faster method of identification. Preliminary meristic and growth data on juveniles reveal no significant differences between triploid and diploid crappie. Triploid crappie are expected to be sterile and may grow faster than diploids when mature.

Roger Kingery, Mississippi State University, Mississippi State, MS

TITLE: Walleye Spawning, Movements, and Habitat Usage In Tombigbee River Drainages.

ABSTRACT: Walleyes of the Tombigbee River system use tributaries for spawning with water temperatures and stages as cues for pre-spawn staging in the lower ends of these tributaries. Major upstream spawning movements in March correspond to seasonal increased discharges. Extreme stages during spawning runs forced walleyes to seek backwater habitat. Shallow (<1.5 m) gravel bars appear to be preferred spawning sites. Continuous post-spawn downstream movements of radio-tagged walleyes ranged up to 42 km in 38 days. Deep water areas of abundant wooded structure in the lower Luxapalila Creek and the Tombigbee River were utilized by walleyes as water temperatures increased. Nighttime feeding movements decreased as water temperatures increased to 30° C. Genetic studies have shown Mississippi strain walleyes to be a unique genetic stock, specifically adapted to the flow and temperature regimes indigenous to Mississippi.

Ronald R. Lukens, Gulf States Marine Fisheries Commission, Ocean Springs, MS

TITLE: Monitoring and Assessment of Mississippi's Artificial Reef Materials

ABSTRACT: Five reef sites containing five scrapped liberty ships and five barges were investigated during this study. The objectives of this study were to: 1) characterize Mississippi's offshore artificial reefs to provide baseline data for ongoing monitoring efforts; and 2) develop guidelines for monitoring and assessment of artificial reef materials for programs in the Gulf of Mexico.

Tasks were to locate materials using Loran-C, plot reef configuration on a chart, measure materials to identify any subsidence into the substrate and conduct general observations to document material deterioration.

Conclusions drawn from the study are that accurate Loran-C coordinates and reef configurations are essential for fishermen to locate reefs and as an aid to navigation. Documentation of subsidence is necessary for reef managers to ascertain the appropriateness of bottom sediments to accept reef materials for future construction efforts. It is vital that the reef manager be aware of the condition of materials to determine the appropriateness of materials for long term application, to assist in future reef building efforts, and as a safeguard to possible legal confrontations.

TITLE: A Potential Solution to Disorientation of Hatchling Sea Turtles
By Beach Lighting

ABSTRACT:

When sea turtle hatchlings emerge at night from their subsurface nest in the beach, they compare some quality to light to orient seaward. Artificial lights of the beach disorient hatchlings which often results in their mortality. Sea turtle orientation behavior has been primarily attributed to either the stimuli of illumination intensity or shorter (blue color) light wavelengths. We tested hatchlings in situ with various wavelength filters and intensities of lights as well as commercial lights. The shorter wavelength of light disoriented hatchlings. Long wavelength (yellow, red) light did not disorient hatchlings. Commercial lights without the shorter wavelengths (low pressure sodium) could be used on beaches without affecting sea turtles.

Michael J. Murphy, H. Randall Robinette, Jonathan Pote, and Marty J. Fuller, Mississippi State University Coastal Aquaculture Unit, Gulfport, MS (Murphy), and Department of Wildlife & Fisheries, Mississippi State University, Mississippi State, MS (Robinette, Pote, and Fuller)

TITLE: Mississippi State University Coastal Aquaculture Unit - current status

ABSTRACT: Mississippi State University, in association with Mississippi Power Company has constructed the Coastal Aquaculture Unit at Gulfport, MS. The primary purpose of the unit will be to conduct research into the commercial production of market size red drum (Sciaenops ocellatus), but research on prawns (Macrobrachium rosenbergii) and hybrid striped bass (Morone saxatilis x M. chrysops) will also be conducted. A hatchery/ laboratory building and 26 0.1 hectare research ponds have been constructed and adult and fingerling red drum are now on hand.

John Cirino, Gulf Coast Research Laboratory, Ocean Springs, MS

TITLE: Mississippi's Artificial Reef Program

ABSTRACT: Mississippi's artificial reef program is managed by the Mississippi Gulf Fishing Banks, Inc. (MGFB). It is a state chartered, non-profit organization with the goal of enhancing recreational fishing along Mississippi's Gulf coast. Funding for activities is primarily through the Harrison County and Jackson County Boards of Supervisors. Membership is open to the public. Currently, the MGFB holds active permits for seven artificial reef sites. All sites lie in waters of the EEZ due to requirements to provide sufficient navigable clearance above the reefs. Sites range in size from one to eight hundred and sixty acres; in depth, from thirty-five to one hundred and sixty feet; and in distance from shore, from eleven to forty-five miles. Materials include scrapped liberty ships, derelict barges and vessels, box cars, buses, concrete rubble, dumpsters, and FADs. Future MGFB plans include continuation of a monitoring program, enhancement of reef sites, development of an effective buoy system, and procurement of Wallop-Breaux funds for specific projects. Components lacking in the program are a reef plan and research to support management.

Ren Lohoefer, Wayne Hoggard, Carol Roden, Carolyn Rogers, and Keith Mullin, National Marine Fisheries Service, Pascagoula, MS

TITLE: RESULTS FROM RECENT SURVEYS TO ESTIMATE THE ABUNDANCE AND DISTRIBUTION OF RED DRUM AND BOTTLENOSED DOLPHINS

ABSTRACT:

From October 1984 to October 1986 we used a small boat and line transect methods to study the abundance and distribution of bottlenosed dolphins (Tursiops truncatus) in the Mississippi Sound. We estimated as many as 2000 adult dolphins might be present on a late summer day whereas less than 400 might be present on a midwinter day.

We used strip transects and small single engine aircraft to investigate the distribution and abundance of red drum (Sciaenops ocellatus) in the shallow Gulf of Mexico waters from the Mexico border to Key West, FL. We found schools of red drum throughout the study area but they were most abundant offshore of Louisiana, Mississippi, and northern Texas. We estimated about 35 million pounds of red drum might be close enough to the water's surface to be seen on any given fall day.

PROCEEDINGS
ANNUAL MEETING
MISSISSIPPI CHAPTER, AMERICAN FISHERIES SOCIETY
MARCH 2 & 3, 1989
Mississippi Museum of Natural Sciences, Jackson, Ms.

PROCEEDINGS MISSISSIPPI CHAPTER
AMERICAN FISHERIES SOCIETY
VOLUME XIII

MINI-SYMPOSIUM ON THE FISHERIES AND ENVIRONMENT OF THE
LOWER MISSISSIPPI RIVER

ABSTRACTS

Annual Meeting

Mississippi Chapter American Fisheries Society

March 2 & 3 1989

THE MISSISSIPPI RIVER COMMISSION: AN AMERICAN EPIC

Dr. Michael C. Robinson

Mississippi River Commission
Lower Mississippi Valley Division
U. S. Corps of Engineers
P. O. Box 80
Vicksburg, MS 39181-0080

An epic poem that surveys the programs and activities of the Corps of Engineers from 1824 to the present. The focus of the presentation is on navigation, flood control, and environmental-related endeavors.

FISHES OF MAIN-STEM HABITATS ON THE LOWER MISSISSIPPI RIVER

C. H. Pennington, PhD

U. S. Army Corps of Engineers
Waterways Experiment Station Graduate Institute
P. O. Box 631
Vicksburg, MS 39180-0631

Collections of adult, juvenile, and larval fishes were made from the Lower Mississippi River near Greenville, Miss., to compare the relative value of main-stem habitats for fishes. Habitats sampled included dike fields, revetted banks, natural banks, and an abandoned river channel.

Populations of adult and juvenile fishes differed considerably among habitats investigated. The greatest number of species was captured from the dike fields, followed in order by the abandoned channel, revetted banks, and natural banks. Larval shads and herrings were abundant and common in all locations, while other taxa exhibited clear affinities for certain habitats.

STANDING CROPS AND SPECIES COMPOSITION OF FISHES IN
LOWER MISSISSIPPI RIVER CHANNEL AND FLOODPLAIN HABITATS

by

H. Tom Holland and Stephen P. Cobb

Mississippi River Commission
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The Lower Mississippi River Environmental Program (LMREP) is a comprehensive effort by the Mississippi River Commission (MRC), U.S. Army Corps of Engineers, to develop baseline environmental resources data for the 2.2 million acre leveed floodplain of the lower Mississippi River, and to formulate environmental design considerations for the channel improvement and main stem levee features of the Mississippi River and Tributaries Project. The LMREP was initiated in 1981 and is currently scheduled for completion in 1993. The LMREP includes five work units: Levee borrow pit studies, dike system studies, revetment studies, habitat inventories, and development of a geographic information system. In this paper we discuss results of some of our fisheries studies of levee borrow pits, floodplain lakes, and dike systems, using rotenone.

In June-August 1981, we sampled fishes in 25 riverside levee borrow pits that were created as a result of construction or maintenance of the levee system. The pits were distributed from near New Madrid, MO, to near Litcher, LA, and were selected to be generally representative of the variety of pits that occur along the river. Size ranged from 3.3 to 53.4 acres; mean depth ranged from 0.5 foot to 7.2 feet. Two one-acre block net rotenone samples were taken in each pit, one on the levee side and one on the river side. Nets were 600 feet long, 10 feet deep, with one-half inch mesh. Standard rotenone techniques were used to achieve an effective concentration of 1 mg/l. Average standing crop was 600 lbs/acre. The highest standing crop recorded was 3,199 lbs/acre and the lowest 156 lbs/acre. Fifty-eight species representing 18 families were collected. Gizzard shad was the dominant species both in numbers (35 percent) and weight (31 percent). Threadfin shad were second in number (20 percent), followed by bluegill (6 percent), orangespotted sunfish (5 percent), crappie (4 percent), and carp (3 percent). Other species collected in large numbers were mosquitofish, brook and inland silversides, buffalo, longear sunfish, warmouth, largemouth bass, and freshwater drum. By weight, gizzard shad were followed by bigmouth buffalo (23 percent), carp (8 percent), smallmouth buffalo (7 percent), spotted gar, channel catfish, and freshwater drum (4 percent each), and crappie (3 percent). Step-wise regression analyses indicated that borrow pits which flood longer annually, are deeper, and have a sinuous shoreline support the greatest number of species, highest population densities, and highest standing crop of fishes.

In September-November 1984, we sampled fish populations of eight floodplain lakes along the lower Mississippi River. Three of the lakes (Canadian Reach, Crutcher Lake, and Catfish Chute) are relatively small abandoned channel lakes, and five (Driver Bar Lake, Lake Whittington, Yucatan Lake, Deer Park Lake, and Lake Raccourci) are larger oxbow lakes, formed by a bendway or neck cutoff (natural or man-made). Two one-acre block net rotenone samples were taken in each lake except in Yucatan Lake, where four one-acre samples were taken as a result of changes in water levels. Nets used were 300 feet long, 30 feet deep, and had one-quarter inch mesh. Average standing crop estimate for the eight lakes was 461 lbs/acre; individual estimates were 897 lbs/acre (Lake Whittington), 836 lbs/acre (Crutcher Lake), 529 lbs/acre (Driver Bar), 476 lbs/acre (Lake Raccourci), 377 lbs/acre (Catfish Chute), 295 lbs/acre (Deer Park), 151 lbs/acre

(Yucatan Lake), and 129 lbs /acre (Canadian Reach). A comparison of fish populations of oxbow and abandoned channel lakes showed similarity in species composition, species occurrence, relative abundance, and length frequency, except for Canadian Reach which was more riverine in character than the other lakes. Overall, 69 species representing 18 families were collected. Gizzard shad was the dominant species, accounting for 58 percent by number and 44 percent by weight. Threadfin shad was second in abundance (19 percent), followed by bluegill (6 percent), longear sunfish (2 percent), and orange-spotted sunfish, inland silversides, freshwater drum, and crappie (1 percent each). Carp was the second most dominant species by weight (15 percent), followed by freshwater drum (7 percent), bigmouth buffalo (6 percent), and channel catfish, crappie, and largemouth bass (3 percent each).

We sampled fish populations of dike system pool habitats in 1982 and 1987. In August-October 1982, we took 30 one-acre block net rotenone samples in 10 dike system pools located between New Madrid, MO, and Natchez, MS. One to five samples were obtained from each dike system, using nets 840 feet long, 10 feet deep, with one-half inch mesh. The average standing crop for all samples was 134 lbs/acre; individual samples ranged from 15 to 548 lbs/acre. Mean total standing crop differed substantially between dike systems, but four systems yielded much higher standing crop estimates. An average of 198 (range 140 to 261) lbs/acre was recorded at Ashport-Golddust, Robinson Crusoe, Island 62, and Island 70 dike systems. Many of the pools at these areas were closed off from the channel at both ends at the time of sampling, and were lentic habitat. Average standing crop of fishes in the six other dike systems was 46 (range 29 to 74) lbs/acre. Fifty-seven species, representing 18 families, were collected. Gizzard shad was the dominant species both in numbers (58 percent) and weight (43 percent). The second most numerous species was channel catfish (7 percent), followed by bullhead minnows (6 percent), emerald shiners (5 percent), freshwater drum and river carpsucker (4 percent each), and bluegill (3 percent). By weight, gizzard shad were followed by carp (10 percent), channel catfish (9 percent), river carpsucker (7 percent), freshwater drum and white crappie (5 percent each), and bigmouth buffalo (4 percent).

Experience gained through the 1982 rotenone sampling in dike systems indicated that more representative fish population estimates could likely be obtained by sampling larger areas, including some of the deepwater habitat associated with dikes. Therefore, in 1987, we began using block nets 300 feet long, 30 feet deep, with one-quarter inch mesh. We took three samples in September-October, two in a dike system (Lower Cracraft) north of Lake Providence, LA, and the other in a dike system (Togo Island) below Vicksburgh MS. Blocked-off areas were 5.0, 7.0, and 9.9 acres, with mean depths of 7.2, 12.5, and 11.8 feet, respectively. Maximum depths in the blocked-off areas varied from 19 to 37 feet. Standing crop estimates were 594, 1,236, and 2,832 lbs/acre, respectively, with an area-weighted mean of 1,811 lbs/acre. Thirty-eight species representing 15 families were collected. Threadfin shad was the dominant species both numerically (98 percent) and by weight (54 percent). Bigmouth buffalo accounted for 27 percent of the total weight and 0.08 percent of the total number. Other important species by number or weight were gizzard shad, blue catfish, channel catfish, smallmouth buffalo, paddlefish, river carpsucker, and freshwater drum. Large numbers of young-of-the-year channel catfish, bluegill, white crappie, and freshwater drum in both 1982 and 1987 samples indicated dike system pools are important habitat during the early life history of these species.

Results of these studies indicate that fishery productivity of Lower Mississippi River aquatic habitats, as estimated by standing crop data, is equal to or exceeds most values reported in the literature for warmwater streams, lakes, and reservoirs. The data also show that rotenone can be successfully used to sample fishes in large rivers and the efficacy of large-scale (5 acres or more) samples using deep (30 foot) block nets.

FISH HARVEST FROM LAKES ALONG THE MISSISSIPPI RIVER

Garry Lucas,
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P.O. Box 3324 DSU, Cleveland

and

Willie H. Tomlinson
Anderson-Tully Co.,
P.O. Box 38, Vicksburg

An access creel was undertaken on Beulah Lake during spring (March to May) 1987. Beulah Lake is a 960 acre, 100 year old oxbow lake of the Mississippi River located in Bolivar Co. MS. and Desha Co. Ark. Total estimated fishing effort during spring 1987 was 34,320 hours (7,100 fisherman trips). During spring 1987 an estimated 52,000 fish (25,980 lbs.) were harvested out of a total catch of 63,260 fish. Bluegill was the most abundant fish harvested by numbers (21,140) during this period, followed by white crappie (12,250), black crappie (6,250), longear sunfish (5,590), channel catfish (1,682), yellow bass (1,540), largemouth bass (1,200), freshwater drum (690), white bass (480), warmouth (460), redear (200), blue catfish, skipjack herring, yellow bullhead, shortnose gar, and bowfin. By weight, the crappie harvest was the most abundant, (9,190 lbs. white crappie and 3,360 lbs. black crappie), followed by bluegill (8,410 lbs.), channel catfish (1,730 lbs.), longear sunfish (1,410 lbs.), largemouth bass (1,240 lbs.), yellow bass (820 lbs.): The combined harvest of the remaining species was 890 lbs.

Most fishermen on Beulah Lake were fishing for crappie (65%) followed by bream (33%) and bass (7%). The harvest rate (#/Hr.) of crappie fishermen for white crappie and black crappie was .56 and .26, respectively. Crappie fishermen released 4 % of the crappie they captured. Bream fishermen harvested 1.26 bluegill an hour. They released 29% of the bluegill they captured. Bass fishermen harvested .24 Largemouth Bass an hour and released 50% of the bass they captured.

Based on year-long creel surveys from Mississippi reservoirs a conservative estimate of the relationship of spring quarter effort and harvest to yearly estimates is that spring fishing effort is 52% of total yearly fishing effort and 53% of annual harvest. Therefore the estimated annual fishing effort on Beulah Lake for 1987 was 66,000 hours (13,650 trips), with an estimated harvest of 98,110 fish at 49,020 lbs. This is a harvest rate of approximately 51 lbs. per acre at a fishing effort of 69 hours per acre.

The average variable expenses per fisherman trip (travel, lodging, bait, ice, snacks, launching, expendable tackle) was \$9.59. This equates to spring quarter expenditures of \$68,090 (\$71/acre) and annual expenditures of \$130,900 (\$136/acre).

Commercial fishermen fishing fiddler nets caught 12,914 pounds of catfish (mostly channel) over a 14 day period during November 1985 in Beulah Lake. Most fish were from 13 to 16 inches in length. The average daily harvest was 2,535 lbs. before and 1,388 lbs. after the river rose into the lake.

Creel data are also available from a 15 acre lake on Shipland WMA located in Issaquena Co. Creel data were obtained through permit cards that are required of all persons who use the WMA. During 1986 (Jan.-Dec.) the area experienced 591 mandays of sport fishing effort. This is 39 fishermen trips per acre, which is possibly near 180 hours per acre. 9683 fish were reported captured during this period: Bream were the most abundant by number, followed by crappie.

The commercial fish harvest from Halpino Lake (Warren Co., Ms.; 325 acres) during 1986, 1987, and 1988 was 107,948 lbs. (332 lbs./acre), 91,584 lbs. (282 lbs./acre), and 20,297+ lbs. respectively. The lake had not been fished commercially since spring 1984, and was fished only on a limited basis since 1978. The harvest in 1986 consisted of buffalo (86,238 lbs.) paddlefish (19,722 lbs.) and carp (1,988 lbs.). The harvest in 1987 consisted of buffalo (83,388 lbs.) carp (7,100 lbs.) and catfish (1,096). The Harvest in 1988 consisted of buffalo (19,565 lbs.), Carp (? lbs.) and gar (732 lbs.). Only a few paddlefish have been caught in this lake since 1986 and 3/4 's of the paddlefish were harvested during June of 1986. Large gar (individual up to 265 lbs.)

appeared in the harvest in February 1988 when fishing was permitted in the winter. The highest monthly harvest (all fish) occurred in June during 1986 and during February in 1987.

Most of the fish harvested from Halpino Lake were marketed in nearby cities in Louisiana, with some sold as much as 120 miles from the lake. About 10% of the catch was sold locally (Vicksburg). The market value of the buffalo fishery on Halpino Lake for 1986, 1987, and 1988 was \$19,835 (\$61/acre), 19,179 (\$59/acre), and \$4,500 (\$14/ acre), respectively.

MACROINVERTEBRATES OF THE LOWER MISSISSIPPI RIVER (LMR)

by

Charles R. Bingham Andrew C. Miller Barry S. Payne
USAE Waterways Experiment Station

and

Stephen P. Cobb
USAE Lower Mississippi River Division

Although sediment in the LMR is affected by fluctuations in water level and velocity, substrates have characteristic fauna. Habitat types and typically dominant macroinvertebrates in the LMR are: silt over sand and gravel in slow current (Chernoviskia orbicus, Robackia claviger, Corbicula fluminea, Aulodrilus piqueti, and naiddid worms); unconsolidated fine-grained sediments in slow to moderate current (Limnodrilus spp. and Chironomus spp.); mud, sand, and silt in slow to moderate current (chironomidae, Hexagenia spp., Limnodrilus spp., and Ilyodrilus tenipletoni); consolidated clays in moderate to fast current (Pentagenia vittigera and Tortopus incertus). The 212 miles of stone dikes and 875 miles of Articulated Concrete Mattresses in the LMR provide habitat for rheophilic species. On these surfaces that are exposed to high current, Hydropsyche orris, Rheotanytarsus sp., Corophium lacustris, and Dugesia tigrina dominate. Net spinning filter-feeders, collector-gather deposit feeders, scrapers, and predators are well-represented.

THE UPPER MISSISSIPPI RIVER CONSERVATION COMMITTEE

By
Gail Carmody

Upper Mississippi River Conservation Committee
1830 Second Ave.
Rock Island Ill. 61201



the UMRCC

INFORMATION SHEET #1

In December 1943, biologists and resource managers got together in Dubuque, Iowa to discuss their concerns about the Upper Mississippi River. All 5 states bordering the upper river were represented as was the U.S. Fish and Wildlife Service.

Seeing a need for more coordination, the group agreed to form a organization. Their objective was to secure "recognition of wildlife and recreational uses of the river, together with navigation and other public uses in proportion to the related public benefits." The Upper Mississippi River Conservation Committee was born and has been an active voice on river issues ever since!

During the early years, the UMRCC was concerned with the sources of river pollution, namely sewage, industrial wastes, and silt. They also sought a Congressional mandate to stabilize pool water levels to protect fish and furbearers. They requested State legislatures to standardize commercial fishing regulations.

Through the years the UMRCC has been at the forefront of such issues as the 12-foot channel study, dredging and disposal, fish size limits, water pollution, and long range river resource planning and monitoring.

The UMRCC is still actively supported by the conservation agencies of its 5 member states - Minnesota, Wisconsin, Iowa, Illinois, and Missouri. In addition, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and several other state agencies are UMRCC cooperators.

Today, the UMRCC membership includes over 150 resource professionals. The committee is organized into 4 technical sections - Fisheries (and water quality), Law Enforcement, Recreation and Water Use, and Wildlife. The UMRCC business is carried out by an Executive Board that includes a delegate from each State, a Treasurer, and the chairman of the technical sections. A coordinator is provided by the U.S. Fish and Wildlife Service.

This information sheet is a publication of the Upper Mississippi River Conservation Committee. Suggestions or comments regarding its content should be directed to the Chairman, 1830 Second Avenue, Rock Island, Illinois 61201.

(6/88)

TECHNICAL SESSION

ABSTRACTS

Annual Meeting

Mississippi Chapter American Fisheries Society

March 2 & 3 1989

Aquaculture

COMPARISON OF BRACKISH AND FRESHWATER PRODUCTION
OF HYBRID STRIPED BASS FINGERLINGS

by

H. R. Robinette

C. H. Young

M. Murphy

Mississippi State University

P. O. Drawer LW

Mississippi State, MS 39762

Hybrid striped bass fingerlings, of either 0.6 g or 1.4 g, were stocked into triplicate 0.1 ha brackish water ponds (4-5 0/00) at 9880/ha. Following 6 months of growth, there were no significant ($P \leq 0.05$) differences in weight gain (136 g for 0.6 fry and 167 g for 1.4 g fry), but the smaller fish had significantly less survival (80.4 %) than did larger fish (102%).

Hybrid striped bass fry ($\bar{x} = 0.75$ g) were stocked into triplicate 0.04 ha freshwater ponds at 37,050 and 74,100/ha. There were no significant ($P \leq 0.05$) differences for either weight gain or feed conversion (37,050/ha - 84 g and 3.32 and 74,100 ha - 66 g and 3.65), but survival was higher (85.6%) for the low density than for the high density (65.0%).

PRELIMINARY RESULTS - EFFECTS OF STOCKING DENSITY ON GROWTH
AND SURVIVAL OF RED DRUM

by

Michael J. Murphy

and

Dr. H. Randall Robinette

Coastal Aquaculture Unit
Mississippi State Univ.

Dept. of Wildlife and Fisheries
Mississippi State Univ.

Red drum fingerlings (13g) were stocked into triplicate 0.1 ha brackish (4-5 0/00) ponds at 4,940, 8,645, and 12,350 fish/ha. Associated weight gains and survival were 121g, 84.6%; 127g 69.0%; and 157g 68.3% respectively. There were no significant differences among the treatments for weight gain. Low density stocking had greater survival than other treatments, while food conversion was significantly better with high stocking density.

GILL HYPERPLASIA IN GOLDEN SHINERS (Notemigonus crysoleucas)
ASSOCIATED WITH CONCURRENT MYXOBOLUS AND ICHTHYOPHONUS INFECTIONS

by
Chris Wilson and A. Thiyagarajah

College of Veterinary Medicine
P. O. Drawer V
Mississippi State University
Mississippi State, MS 39762

A bait-fish farmer experienced severe mortality among golden shiner minnows (Notemigonus crysoleucas) two days after treatment of a pond with Karmex (Diuron). Gross examination revealed swelling of the gills. Histologic examination of specimens showed moderate inflammation and hyperplasia of the gills with numerous Myxosporean-like cysts containing spores, in addition to fungal hyphae and spores resembling Ichthyophonus sp. These hyphae stained positive with PAS and GMS stains. No other organs appeared to be affected. Mortalities ceased without treatment and subsequent samples taken 14 days later showed nearly total regression of the gill lesions. Evidence of parasitic and mycotic infection was also greatly reduced.

LESIONS OBSERVED IN CULTURED REDFISH (Sebastes marinus)

by
Arunthavarani Thiyagarajah

College of Veterinary Medicine
P. O. Drawer V
Mississippi State University
Mississippi State, MS 39762

Significant mortality of redfish (Sebastis marinus) occurred at Gulf coast aquaculture center, Mississippi. Liver, gill, kidney, skin and gastrointestinal tract of six redfish submitted to Mississippi State University, fish disease diagnostic laboratory were histologically evaluated. Consistent finding in all six fish were an eosinophilic cell infiltration into the gills and submucosa of the gastrointestinal tract in association with chronic inflammation, extensive lipid accumulation in hepatocytes, pigments in kidney tubular epithelium, abundant pigmented macrophage aggregates in the liver and kidney. Histomorphology of these lesions and possible etiologies will be discussed.

Fisheries Management

ABUNDANCE OF AGE-0 FISH OF SELECTED SPECIES IN VARIOUS LITTORAL HABITATS
OF FLOOD CONTROL RESERVOIRS IN MISSISSIPPI

K. O. Meals

by
and

L. E. Miranda

Mississippi Dept. of Wildlife Conservation

Miss. Coop. Fish & Wildl. Res. Unit

Abundance or age-0 fish of 8 major species was determined in 5 types of habitats in 4 North Mississippi flood control reservoirs. Fish were collected with rotenone in littoral zones of coves, sloughs, and extensive areas in the main body of each reservoir characterized by sand, gravel, or mud shoreline. ANOVA indicated that cove and slough habitats generally harbored the greatest numbers of age-0 fish, whereas sand habitats harbored the fewest ($P \leq 0.05$). These results suggest that variation in abundance among habitat types (1) should be considered when designing sampling surveys, and (2) could be used to implement programs for increasing abundances of certain fish species.

SAMPLING OF WHITE CRAPPIE POPULATIONS WITH TRAP NETS IN MISSISSIPPI LAKES AND RESERVOIRS

by

Mark S. Schorr and L. Esteban Miranda

Mississippi State Cooperative Fish and Wildlife Research Unit

P. O. Drawer BX

Mississippi State, MS 39762-5603

We investigated the relationships between soak time and the catch of white crappie (Pomoxis annularis) in trap nets. Catch per effort over 7 days was expressed as catch/net and as catch/day. Catch/net of large crappie (≥ 200 mm) increased continually with a gradual decrease in the rate of increase; however, catch/net of small (< 130 mm) and medium (130-199) length crappie increased rapidly, peaked, and then decreased gradually. These trends indicate that 1) most of the catch was achieved soon after the nets were set, and 2) extended sampling time could have biased representation of smaller crappie. Catch/day of all 3 length groups increased sharply with time, peaked, and then decreased. This trend suggests that catch/day could have been optimized if fish were harvested from the nets at 1-2 day intervals. We also examined the adequacy of trap nets to reflect the actual abundance of crappie. The absolute abundance of crappie in blocked-off areas treated with rotenone were directly correlated to the catch in trap nets fished within the enclosures.

Fisheries Management (Continued)

FLATHEAD CATFISH RESOURCES IN THE UPPER NOXUBEE RIVER

by
Enrique Pugibet and Donald C. Jackson

Department of Wildlife and Fisheries
Mississippi State University
P. O. Drawer LW
Mississippi State, MS 39762

Flathead catfish (Pylodictis olivaris) resources in the upper Noxubee River (Noxubee National Wildlife Refuge, Oktibbeha Co., Mississippi) were assessed during summer low flow regimes using small diameter hoop nets (front hoop diameters of 49 cm; 2.54 cm bar mesh) and electrofishing (210 Volts; 5 Amps; 20 PPS). Flathead catfish contributed 45% by weight, to the total hoop net catch from the river and catch per unit effort (CPUE) for the species ranged from 0.06 to 0.08 kg/net-night. Electrofishing was highly selective for flathead catfish (91% of the catch) and CPUE ranged from 1.1 to 1.8 kg/hr depending on stream reach. Proportional stock density (% stock \geq 410 mm) for flathead catfish collected with hoop nets was 61% while for electrofishing it was 45%.

Based on an analysis of age and growth parameters, using sectioned pectoral spines, and backcalculated lengths at ages, flathead catfish in this stream reached 410 mm at age V.

FISHERIES RESOURCE UTILIZATION AND ANGLER CHARACTERISTICS
IN TAILWATER REACHES BELOW ABERDEEN AND COLUMBUS DAMS

by
Jocephus R. Dillard and Donald C. Jackson

Dept. of Wildlife and Fisheries
Mississippi State University
P. O. Drawer LW
Mississippi State, MS 39762

The tailwaters below aberdeen and Columbus Dams (Tennessee-Tombigbee Waterway) support multi-species fisheries. Crappie (Pomoxis sp.) are principal species throughout the year in both fisheries and dominate the catch during autumn, winter, and early spring. Blue catfish (Ictalurus furcatus), and flathead catfish (Pylodictis olivaris) contribute substantially to the Aberdeen fishery during late spring and summer while largemouth bass (Micropterus salmoides) and channel catfish (Ictalurus punctatus) do so in the Columbus fishery. Management suggestions made by anglers stressed site improvement; control of water discharge through the dams, increased law enforcement and fish stocking. Bank fishermen dominated the population of anglers surveyed in both systems (77.4% in Columbus; 75.9% in Aberdeen). Most anglers fishing on these tailwaters originated from the county where the respective dams are located (78.6% in Columbus; 81.4% in Aberdeen.) Anglers appear to be opportunistic with regard to exploitation of these tailwater fisheries resources.

Fisheries Management (Continued)

MISSISSIPPI'S NEW BOAT FOR HABITAT DEVELOPMENT

Henry Folmar,

Ms. Dept. Wildlife Cons.
Rt 3 Box 90
Canton Ms.

Dale Gordon,

Mississippi BASS Federation
Jackson, Ms.

Garry Lucas

Ms. Dept. Wildl. Cons.
P.O. Box 3324 DSU
Cleveland Ms. 38733

(Poster Presentation)

To help combat the steady loss of quality fish habitat in Mississippi, the Mississippi Chapter of the B.A.S.S. Federation, through a grant with the Fish America Foundation, donated a 28' MonArk pontoon boat to the Mississippi Department of Wildlife Conservation. The boat is to be used by the MDWC, fisherman groups, local governments and other interested parties in habitat development. The boat is equipped with a 70 hp Mercury outboard and a winch operated dump bed. It will be used to put out lime, gravel, and brush shelters on Mississippi's lakes and reservoirs.

To date the MDWC in conjunction with local organizations has put brush shelters or other fish attractors into 6 Mississippi lakes. The maiden voyage of Mississippi's Habitat Boat was January 14, 1989. The CNJ (Clark, Newton and Jasper) Bass Club braved cold, wind and rain to put out 250 Christmas trees at 8 sites on Okatibbee Reservoir. Since then the Clarksdale Bass Club put out 25 fish attractors consisting of 1-5 swamp privet trees on DeSoto Lake, and The Town of Itta Bena constructed a concrete block reef to go in Roebuck Lake. In addition the MDWC has put brush shelters and/or stake beds into Ross Barnett Reservoir, Stovall Old River Lake, and Roosevelt State Park.

This boat makes the job of fish habitat development much easier, faster and safer. Thanks to the Fish America Foundation and the MS. Chapter of the B.A.S.S. Federation, Mississippian's have an excellent tool to use toward improving fishing opportunities in the state.

Fisheries Management (Continued)

UTILIZATION OF AVAILABLE CARBON BY GIZZARD SHAD IN SARDIS RESERVOIR, MS

by
Dawn E Miller and Nicholas G. Aumen

Freshwater Biology Research Program
Dept. of Biology
University of Mississippi
University, MS 38677

Organic matter inputs to Sardis reservoir were measured to determine the relative importance of organic C sources to gizzard shad, Dorosoma cepedianum, in a SE flood-control reservoir. Primary production was measured using the light/dark oxygen bottle method and contributed 2.02×10^6 kgC/year. Particulate organic carbon (POC) from inflow contributed 9.15×10^7 kgC/year of which 92% was VFPOM ($0.45 \text{ m} < \text{VFPOM} < 75 \text{ m}$) 2.2% was FPOM ($75 \text{ m} < \text{FPOM} < 1 \text{ cm}$) and 5.8% was CPOM ($\text{CPOM} > 1 \text{ cm}$). Percent organic carbon (AFDW) from mudflat vascular plants was determined by combustion and potentially contributes 3.26×10^6 kgC/year. However, the availability of this potential food source varies due to seasonal water level fluctuations. Shad gut content analysis reveals that for 1987-1988, detritus (52% frequency of occurrence), filamentous green algae (21.6%) and diatoms (17.7%) were the principle dietary components of shad. Although primary production and POC are nearly equal contributors of C to the Sardis, it appears C from primary productivity is of less significance than that of inflow POC to the gizzard shad diet. Further studies are necessary, however, to determine the nutritional value of these food items and their contribution to gizzard shad growth.

Environmental Concerns

RECENT FINDINGS ON THE USE OF LONG WAVELENGTH LIGHTS TO PREVENT DISORIENTATION IN HATCHLING SEA TURTLES

by
Dena D. Dickerson and David A. Nelson

U.S. Army Corps of Engineers
Waterways Experiment Station
3909 Halls Ferry Road
Vicksburg, MS 39180

This three year field study investigated the effects of wavelength, light intensity, and selected commercial lights on the sea-finding orientation behavior of 9345 hatchling loggerhead sea turtles (Caretta caretta) at three Florida beaches. Hatchlings were positively phototactic/disoriented with lights containing the shorter wavelengths (blue) and negatively phototactic with long wavelength (yellow, red) lights which excluded wavelengths shorter than 530nm. Hatchlings were attracted to lights containing 375nm wavelengths at intensities as low as (0.12×10^{14}) quanta/sec/cm². If properly positioned, long wavelength lights, such as low-pressure sodium vapor lights, might be used in beach areas without disorienting hatchlings.

Sources, Weathering and Effects of Oil in Aquatic Environments

Dennis K. Riecke

Miss. Dept. of Wildlife Conservation
Rt. 3, Box 99
Canton, MS 39046

ABSTRACT

Crude oil is a complex substance composed of thousands of organic molecules. About 60-90% of crude oil is composed of hydrocarbons called alkanes, cycloalkanes and aromatics. Small amounts of sulfur, nitrogen, oxygen, nickel, iron and vanadium are also present. Sources of crude oil include washing of tanker holds, rivers, large natural seeps, nontanker vessel maintenance, offshore drilling, vessel accidents, and waste discharges from cities and industries.

Weathering can significantly reduce the toxicity of some crude oils by removing the low molecular weight hydrocarbons, which are highly toxic. Weathering mechanisms include evaporation, dissolution, sedimentation, and biodegradation. Dissolution from surface slicks is selective and fairly limited. Biodegradation by bacteria is a slow process that occurs in open waters and sediments.

General effects involve coating of sessile organisms and ingestion of hydrocarbons. Toxicity increases as molecular size decreases. Toxicity decreases from aromatics to cycloalkanes to alkanes. Aromatic concentrations of 10-100 ppb affect the feeding reproduction, and behavior of fish. Lethal concentrations of aromatics are 5-50 ppm for bivalves and fish. Crude oil delays hatching time, reduces growth rates of larvae and young, and 0.5-10 ppm kills fish eggs. Adult fish are killed at 10-100 ppt crude oil and 0.01-0.10 ppt aromatic hydrocarbons.

Corrective measures include incineration, mechanical collection, chemical dispersion, and sinking, none of which are effective.

Salt Marsh (i.e. Brackish Marsh) Ecology Notes on the Lower Pascagoula River Delta

By

Bennie A. Rohr

The normal tidal range of the Pascagoula River with reference to average low low water (LLW) is 0.0 - 1.7+ ft. During a lunar month, neap tides may vary little over a daily range, (0.1 to 1.0 ft), on a seasonal basis, tides may exceed 2.0+ ft with the highest annual tides occurring in March (the "spring high tides"). During strong (35 - kt winds) from NE to WSW 3+ tides may occur, if winds reach 45 to 50+ kt over 12 hr, 6+ tides may occur, especially in March or April (excluding tropical storm or hurricane induced tides).

Many species of estuarine dependent fish and especially commercial shrimp have critical stages in their life history where they must inhabit the "Low Salt Marsh" below the 2+ ft contour relative to average LLW - the time period varies by species from one to several weeks - for commercial white, brown and pink shrimp - this period is 2 weeks. If, by filling operations the land is raised to exceed 1.0 to 1.7+ ft above average LLW in the Pascagoula River delta, the low salt marsh destroyed by the operation can only decrease the annual crop of fish and shrimp due to the loss of this critical depth habitat. This zone (0.0-1.7+ ft) in the Pascagoula River delta is also the one, that in the spring, or other times of that very high river floods may reduce salinities and temperatures too much for post larval shrimp to survive in the marsh, that the shrimp crop may fail later in year.

Therefore, for the reason listed above, to promote wise conservation of estuarine fish and shrimp, the critical no. 1 priority salt marsh to save is that occupying 0+ to 1+ ft above LLW - to maintain good production croakers, seatrout, spot, and shrimp it is more valuable than gold. This level of the salt marsh is also critical habitat for juvenile speckled trout, red drum and flounders. On a seasonal basis juvenile menhaden (0.5 to 1.5 in) move in and out the marsh grasses in this habitat zone to feed literally by the millions, these young menhaden also tolerate very low salinities and migrate up to 30 mi up the lower Pascagoula River. The principal plants in the low salt marsh are Juncus and Spartina.

The second, priority level salt or brackish marsh is that characterized by presence of salt marsh meadow grass (a Spartina sp.) that occupies land wet by salt or brackish

water during the seasonal high spring tides in March and April, this habitat occurs at 2+ to 3+ ft in the Pascagoula River delta, the transition marsh in this zone is also characterized by the presence of beach cotton wood or "salt brush" shrubs (1 to 6 ft high). This transition marsh buffers the rapid runoff of rain water directly into the low salt marsh and raises its salinity as it percolates into the Juncus zone.

At the 3+ to 6+ ft contours relative to average LLW, salt tolerant vegetation grows including pines and oaks, and non-salt tolerant plant species are excluded due to irregular storm induced flood tides of 3+ to 6+ ft.

Within the area of the proposed "Pascagoula Marina" according to topographical maps supplied in the proposal, the "nature areas" should only contain natural salt tolerant vegetation such as occupies it now, however, live oaks are absent in the area north of the marina area. If a nature trail is constructed, live oaks should be planted following guide lines of the Gulf Islands National Seashore or botanists from the Gulf Coast Research Laboratory.

To facilitate habitat planning and usage evaluation the 0+ to 2+ ft contour can be assumed to mark the upper limit of the low salt marsh and 2+ to 3+ contours mark the level of the transition marsh. If any amount of the low salt marsh is destroyed by development operations, an equal or larger area of habit of equal level (0+-2+ ft) should be created at another appropriate locality.

MISSISSIPPI CHAPTER, AMERICAN FISHERIES SOCIETY

1987 ANNUAL MEETING .

University of Mississippi, Oxford

AGENDA

Wednesday, February 4

- 10:00 - 12:30 Registration
1:00 - 4:00 Grass carp "mini-symposium"

Thursday, February 5

- 8:00 - 8:45 Registration
8:45 - 9:00 President's Opening Remarks
"American Institute of Fisheries Research Biologists People
to People Ambassador Program: 1985 Fisheries Research
Delegation Asian Tour of Japan, China, and Korea"
9:00 - 9:45 Keynote Speaker, Bennie Rohr, NMFS
9:45 - 10:00 Break
10:00 - 12:00 Business Meeting
12:00 - 1:00 Lunch
1:00 - 4:00 Paper Sessions
1:00 Tim Cross and John Burris
"Ross Barnett Reservoir Creel Survey--Recent Trends in the
Recreational Fishery"
1:15 Trellis G. Green
"What an Economist Means by Fishery Value"
1:30 Gary Owen Dick
"Hybrid Bass (Morone saxatilis X M. chrysops) Predation on
Bluegill: a Preliminary Report"
2:00 Garry Lucas
"The Effect of a Reduction of Suspended Sediments on the
Largemouth Bass Population of Moon Lake"
2:15 Nicholas G. Aumen and Cindy L. Crist
"Use of Landsat Imagery in Determining an Organic Matter
Budget for Sardis Reservoir"
2:30 Break

- 2:45 Michael A. Stegall
"The New Native Fish of Mississippi Aquaria at the
Mississippi Museum of Natural Science"
- 3:00 L.E. Miranda and R.J. Muncy
"Fish Community Changes in the Divide Section of the
Tennessee-Tombigbee Waterway Following Impoundment of Bay
Springs Lake"
- 3:15 Scott S. Knight and Charles M. Cooper
"Meristic and Morphometric Characteristics of an Undescribed
Shiner (Notropis sp.) from Northern Mississippi Streams"
- 3:30 H. Randall Robinette
"Use of RDB Feed Ingredient in Channel Catfish Feeds"

To Be Read As Abstracts Only

- Garry Lucas
"A Formula for Use on Mississippi Delta Lakes in Predicting
Suspended Sediment Concentrations from Secchi Disk Readings"
- K. Jack Killgore
"Development of Suitability Index Curves for Warmwater
Fishes"

Minutes of the 1987 Meeting of the Mississippi Chapter
of the American Fisheries Society.

February 5, 1987

The University of Mississippi - Oxford, MS

The meeting called to order at 10:00 AM by Dr. Tom Wellborn, President. Other officers in attendance were: John Baker, President Elect, and Tim Cross, Secretary - Treasurer. A quorum existed with approximately 26 voting members present. President Wellborn commented on the excellent "Grass Carp Symposium" held prior to the meeting and thanked program chairman John Baker for his efforts. President Wellborn expressed his opinion that the Mississippi Department of Wildlife Conservation (MDWC) 5-member Commission selected an individual that did not meet the minimum qualifications in accordance to state law for the position of Executive Director, MDWC. Since President Wellborn had been a candidate for the position, he then read a letter announcing his resignation, effective immediately, to clear the record of any conflict of interest resulting from possible action taken by the chapter.

Newly installed President Baker commended Past President Wellborn on his year in office. Secretary - Treasurer Tim Cross distributed copies of the 1986 business meeting minutes. The minutes were accepted as printed by the membership. The Treasurers report, which showed a balance of \$323.75 at the completion of Craig Lobb's term on July 1, 1986, was distributed and approved as presented.

Awards Committee Report

Chairman Bennie Rohr summarized previous activities of the Chapter Awards Committee and requested that we recognize deserving individuals more often in the future. He proceeded the read letters of recognition by Joseph Benigno for Ren R. Lohoeferer (NMFS) and Dr. Tom McIlwain for J. Y. Christmas. A motion to accept the report passed unanimously.

Resolutions Committee Report

Chairman Jess Muncy reported that the committee did not receive any resolutions for consideration prior to the meeting. John Baker added that a letter stating an official position on the MDWC Wildlife Director was drafted by Executive Committee (Tom Wellborn and Tim Cross abstaining) with the guidance of several chapter members. This letter was forwarded to the Governor, Lt. Governor, and the MDWC Commission Chairman.

Local Arrangements Committee

Co-Chairmen Luther Knight and Craig Busack were acknowledged for their fine job in providing a setting for the 1987 annual meeting. A deserving round of applause was given for their efforts.

Publications Committee

Chairman David Franks distributed copies of the proceedings of the 1986 meeting. He also mentioned that the proceedings of the 1985 and 1987 meetings are being finalized and will be available at the 1988 meeting.

Nominations Committee

Chairman Luther Knight stated that he along with committee members Fred Nazary and Steve Ross selected the following slate of officers:

President Elect - Bennie Rohr, Craig Busack
Secretary/Treasurer - Scott Knight, Garry Lucas

Elected officers to take term July 1, 1987 are Bennie Rohr, President-Elect and Scott Knight, Secretary/Treasurer.

Additional Items of Old Business

John Burris called attention to our heritage stating that the chapter has been in existence for 12 years and remains a strong unit.

New Business

Item 1

Jess Muncy called for discussion on the Chapter resolution restricting grass carp in the State of Mississippi. Harry Barkley read the 1978 resolution restricting usage of grass carp and gave the background of its origin. Luther Knight cautioned the membership on the consequences of any action and stated that the current existence of grass carp cannot be denied. Discussion followed and a motion to have the President select a committee to draft a position paper was made by Luther Knight. The Motion carried 19 to 5 with 2 members abstaining.

Item 2

President Baker opened for discussion the issue of the selection process for the Executive Director of the Mississippi Department of Wildlife Conservation. He then read a letter of reply from Joseph Gex, then chairman of the 5-man Commission on Wildlife Conservation, which appoints the Executive Director. President Baker stated that some other professional societies concerned with the management of natural resources have gone on record in opposition to the Commission's selection. It was then moved that the chapter go on record as opposing the manner in which the selection of the Executive Director was made. President Baker suggested a committee be formed to draft a position letter stating the Chapters opposition. The vote was 16 in favor 0 against. It was requested that the record show that 10 members abstained.

Item 3

President Baker moved that Section 4 of the Chapter bylaws be changed as suggested by the Chapter Executive Committee to read:

Section 4 - Officers

The officers of the Chapter shall consist of a President, President-elect, Secretary Treasurer.

A nominating committee shall nominate at least two candidates for each elective office and shall report to the President prior to the annual meeting. Nominations from the floor shall be permitted. In the event that more than two candidates are nominated for any office, a plurality will elect. Elections will be by balloting during the annual meeting.

In the event of a cancellation of an annual meeting the officers and the members of any committees shall continue to serve until the next scheduled meeting.

After some discussion from the floor concerning the difficulties of nominations and balloting by mail the motion carried unanimously.

Item 4

The committee appointed by President Baker to write a position paper on the grass carp issue presented the following resolution:

Where as, research data is available at this time on the biology and effect upon aquatic ecosystems of the grass carp (Ctenopharyngodon idella), and

Where as, we recognize that there is no legislation regulating the stocking of grass carp in Mississippi,

Where as, we recognize that grass carp are readily available for purchase and are in use by the general public,

Now, therefore, be it resolved that the Mississippi Chapter of the American Fisheries Society, assembled in regular Annual meeting at the University of Mississippi, This 5th day of February 1987, does here with urge all Municipal, City, County, State and Federal Agencies and individuals to refrain from stocking any form of grass carp capable of reproduction in Mississippi waters (specifically diploid fish). We further encourage consultation with an appropriate regulating agency before stocking to avoid potential adverse impacts.

Be it further resolved that we support the establishment of

regulations permitting only the use of sterile grass carp in Mississippi.

Adopted by the Mississippi Chapter, AFS in regular meeting on Thursday, 5 February 1987.

After some discussion from the floor the resolution was accepted with one negative vote.

Item 5

Bennie Rohr announced the death of Mrs. Beatrice Fontain (NMFS Seafood Consumer Specialist) and commented on her valuable contributions in devising uses for less commonly known fish. Bennie also recognized the retirement of Ed Smith and his valuable contributions in utilization of underutilized fish species. A motion was made to have the Chapter write appropriate letters.

Item 6

Harry Barkley stated that the USFWS Farm Pond Fish Stocking program has been discontinued.

Item 7

An Invitation extended by Jim Pennington to host the 1988 meeting at the Waterways Experiment Station in Vicksburg was accepted by the membership. Bennie Rohr offered the possibility of a 1989 meeting at the NMFS Lab in Pascagoula. The 1988 meeting was tentatively scheduled for 4-5 February 1988.

Item 8

President Baker thanked the chairmen and members of all other standing committees for an excellent job. He also particularly thanked the two ad hoc committees for their work on the grass carp and Executive Director position statements.

There being no further business the meeting was adjourned at 12:15 PM. A paper session followed in which 9 excellent papers were presented.

Mini-Symposium on Mississippi Fisheries
in Conjunction with the
1988 Annual Meeting of the Mississippi Chapter,
American Fisheries Society
Thursday Afternoon - February 4th, 1988 Ecology Laboratory,
United States Corps of Army Engineers
Waterways Experiment Station (WES), Vicksburg, Miss.

Program Chairman, Mr. Bennie A. Rohr
President-Elect Mississippi Chapter,
American Fisheries Society 1988

The Status and Trends in Mississippi Fisheries for Marine,
Estuarine and Freshwater Aquatic Resources

1:00 pm Welcome and Overview - Background for the MCAFS 1988
Mini-Symposium on Mississippi Fisheries

Program Announcements - Registration Arrangements

Bennie A. Rohr, Fisheries Biologist, NOAA, National Marine
Fisheries Service (NMFS), Mississippi Laboratories, Pascagoula
Laboratory, Pascagoula, Miss.

Mississippi's Recreational Fisheries

1:15 pm Mississippi's Striped Bass Restocking Program

Mr. Larry Nicholson, Gulf Coast Research Laboratory, Ocean
Springs, Miss.

1:30 pm Recreational Fishing and Boating on U.S. Army Corps of Engineers
Reservoirs in Mississippi

Ms. Julie Marcie, Vicksburg District, U.S. Corps of Army Engineers

1:45 pm Mississippi Angler Preferences, Seasonal Fishing Effort and Target
Species with Favorite Locations and Travel Habits

Dr. L. A. Miranda, Mississippi Cooperative Fish and Wildlife
Research Unit, Mississippi State University

2:00 pm Mississippi's Artificial Reef Program - Activity Report,
Mississippi Gulf Fishing Banks, Inc. Poster Presentation

Mr. John Cirino, Gulf Coast Research Laboratory, Ocean Springs,
Miss.

2:15 pm BREAK

Mississippi's Commercial Fisheries

2:25 pm Mississippi Marine Fisheries/Economics

Mr. Dave Burrage, Mississippi State Extension Service, MSU, Biloxi, Miss.

2:40 pm Seafood Inspection, Now and in the Future

Mr. Paul Comar, National Seafood Inspection Laboratory, NOAA, NMFS, Pascagoula, Miss.

2:55 pm Mississippi State University Coastal Aquaculture Unit - Current Status - Production of Red Drum, Prawns and Striped Bass Hybrids

Mr. Mike J. Murphy - MSU Coastal Aquaculture Unit, Gulfport, Miss.

3:10 pm The 1987 Mississippi Catfish Farming Industry

Mr. David Crosby, Area Extension Fisheries Specialist, Miss. Cooperative Extension Service, Stoneville, Miss.

To Be Announced - Poster Presentations on Sea Turtle Biology, TEDS - Technology Transfer NMFS, etc.

Current Mississippi Marine Recreational and Commercial Fisheries Monitoring - Mississippi Department of Wildlife Fisheries Bureau of Marine Fisheries, Long Beach, Miss.

3:25 pm BREAK

Fisheries Ecology

3:35 pm Increased Interest and Emphasis in Ecological Issues Relating to Mississippi's Aquatic Resources

Mr. John Baker, WES, Vicksburg, Miss.

3:50 pm To Be Announced - Use of Ecological Principles in Processing Petrochemical Refining Wastewater - Environmental Section - Chevron U.S.A. Pascagoula Refinery - Poster Presentation on Handling of Industrial Waste Water

General Discussion - Review of Friday Morning Meeting and Afternoon Paper Session MCAFS

4:25 pm Adjourn

1:00 pm 1988 MCAFS Fisheries Reports and Paper Session - Annual Paper
Presentation Competition - Ground Rules:

- 1) Abstracts Presented by January 15 to the Program Chairman
- 2) Full Text of Paper Due at Time of Presentation
- 3) Verbal and Audio - Visual Presentations not to Exceed 10 to 12
Min - Maximum Presentation Time Including Questions and
Answers Limit of 15 Min

1:05 pm First Section - Ecological Reports and Fisheries Survey Techniques

Abundance of Fishes in Submersed Aquatic Plants

Mr. K. Jack Killgore, WES

Environmental Study of a Man-Made Gravel Bar

Dr. Andrew C. Miller, and C. Rex Bingham, WES

Fish Stock Structure in the Lower Yalobusha River

Dr. Donald C. Jackson, Department Wildlife and Fisheries, MSU

Use of Hydroacoustics in Large River Systems

R. E. Coleman and R. L. Kasul, WES

Allochthonous and Autochthonous Organic Carbon Sources in Sardis
Reservoir, Miss.

Ms. Cindy L. Crist and Nicholas G. Aumen, University of Miss.

Gut Content Analysis of Grizzard Shad (Dorosoma cepedianum) in
Sardis Reservoir, Miss.

Ms. Dawn E. Miller and Nicholas G. Aumen, University of Miss.

2:25 pm BREAK

2:35 pm Second Section - Fisheries Angler Survey Techniques - Aquaculture
and Biological Studies

Can Fishery Workers Predict Angler Preferences?

Dr. L. E. Miranda, Miss. Coop. Fish and Wildlife Research Unit,
MSU

1988 Mississippi Chapter, American Fisheries Society

Annual Membership Meeting

United States Corps of Army Engineers Waterways Experiment Station,
Vicksburg, Mississippi
Friday, February 5, 1988

8:00 am Registration at the Ecology Laboratory WES

8:30 am Welcome to the U.S. Army Corps of Engineer Facilities at WES

John Baker, President of the Mississippi Chapter, American
Fisheries Society - 1987-88

Recognition of Special Guest Speaker and Presentation of 1987
MCAFS Publication and Research Award:

Dr. Ren R. Lohofener, Ecologist, NOAA, National Marine Fisheries
Service, Mississippi Laboratories, Pascagoula Laboratory,
Pascagoula, Miss.

8:50 am Recent Population Estimates for Mississippi Sound Bottlenosed
Dolphins via Random Small Boat Based Line Transects and Aerial
Survey Estimates of the Gulf of Mexico Red Drum Stock by Dr.
Lohofener

9:25 am BREAK

9:35 am General Business Session - MCAFS

President's Report - Mr. John Baker

Secretary's and Treasurer's Reports - Mr. Scott Knight

Approval of 1987 MCAFS Business Meeting - Minutes
Reports:

Awards Committee - Dr. Luther Ynight

Resolutions Committee - Mr. Garry Lucas

Publications Committee - Mr. David Franks

Nominations Committee - Mr. K. Jack Killgore

Election of 1988-89 Officers

Old and New Business Items

11:45 am Adjourn for Lunch (catered barbecue available)

Temporal Spawning Order in Length-Segregated Largemouth Bass

Mr. Forrest Wynne and L. E. Miranda, Miss. Coop. Fish and Wildlife Research Unit, MSU

Zooplankton Production and Pond Fertilization for Largemouth Bass Fingerling Production in Colorado

Ms. Constance H. Young, Colorado State University

Growth and Survival of Striped Bass (Morone saxatilis) and White Bass (M. chrysops) Hybrid Fingerlings in Mississippi

Dr. H. Randall Robinette, C. Young and J. H. Tidwell, MSU

Effect of Artificial Feed Upon Hybrid Striped Bass Fry Survival and Growth

Mr. Joseph E. Morris, Miss. State University

Induction of Triploidy in White Crappie (Pomoxis annularis) by Temperature Shock

Mr. Nathan W. Baldwin, C. A. Busack and K. D. Meals, University of Miss. and Department of Wildlife Conservation

Walleye Spawning, Movements and Habitat Usage in Tombigbee River Drainages

Mr. Roger Kingery, MSU

4:00 pm BREAK (May be advanced to 3:30pm)

Closing Session and Report of Elections Committee

4:10 pm Monitoring and Assessment of Mississippi Artificial Reef Materials

Mr. Ronald R. Lukens, Gulf States Marine Fisheries Commission, Ocean Springs, Miss.

4:25 pm Potential Solution to Disorientation of Hatching Sea Turtles by Beach Lighting

Mr. David A. Nelson and Ms. Dena D. Dickerson, WES

4:40 pm Report of the Elections Committee and Award of Fisheries Paper Competition Winner(s) and Adjourn

Minutes of the 1988 Meeting of the Mississippi Chapter
of the American Fisheries Society.

February 4, 1988

U. S. Army Engineers Waterways Experiment Station
Vicksburg, MS

The meeting was called to order at 9:45 AM by John Baker, President. Other officers in attendance were: Bennie Rohr, President-Elect and Scott Knight, Secretary-Treasurer. After opening remarks by President Baker, copies of the 1987 business meeting minutes were distributed to the membership. The minutes were approved unanimously as written by voice vote. The Treasurers report, indicating a current balance of approximately \$260.00, was also approved by the membership.

A call for all committee reports was made by President Baker.

Awards Committee Report

Awards for outstanding contributions to fisheries in the State of Mississippi were presented to Ren Lohofener and J. Y. Christmas by Bennie Rohr, Chairman of the 1987 Awards Committee, as approved at the 1987 meeting of the Mississippi Chapter. On behalf of Luther Knight, Chairman of the 1988 Awards Committee, Scott Knight presented Tom Welborn and Jack Herring awards for outstanding contributions to fisheries in the State of Mississippi for the 1988.

Resolutions Committee Report

Chairman Garry Lucas presented information on the Upper Yazoo Basin Flood Control Project and suggested that the Chapter consider a position statement in the form of a resolution opposing the project. Jack Herring discussed some of the possible detrimental impacts such a project would have on the State and urged the Chapter to act as swiftly as possible. Mr. Herring further suggested that, after gathering additional information, a suitable resolution could be written and then voted on by ballot rather than wait for the 1989 meeting. A motion was made that the Resolutions Committee write this resolution and mail out ballots along with information both on the pros and cons of the issue. The motion was passed unanimously.

Publications Committee Report

David Franks, chairman of the Publications Committee, announced that copies of the proceedings of the 1985 and 1986 meeting were available. He also mentioned that copies of all the proceedings had been kept but that the numbers of some of the copies available were extremely limited. He was asked if the Chapter should continue to publish papers or just abstracts since there seemed to be less interest in publishing papers in our annual proceedings. He reported that he had just received

papers to be published at this meeting, and that although fewer papers were submitted some years than others, there was still interest in publishing papers.

Nominations Committee Report

Chairman Jack Kilgore, reported the efforts of the Nominations Committee, and following some introductory remarks, called for nominations from the floor. A vote by ballot was made after nominations from the floor were closed. Gary Lucas was elected Secretary-Treasurer and Don Jackson, President-Elect.

Old Business

A call was made for old business. There was none.

New Business

A call for new business produced the following items:

Item 1

Don Jackson suggested getting our mailings out earlier, perhaps the first week in January. It was further suggested that a self addressed stamped postcard be included with the submittal of all abstracts in order to facilitate notification of acceptance for presentation.

Item 2

A letter from Carl Sullivan, Executive Director of the American Fisheries Society was read; requesting money for lobbying efforts toward the implementation of a federal fisheries reorganization plan. This plan would reorganize all federal agencies that deal with fisheries so that only one or at least fewer agencies would be responsible for fisheries on a national level. A motion was made that the Chapter donate \$50.00 to the parent society for lobbying efforts from our treasury and that the Chapter call for donations from the membership. The motion carried unanimously. A second motion was made that we include with the donation a request for further information on the issue of reorganization and a time schedule for action. This motion also passed.

Item 3

The American Fisheries Society also requested help in acquiring items to be raffled at the annual meeting of the Society. After several suggestions of items had been made, John Cirino was asked to investigate the possibility of getting a fishing boat trip donated by one of the charter boat companies located on the gulf coast.

Item 4

Ron Garavelli informed the membership of new laws requiring permits for the raising of striped bass hybrids and all exotic fishes.

Item 5

Keith Meals stressed the need for updating our mailing list.

Item 6

An invitation extended by Jack Herring to host the 1989 meeting at the Mississippi Museum of Natural Science was accepted by the membership.

Item 7

President Baker thanked the committee chairmen and members for their excellent work.

There being no further business; the meeting was adjourned at 11:25 AM.

ANNUAL MEETING OF THE MISSISSIPPI CHAPTER
OF THE

AMERICAN FISHERIES SOCIETY

MARCH 2 & 3, 1989

at the

Mississippi Museum of Natural Sciences

Jackson, Mississippi

AGENDA

THURSDAY - March 2, 1989

10:00-12:30 Registration

12:30 Call to Order and Welcome

12:45 MINI SYMPOSIUM ON THE FISHERIES AND ENVIRONMENT OF THE LOWER MISSISSIPPI RIVER

12:45 Ms. Olita Fitzgerald,
"Lower Mississippi River Development Act"

1:15 Dr. Jim Pennington. "Fishes of Main Stem Habitat of the Lower Mississippi River"

1:45 Break

2:00 Mr. Tom Holland and Steven Cobb:
"Standing Crops and Species Composition of Fishes in Lower
Mississippi River Channel and Flood Plain Habitats."

2:30 Dr. Michael Robinson: "The Mississippi River Commission: An American Epic."

3:00 Break

3:15 Mr. Rex Bingham, Andrew C. Miller, Barry S. Payne and Stephen Cobb :
"Macroinvertebrates of the Lower Mississippi River "

3:45 Dr. Richard Mochow: "Habitat Concerns on the Lower Mississippi River"

4:15 Mr. Garry Lucas and Willie H. Tomlinson:
"Fish Harvest from Lakes Along the Mississippi River."

4:30 Ms. Gail Carmody: (Paper Read By Title)
"Upper Mississippi River Conservation Committee"

4:30 Panel Discussion

(Continued)

AGENDA (Continued)

FRIDAY - March 3, 1989

7:30-8:30 Registration

8:30 CALL TO ORDER AND WELCOME - OPENING REMARKS

Bennie Rohr, President, Ms. Chap. AFS

9:00 MITIGATION FOR THE UPPER YAZOO BASIN PROJECT

Mr. Robert Barkley U.S. Fish and Wildlife Service, Vicksburg

9:30 TOUR OF THE MUSEUM AQUARIUMS

10:00 BUSINESS MEETING

12:00 Lunch

1:00 TECHNICAL SESSION

Aquaculture

1:00 "Comparison of Brackish and Freshwater Production of Hybrid Striped Bass Fingerlings."

H.R. Robinette, C.H. Young, M. Murphy Miss. State Univ.

1:15 "Preliminary Results-Effects of Stocking Density on Growth and Survival of Red Drum."

Michael Murphy, Coastal Aquaculture Unit, Miss. State Univ.;

H. Randall Robinette, Miss. State Univ.

Fish Diseases

1:30 "Gill Hyperplasia in Golden Shiners (Notemigonus crysoleucas) Associated with Concurrent Mexobolus and Ichthyophonus Infections."

Chris Wilson, and A. Thiagarajah, College of Veterinary Medicine,
Miss. State Univ.

1:45 "Lesions observed in Cultured Redfish (Sebastes marinus).

Arunthavarani Thiagarajah, College of Veterinary Medicine, MSU

2:00 Break

Fisheries Management

2:15 "Abundance of Age-0 Fish of Selected Species in Various Littoral Habitats of Flood Control Reservoirs of Mississippi"

Keith Meals, Miss. Dept. of Wildlife Conservation;

L. E. Miranda, Miss. Coop. Fish and Wildlife Research Unit.

2:30 "Sampling of White Crappie Populations with Trap Nets in Mississippi Lakes and Reservoirs"

Mark Schoor and L. Esteban Miranda, Miss. Coop. Fish and Wildl. Res. Unit

2:45 "Flathead Catfish Resource in the Upper Noxubee River"

Enrique Pugibet and Donald C. Jackson, Miss. State Univ

AGENDA (Continued)

FRIDAY - March 3, 1989

3:00 "Fisheries Resource Utilization and Angler Characteristics in Tailwater Reaches
Below Aberdeen and Columbus Dams"

Josephus R. Dillard and Donald C. Jackson, Miss. State Univ.

3:15 Break

3:30 "Utilization of Available Carbon by Gizzard Shad in Sardis Reservoir"

Dawn E. Miller and Nicholas Aumen, Freshwater Biology Research Program, Univ. o

Environmental Aspects

3:45 "Sources, Weathering and Effects of Oil in Aquatic Environments"

Dennis K. Riecke, Miss. Dept. Wildlife Conservation

4:00 "Recent Findings on the Use of Long Wavelength Lights to Prevent Disorientation
in Hatchling Sea Turtles"

Dena D. Dickerson and David A. Nelson, U.S. Army Corps of Engineers, Water-
ways Exp. Sta.

4:15 Adjourn

POSTERS

"Mississippi's New Boat For Habitat Development"

Henry Folmar, Ms. Dept. Wildlife Conservation

Dale Gordon, Mississippi Bass Federation

Garry Lucas, Ms. Dept. Wildlife Conservation

