

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

MINUTES

FEBRUARY 3, 2000th

THOMAS M. GATTLE, JR.
CHAIRMAN

BATON ROUGE, LOUISIANA

The following constitute minutes of the Commission Meeting
and are not a verbatim transcript of the proceedings.

Tapes of the meetings are kept at the
Louisiana Department of Wildlife and Fisheries
2000 Quail Drive

Baton Rouge, Louisiana 70808

For more information, call (225) 765-2806

AGENDA
LOUISIANA WILDLIFE AND FISHERIES COMMISSION
BATON ROUGE, LOUISIANA
FEBRUARY 3, 2000

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MINUTES OF THE MEETING

OF

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

Thursday, February 3, 2000

Chairman Tom Gattle presiding.

Bill Busbice
Glynn Carver
Warren Delacroix
Tom Kelly
Norman McCall
Jerry Stone

Secretary James Jenkins, Jr. was also present.

Chairman Gattle called for a motion for approval of the **January 6, 2000 Commission Minutes**. A motion for approval was made by Commissioner Kelly and seconded by Commissioner Stone. The motion passed with no opposition.

Consideration of Offshore Shrimp Closure was handled by Mr. Mark Schexnayder. This item would close the territorial waters of Vermilion Bay to shrimping as done in previous years. This year's closure will extend from Freshwater Bayou east to the Houma Navigation Canal. There are good numbers of small shrimp below the 100 count in the Atchafalaya River area. The area from Freshwater Bayou to the Atchafalaya River will close and will remain closed until the brown shrimp season begins. But it is requested the area from the Atchafalaya River to the Houma Navigation Canal be reopened on April 17, 2000. Commissioner Busbice asked what does 20 degrees Centigrade equal to on the Fahrenheit scale? Mr. Schexnayder answered 68.8 degrees. Then Mr. Schexnayder asked the Commission to give the Secretary to reopen the areas if necessary; to close additional areas if problems develop; and to allow the Secretary authority to open a special white shrimp season inshore before the season opens. Commissioner Delacroix asked, on a Declaration of Emergency, how long does it take before it goes into effect? He was answered, 72 hours. Chairman Gattle then asked Mr. Schexnayder to read the Therefore Be It Resolved portion of the Resolution. Commissioner McCall made a motion to accept the

Resolution and it was seconded by Commissioner Kelly. The motion passed with no opposition.

(The full text of the Resolution and Declaration of Emergency is made a part of the record.)

RESOLUTION

2000 Offshore Shrimp Season Closure
adopted by the
Louisiana Wildlife and Fisheries Commission

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Commission, and

WHEREAS, R.S. 56:497 provides the Commission shall have the authority to set special seasons for all or part of the state waters, and

WHEREAS, R.S. 56:498 provides the minimum legal count on white shrimp is 100 (whole shrimp) count per pound, except during the time period from October fifteenth through the third Monday in December when there shall be no count, and

WHEREAS, in the State's Territorial Waters, water temperatures are below 20 degrees Centigrade and the growth rate of white shrimp is therefore slow, and

WHEREAS, current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in a portion of the State's Territorial Waters do not average 100 count minimum size and are present in significant numbers, now

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigation Canal Channel as delineated by the Channel Buoy line to the eastern shore of Freshwater Bayou, at 6 a.m. on Monday, February 7, 2000.

BE IT FURTHER RESOLVED, that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy line to the Houma Navigation Canal Channel as delineated by the Channel Buoy line shall reopen to shrimping at 6 a.m. on Monday, April 17, 2000.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to open and close special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing the State's Territorial Waters is attached to and made a part of this resolution.

Thomas M. Gattle, Jr., Chairman
Wildlife and Fisheries
Commission

James H. Jenkins, Jr., Secretary
Department of Wildlife and
Fisheries

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of R.S. 49:953(B) and R.S. 49:967 of the Administrative Procedure Act which allows the Wildlife and Fisheries Commission to use emergency procedures to set shrimp seasons, and R.S. 56:497 which provides that the Wildlife and Fisheries Commission shall have the authority to open or close the State's offshore waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that

portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigational Canal Channel delineated by the Channel Buoy line to the eastern shore of Freshwater Bayou. This closure is effective at 6 a.m., Monday, February 7, 2000. The Commission also hereby orders that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigation Canal Channel as designated by the Channel Buoy line to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy Line, shall reopen to shrimping at 6 a.m., on Monday, April 17, 2000.

R.S. 56:498 provides that the minimum legal count on white shrimp is 100 (whole shrimp) count per pound after the third Monday in December. Current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in this portion of the State's outside waters do not average 100 count minimum legal size and are present in significant numbers. This action is being taken to protect these small white shrimp and allow them the opportunity to grow to a more valuable size.

The Wildlife and Fisheries Commission authorizes the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary; and hereby authorizes the Secretary of the Department of Wildlife and Fisheries to open and close special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

Thomas M. Gattle, Jr.
Chairman

Mr. Joey Shepard handled the next agenda item, **Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead**. Act 1316 from the 1995 Legislature requires the Commission to make an annual peer review report to the Legislature on the four listed species no later than March 1. These reports should contain biological condition, profile and stock assessments. There was no additional information to add to the biological profiles last year, so they would be the same as last year. There have been no substantive changes in the method used from 1999 to

2000. The results of the striped mullet assessment using a natural mortality rate of $M=0.3$ (which is the most conservative estimate of M that can be used), gives a yield of 96-99 percent of the maximum. The spawning potential ratio (SPR) when $M=0.3$ is 31-36 percent. If you use a $M=0.6$, yield would be 74-83 percent and the SPR would be 63-69 percent. Chairman Gattle asked Mr. Shepard to explain the Legislature's target for a SPR to equal 30 percent? Mr. Shepard explained the SPR is the proportion of the spawning biomass that can be harvested without affecting recruitment. The SPR is used as a threshold level where you can not go below without having recruitment problems. Chairman Gattle asked if the fishery was being managed at a 30 percent threshold? Mr. Shepard stated yes and if that SPR falls below 30 percent, by law the Secretary has to take some action to close the fishery.

Mr. Shepard then moved on to the southern flounder. He stated there was a significant improvement to the assessment from last year. The results of the assessment are: if the natural mortality rate is 0.5, yield would be 90-92 percent of the maximum and SPR would be 27-30 percent. If however, $M=0.8$, then yield would be 52-57 percent and SPR would equal 51-56 percent. Chairman Gattle asked if a change in the flounder regulations from Act 220 would likely increase in the commercial harvest? Mr. Shepard stated the legislature changed the regulations so fishermen can retain their by-catch of southern flounder. He added this change has the potential of increasing the fishing mortality rate. Chairman Gattle asked if the most conservative estimate of 27.7 percent would go down with this change? Mr. Shepard stated there was no way to tell yet. Commissioner Stone asked if this was basically an unlimited catch for the shrimper and then asked if there was any impact from the inshore skimmers on the flounder? Mr. Shepard stated landings would probably go up; but if it will affect fishing mortality rate, he could not say. Commissioner Stone asked if the Department expected to get some heat from recreational fishermen since they have a cap on catching flounder whereas the commercial fishermen do not? Chairman Gattle asked if a commercial fisherman is catching flounder, he has a limit, but a shrimper who catches flounder as a by-catch, there is no limit? Mr. Shepard answered yes. Commissioner Busbice asked if the commercial harvest was at its lowest record due to the change in regulations? Mr. Shepard added that it takes several years before determining an actual impact from a regulation.

There were no substantive changes to the methods used in assessing the black drum. The results of the black drum using a

M=0.1, yield would be around 92 percent and SPR would be approximately 42 percent. With a M=0.15 to 0.2, yield would be between 67 to 45 percent respectively, and SPR would be 56 to 67 percent.

Then on sheepshead, Mr. Shepard stated the information collected on sheepshead and southern flounder has given the staff the opportunity to improve on the assessments. For sheepshead, if M=0.2, then yield would be between 56 and 82 percent, and SPR would be between 45 to 66 percent. But with a M=0.3, yield would be 11 to 53 percent and SPR would be 64 to 92 percent. Commissioner Delacroix asked if the stock assessment was okay from a commercial harvest point? Mr. Shepard stated staff has reviewed comments from the peer review and incorporated the comments where possible. Commissioner Carver asked if the methods to get and obtain information are improving and noted there were tremendous variations in the mortality rates. Mr. Shepard stated there is on-going research on natural mortality and it has a big impact on the assessments. Mr. John Roussel stated the data and measurements that determines the impact of the fishery is improving with the trip ticket information. But, in fishery, the full range of possibilities of natural mortality are provided from which the estimates are made. Commissioner Carver asked Mr. Roussel if this was the best information that can be given based on the information they are able to obtain? Mr. Roussel stated this was the best information anybody can give based on what is available. He added the real determining factor of SPR was based on which "M" was picked. Commissioner Busbice asked Mr. Roussel if he felt good about the numbers that were used? Mr. Roussel answered yes. Chairman Gattle stated these assessments were a result of Act 1316 from the 1995 Legislature, and then asked if they were to go on every year? Mr. Roussel stated once the Commission approves the reports, they would be transmitted to the Legislature, and this will occur every year until the statute is changed. Then Chairman Gattle felt the numbers looked good and thought the populations were not in jeopardy. He asked if the Commission needed to take any action? Mr. Don Puckett stated in the past, the Commission has approved and adopted the reports and they become the official report of the Commission that is submitted to the Legislature. Chairman Gattle asked if there were any public comments.

Mr. Pete Gerica, representing the Louisiana Seafood Management Council and Lake Pontchartrain Fisherman's Association, stated most of the incidental flounder catch taken from a trawl will die and that the numbers will not change much. He then stated there is a

big problem with drum fish in the State especially oyster predation. Mr. Gerica asked that the Commission recommend a change in allowing the use of nets to remove the sheepshead and drum in freshwater areas. He also suggested recommending a trammel net fishery in saltwater areas over certain oyster leases. Chairman Gattle stated the Commission would take Mr. Gerica's requests under advisement.

Hearing no further comments, Chairman Gattle asked for a motion to approve the assessments as presented. Commissioner Kelly made a motion and it was seconded by Commissioner Stone. The motion passed with no opposition.

A Notice of Intent - Designation of Additional Public Oyster Seed Grounds was handled by Mr. Ron Dugas. Mr. Dugas began explaining that in 1902, the Legislature created a governing body over the oyster program. Since that time, Louisiana's coastal area has been divided into two designations - those areas for private leasing and those areas set aside as public oyster seed grounds. A map was shown that denoted approximately 2 million acres set aside as oyster seed grounds. There are an estimated 403,000 acres of leased areas which are located inside the public grounds. Mr. Dugas stated not all of the 2 million acres are in production at any one time. The area from the Mississippi River to the Atchafalaya River only has about 14,000 acres of public oyster seed grounds. The harvesters and the general public have requested adding more acreage into that area. The six areas proposed would add another 4,000 acres. The Oyster Task Force was "cool on the idea", stated Mr. Dugas. Commissioner McCall asked if there were any seed grounds west of Vermilion Bay? Mr. Dugas answered no, because there is no leasing in that area. Commissioner McCall asked Mr. Dugas to explain why there is no leasing in Calcasieu Lake. Chairman Gattle asked if Calcasieu Lake was under the jurisdiction of the Department? Mr. Dugas stated all state-owned waterbottoms are under the jurisdiction of the Department and Commission, and the statutes puts different management schemes with certain waterbodies. Commissioner Busbice asked why is the price of oysters low? Mr. Dugas stated production is high with 2.5 million sacks taken per year, but the consumers are just not buying them. Then Commissioner Busbice asked if the drum fishery was having an effect on the oysters? Mr. Dugas answered there is a problem, and LSU was conducting research trying to find a repellent. Lastly, Commissioner Busbice asked Mr. Dugas if he has heard from the Oyster Task Force? Mr. Dugas stated they would be coming to the next meeting. Commissioner McCall asked how does the

harvest in Calcasieu Lake look this year as compared to last year? Mr. Dugas stated a big problem has been the extreme drought, and if there is no fresh water soon, the oysters will be in trouble. Chairman Gattle asked what is the current rate for a leased oyster area? Mr. Dugas stated in 1902 the fee was \$1 per year, then in 1989 it was changed to \$2 per acre per year, and now it is fixed by statute. Commissioner Stone asked how close does the \$2 figure come to cost effective management? Hearing no further questions or comments, Chairman Gattle asked Mr. Dugas to read the Therefore Be It Resolved portion of the Resolution. Commissioner McCall made a motion accepting the Resolution. Commissioner Kelly seconded the motion and it passed with no opposition.

(The full text of the Resolution and Declaration of Emergency is made a part of the record.)

RESOLUTION

CREATION OF ADDITIONAL OYSTER SEED GROUNDS
adopted by the
Louisiana Wildlife and Fisheries Commission
February 3, 2000

- WHEREAS,** R.S. 56:434(A) states "The commission shall at its discretion from time to time designate and set aside such area from the waterbottoms of the state as it judges best adapted to the planting, propagation, growth, and policing of seed oysters. The area constitutes oyster seed grounds.", and
- WHEREAS,** oyster seed grounds, from which an oyster lessee may take small oysters for transport to his own leases, are an important component of Louisiana's oyster industry, and
- WHEREAS,** as much as 80% of Louisiana's oyster production between the Mississippi River and Atchafalaya River is dependent on seed oysters taken from the oyster seed grounds, and
- WHEREAS,** because of the small acreage of oyster seed grounds available west of the Mississippi River, oyster lessees must often travel to the oyster seed grounds east of the Mississippi River to obtain oyster seed, and

WHEREAS, changing coastal salinity regimes may necessitate the creation of additional oyster seed grounds to ensure a sufficient supply of seed in the future,

THEREFORE BE IT RESOLVED, that the Louisiana Wildlife and Fisheries Commission's notice of intent to create additional oyster seed grounds from portions of the state waterbottoms west of the Mississippi River is attached to and made a part of this resolution, and

BE IT FURTHER RESOLVED, that the Secretary is instructed to continue to accept applications for new leases within those areas presently available, but is not to issue leases within any locations which the Commission has defined in the attached Notice of Intent for possible inclusion into an oyster seed ground, and

BE IT FURTHER RESOLVED, that when the Final Rule is promulgated the Secretary will cancel all applications or portions of applications which include public oyster waters within the designated oyster seed grounds, and

BE IT FURTHER RESOLVED, that once the rule for the new oyster seed grounds is promulgated, all available state waterbottoms within the Lake Mechant area which were previously closed to leasing and which have not been designated oyster seed grounds, shall be available for leasing at a time and place to be announced at a future date, and

BE IT FURTHER RESOLVED, that the Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies in government.

Thomas M. Gattle, Jr., Chairman
Wildlife and Fisheries
Commission

James H. Jenkins, Jr., Secretary
Department of Wildlife and
Fisheries

NOTICE OF INTENT

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

The Wildlife and Fisheries Commission does hereby give notice of its intent to set aside additional areas in portions of Lake Mechant, Lake Tambour, Lake Chien, Lake Felicity, all in Terrebonne Parish, Deep Lake, Lafourche Parish, and Barataria Bay (next to Queen Bess Island), Jefferson Parish as public oyster seed grounds. This is being done under the authority of R.S. 56:434.

Title 76

WILDLIFE AND FISHERIES

Part VII. Fish and Other Aquatic Life

Chapter 5. Oyster

§517. Public Oyster Seed Grounds - Portions of Lake Mechant, Lake Tambour, Lake Chien, Lake Felicity, Deep Lake, and Barataria Bay

The following areas are designated as oyster seed grounds:

1. Lake Mechant, Terrebonne Parish: The state waterbottoms within a six (6) sided figure with the following corners:

29° 19' 45.36273" N	90° 58' 19.84034" W
29° 18' 52.50955" N	90° 57' 32.90680" W
29° 18' 41.04086" N	90° 55' 58.95532" W
29° 16' 47.29750" N	90° 56' 44.37133" W
29° 18' 33.55333" N	90° 57' 37.82946" W
29° 18' 46.69380" N	90° 59' 21.09926" W

2. Lake Tambour, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 30.73200" N	90° 31' 09.14598" W
29° 19' 51.16104" N	90° 29' 28.99726" W
29° 19' 59.29224" N	90° 29' 26.60078" W
29° 19' 50.06346" N	90° 30' 49.92953" W

3. Lake Chien, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 32.76107" N	90° 27' 00.06196" W
29° 19' 52.97766" N	90° 27' 17.37544" W
29° 19' 48.08926" N	90° 26' 08.51018" W
29° 20' 17.07711" N	90° 26' 01.32145" W

4. Lake Felicity, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 19' 04.72932" N	90° 26' 58.50922" W
29° 18' 01.44630" N	90° 27' 47.32882" W
29° 18' 24.61153" N	90° 24' 04.57895" W
29° 19' 11.54946" N	90° 25' 19.67927" W

5. Deep Lake, Lafourche Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 17' 59.74050" N	90° 21' 25.89465" W
29° 17' 18.88030" N	90° 21' 24.62348" W
29° 17' 17.26209" N	90° 21' 03.04101" W
29° 18' 17.57225" N	90° 21' 01.40994" W

6. Barataria Bay, Jefferson Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 13.14881" N	89° 56' 51.91540" W
29° 14' 47.14426" N	89° 56' 59.91355" W
29° 20' 12.06107" N	89° 56' 19.01249" W
29° 17' 46.05927" N	89° 56' 23.01176" W

AUTHORITY NOTE: Promulgated in accordance with R.S. 56:434.

HISTORICAL NOTE: Promulgated by the Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 26: .

The Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of

intent and final rule and the preparation of reports and correspondence to other agencies of government.

Interested persons may submit written comments relative to the proposed rule until 4:30 p.m., May 5, 2000 to Mr. Ron Dugas, Department of Wildlife and Fisheries, 1600 Canal St., Ste. 306, New Orleans, Louisiana 70112.

In accordance with Act #1183 of 1999, the Department of Wildlife and Fisheries/Wildlife and Fisheries Commission hereby issues its Family Impact Statement in connection with the preceding Notice of Intent: This Notice of Intent will have no impact on the six criteria set out at R.S. 49:972(B).

Thomas M. Gattle, Jr.
Chairman

Chairman Gattle stated he asked for the next agenda item, a **Recap of Civil Restitution**. Ms. Wynnette Kees began stating she would give a summary of the statistical report included in the packets. Since 1993, 4,000 Civil Restitution cases have been entered on the computer for a value \$2.5 million in assessments. Payments and other adjustments have occurred on 3,000 cases for a total of \$900,000. This leaves a balance of \$1.6 million and 1,000 outstanding cases. Of the 1,000 outstanding cases, 46 cases are current, 134 cases are delinquent and 900 cases are considered uncollectible. These cases did not have due process and the Department is planning to write off the \$1 million for those 900 cases. Ms. Kees then explained how the revocation procedure for the program was being improved. If payment is not received, notification is given to the License Section and Enforcement Division and the citation is turned over to a Collection Attorney. The impact from the License Section is that person's name will be flagged and he will be unable to purchase a license. The Enforcement Division will have a list of all offenders whose license has been revoked. Other areas to improve the cost effectiveness of the program is to review the values and increase the hearing costs. Commissioner Busbice asked if the computer license system was 100 percent implemented? Ms. Kees stated the program is statewide, but the names are just now being entered into the system. Commissioner Stone asked if the fees would include court costs and a late penalty? Ms. Kees stated there is no late penalty, but there is a discount if paid early. Chairman Gattle asked if the Department is allowed to charge late fees? Mr. Puckett stated a judgement from the Division of Administrative Law

would bear legal interest, the same as in a civil suit. Chairman Gattle felt Point of Sale was a good resource manager and would help. Then he noted he was appreciative of the way the uncollectibles were being cleaned up. Commissioner Stone asked if an uncollectible violators name would be entered into the system? Chairman Gattle stated since the due process was not followed, legally the Department can not hold them accountable.

The **Monthly Law Enforcement Report for January** was given by Major Keith LaCaze. The following numbers of citations and warnings were issued during the month of January.

Region I - Minden - 72 citations and 13 warnings.

Region II - Monroe - 105 citations and 20 warnings.

Region III - Alexandria - 122 citations and 18 warnings.

Region IV - Ferriday - 159 citations and 2 warnings.

Region V - Lake Charles - 156 citations and 9 warnings.

Region VI - Opelousas - 175 citations and 7 warnings.

Region VII - Baton Rouge - 71 citations and 1 warning.

Region VIII - New Orleans - 143 citations and 26 warnings.

Region IX - Thibodaux - 185 citations and 22 warnings.

Oyster Strike Force - 22 citations.

Special Investigation Unit - 23 citations.

Statewide Strike Force - 15 citations and 5 warnings.

SWEP - 16 citations.

The grand total of citations issued statewide for the month of January was 1,407. Also there were 143 warning citations issued for the month.

The aviation report for January 2000 showed enforcement pilots flew three airplanes a total of 64.9 hours for enforcement and 40.8 hours for other divisions. Also there were 9 citations issued.

Commissioner McCall asked if the 25 hours running time for the boats was just one boat or two boats? Major LaCaze introduced Major Brian Spillman, supervisor of the SWEF section. Major Spillman stated the Riptide was down for several months for repowering, but is now up and working well. During this time, the Delta Tide was experiencing problems and now was on dry dock for repairs. Chairman Gattle asked for an explanation on "rallying migratory gamebirds".

Chairman Gattle then asked Mr. Steve Hebert for the **Division Report, Jackson-Bienville Habitat Project**. Jackson-Bienville Wildlife Management Area is roughly 32,000 acres that is free leased to the Department. Willamette Industries is the major land owner and manages the WMA for timber. Over the 40 years as a WMA, Jackson-Bienville has been used as a public hunting area and an experimental research area. The staff has managed the area by planting supplemental food plots, helping owners do control burns and regulating harvest. The Jackson-Bienville Wildlife Habitat program began about 3 years ago. A 21 acre spot where an Entergy powerline crossed the area had overgrown with woody vegetation which Willamette did not like the looks of and the Department did not like the habitat. The three companies got together with Turkey Federation funds and Quail Unlimited funds and stripped it down to the bare ground and planted productive wildlife foods. These 21 acres borders Highway 167 which leads into Ruston and during the course of the project, people were calling asking questions. Local individuals and businesses became interested in the project and became cooperators along with the three lead companies. Time, personnel and funding has been donated by the companies to help manage the wildlife resources on the WMA. Mr. Hebert felt this to be a win-win situation for the Department with wildlife habitat improving, the wildlife population improving and the Department's expense was only in the form of supervision. Barenbrug Seed Company has donated seed and planting expertise in order to try different plant types. American Cyanamid and Monsanto donated chemicals, personnel time and equipment which has enabled the Department to manage more habitat and change the vegetation on more acres with less expense. The Shreveport Chapter of Quail Unlimited donated \$5,000 each year for the last five years in an effort to further the quail population. The Turkey Federation donated funds to better the population and habitat management. Mr. Hebert stated the companies, besides being land stewards, like the publicity this program has caused. Mr. Prickett commended Mr. Hebert on this project. He then relayed a conversation he had with the head of Entergy for north Louisiana and how that company has benefitted

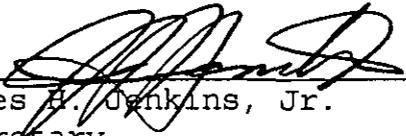
from this project. Mr. Prickett hoped to expand these type projects to other WMAs. Commissioner Carver felt this was an excellent program and was glad it may be expanded. He also stated this was what the Department needed, a good image. Commissioner Busbice asked if Luke Lewis with Willamette has been replaced? Mr. Hebert stated Willamette has hired someone, but his name has not been released yet. Commissioner Busbice asked if the Department was planting anything other than clover? Mr. Hebert answered no. Then Commissioner Busbice asked if there are any hog hunters that go onto Jackson-Bienville and are they allowed to chase with dogs? Mr. Hebert stated hog hunting on Jackson-Bienville and Bodcau WMAs has quite a following. Commissioner Busbice asked if the hogs were competing with deer for food sources? Mr. Hebert stated, if he had his choice, he would not have hogs on the WMA. Chairman Gattle asked if hogs are destructive? Mr. Hebert stated they can be destructive, but they were not destroying the area. Chairman Gattle agreed this was a good project.

Commissioner Carver asked about Point of Sale? Mrs. Janis Landry stated there are 751 vendors in operation with more vendors calling daily wanting to know how quickly they can get a machine. The program was going well and has been very positive. Chairman Gattle asked how long would it take to get a machine? Mrs. Landry stated it could be a week or longer.

The Commissioners agreed to hold the **June 2000 Meeting** on Thursday, June 1, 2000 beginning at 10:00 a.m. at the Baton Rouge Headquarters.

Chairman Gattle then asked if there were any **Public Comments** and none were heard.

There being no further business, Commissioner Busbice made a motion to **Adjourn** the meeting and it was seconded by Commissioner Kelly.



James H. Jenkins, Jr.
Secretary

JHJ:sch

MINUTES OF THE MEETING

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LOUISIANA WILDLIFE AND FISHERIES COMMISSION

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Secretary James Jenkins Jr was also present

Chairman Gattle called for a motion for approval of the **January 6 2000 Commission Minutes**. A motion for approval was made by Commissioner Kelly and seconded by Commissioner Stone. The motion passed with no opposition.

Consideration of Offshore Shrimp Closure was handled by Mr Mark Schexnayder. This item would close the territorial waters of Vermilion Bay to shrimping as done in previous years. This year's closure will extend from Freshwater Bayou east to the Houma Navigation Canal. There are good numbers of small shrimp below the 100 count in the Atchafalaya River area. The area from Freshwater Bayou to the Atchafalaya River will close and will remain closed until the brown shrimp season begins. But it is requested the area from the Atchafalaya River to the Houma Navigation Canal be reopened on April 17 2000. Commissioner Busbice asked what does 20 degrees Centigrade equal to on the Fahrenheit scale? Mr Schexnayder answered 68.8 degrees. Then Mr Schexnayder asked the Commission to give the Secretary to reopen the areas if necessary to close additional areas if problems develop and to allow the Secretary authority to open a special white shrimp season inshore before the season opens. Commissioner Delacroix asked on a Declaration of Emergency how long does it take before it goes into effect? He was answered 72 hours. Chairman Gattle then asked Mr Schexnayder to read the Therefore Be It Resolved portion of the Resolution. Commissioner McCall made a motion to accept the

Resolution and it was seconded by Commissioner Kelly. The motion passed with no opposition.

(The full text of the Resolution and Declaration of Emergency is made a part of the record.)

RESOLUTION

2000 Offshore Shrimp Season Closure
adopted by the
Louisiana Wildlife and Fisheries Commission

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Commission, and

WHEREAS, R.S. 56:497 provides the Commission shall have the authority to set special seasons for all or part of the state waters, and

WHEREAS, R.S. 56:498 provides the minimum legal count on white shrimp is 100 (whole shrimp) count per pound, except during the time period from October fifteenth through the third Monday in December when there shall be no count, and

WHEREAS, in the State's Territorial Waters, water temperatures are below 20 degrees Centigrade and the growth rate of white shrimp is therefore slow, and

WHEREAS, current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in a portion of the State's Territorial Waters do not average 100 count minimum size and are present in significant numbers, now

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigation Canal Channel as delineated by the Channel Buoy line to the eastern shore of Freshwater Bayou, at 6 a.m. on Monday, February 7, 2000.

BE IT FURTHER RESOLVED, that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy line to the Houma Navigation Canal Channel as delineated by the Channel Buoy line shall reopen to shrimping at 6 a.m. on Monday, April 17, 2000.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to open and close special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing the State's Territorial Waters is attached to and made a part of this resolution.

Thomas M. Gattle, Jr., Chairman
Wildlife and Fisheries
Commission

James H. Jenkins, Jr., Secretary
Department of Wildlife and
Fisheries

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of R.S. 49:953(B) and R.S. 49:967 of the Administrative Procedure Act which allows the Wildlife and Fisheries Commission to use emergency procedures to set shrimp seasons, and R.S. 56:497 which provides that the Wildlife and Fisheries Commission shall have the authority to open or close the State's offshore waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that

portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigational Canal Channel delineated by the Channel Buoy line to the eastern shore of Freshwater Bayou. This closure is effective at 6 a.m., Monday, February 7, 2000. The Commission also hereby orders that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigation Canal Channel as designated by the Channel Buoy line to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy Line, shall reopen to shrimping at 6 a.m., on Monday, April 17, 2000.

R.S. 56:498 provides that the minimum legal count on white shrimp is 100 (whole shrimp) count per pound after the third Monday in December. Current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in this portion of the State's outside waters do not average 100 count minimum legal size and are present in significant numbers. This action is being taken to protect these small white shrimp and allow them the opportunity to grow to a more valuable size.

The Wildlife and Fisheries Commission authorizes the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary; and hereby authorizes the Secretary of the Department of Wildlife and Fisheries to open and close special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

Thomas M. Gattle, Jr.
Chairman

Mr. Joey Shepard handled the next agenda item, **Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead.** Act 1316 from the 1995 Legislature requires the Commission to make an annual peer review report to the Legislature on the four listed species no later than March 1. These reports should contain biological condition, profile and stock assessments. There was no additional information to add to the biological profiles last year, so they would be the same as last year. There have been no substantive changes in the method used from 1999 to

2000. The results of the striped mullet assessment using a natural mortality rate of $M=0.3$ (which is the most conservative estimate of M that can be used), gives a yield of 96-99 percent of the maximum. The spawning potential ratio (SPR) when $M=0.3$ is 31-36 percent. If you use a $M=0.6$, yield would be 74-83 percent and the SPR would be 63-69 percent. Chairman Gattle asked Mr. Shepard to explain the Legislature's target for a SPR to equal 30 percent? Mr. Shepard explained the SPR is the proportion of the spawning biomass that can be harvested without affecting recruitment. The SPR is used as a threshold level where you can not go below without having recruitment problems. Chairman Gattle asked if the fishery was being managed at a 30 percent threshold? Mr. Shepard stated yes and if that SPR falls below 30 percent, by law the Secretary has to take some action to close the fishery.

Mr. Shepard then moved on to the southern flounder. He stated there was a significant improvement to the assessment from last year. The results of the assessment are: if the natural mortality rate is 0.5, yield would be 90-92 percent of the maximum and SPR would be 27-30 percent. If however, $M=0.8$, then yield would be 52-57 percent and SPR would equal 51-56 percent. Chairman Gattle asked if a change in the flounder regulations from Act 220 would likely increase in the commercial harvest? Mr. Shepard stated the legislature changed the regulations so fishermen can retain their by-catch of southern flounder. He added this change has the potential of increasing the fishing mortality rate. Chairman Gattle asked if the most conservative estimate of 27.7 percent would go down with this change? Mr. Shepard stated there was no way to tell yet. Commissioner Stone asked if this was basically an unlimited catch for the shrimper and then asked if there was any impact from the inshore skimmers on the flounder? Mr. Shepard stated landings would probably go up; but if it will affect fishing mortality rate, he could not say. Commissioner Stone asked if the Department expected to get some heat from recreational fishermen since they have a cap on catching flounder whereas the commercial fishermen do not? Chairman Gattle asked if a commercial fisherman is catching flounder, he has a limit, but a shrimper who catches flounder as a by-catch, there is no limit? Mr. Shepard answered yes. Commissioner Busbice asked if the commercial harvest was at its lowest record due to the change in regulations? Mr. Shepard added that it takes several years before determining an actual impact from a regulation.

There were no substantive changes to the methods used in assessing the black drum. The results of the black drum using a

M=0.1, yield would be around 92 percent and SPR would be approximately 42 percent. With a M=0.15 to 0.2, yield would be between 67 to 45 percent respectively, and SPR would be 56 to 67 percent.

Then on sheepshead, Mr. Shepard stated the information collected on sheepshead and southern flounder has given the staff the opportunity to improve on the assessments. For sheepshead, if M=0.2, then yield would be between 56 and 82 percent, and SPR would be between 45 to 66 percent. But with a M=0.3, yield would be 11 to 53 percent and SPR would be 64 to 92 percent. Commissioner Delacroix asked if the stock assessment was okay from a commercial harvest point? Mr. Shepard stated staff has reviewed comments from the peer review and incorporated the comments where possible. Commissioner Carver asked if the methods to get and obtain information are improving and noted there were tremendous variations in the mortality rates. Mr. Shepard stated there is on-going research on natural mortality and it has a big impact on the assessments. Mr. John Roussel stated the data and measurements that determines the impact of the fishery is improving with the trip ticket information. But, in fishery, the full range of possibilities of natural mortality are provided from which the estimates are made. Commissioner Carver asked Mr. Roussel if this was the best information that can be given based on the information they are able to obtain? Mr. Roussel stated this was the best information anybody can give based on what is available. He added the real determining factor of SPR was based on which "M" was picked. Commissioner Busbice asked Mr. Roussel if he felt good about the numbers that were used? Mr. Roussel answered yes. Chairman Gattle stated these assessments were a result of Act 1316 from the 1995 Legislature, and then asked if they were to go on every year? Mr. Roussel stated once the Commission approves the reports, they would be transmitted to the Legislature, and this will occur every year until the statute is changed. Then Chairman Gattle felt the numbers looked good and thought the populations were not in jeopardy. He asked if the Commission needed to take any action? Mr. Don Puckett stated in the past, the Commission has approved and adopted the reports and they become the official report of the Commission that is submitted to the Legislature. Chairman Gattle asked if there were any public comments.

Mr. Pete Gericca, representing the Louisiana Seafood Management Council and Lake Pontchartrain Fisherman's Association, stated most of the incidental flounder catch taken from a trawl will die and that the numbers will not change much. He then stated there is a

big problem with drum fish in the State especially oyster predation. Mr. Gerica asked that the Commission recommend a change in allowing the use of nets to remove the sheepshead and drum in freshwater areas. He also suggested recommending a trammel net fishery in saltwater areas over certain oyster leases. Chairman Gattle stated the Commission would take Mr. Gerica's requests under advisement.

Hearing no further comments, Chairman Gattle asked for a motion to approve the assessments as presented. Commissioner Kelly made a motion and it was seconded by Commissioner Stone. The motion passed with no opposition.

A Notice of Intent - Designation of Additional Public Oyster Seed Grounds was handled by Mr. Ron Dugas. Mr. Dugas began explaining that in 1902, the Legislature created a governing body over the oyster program. Since that time, Louisiana's coastal area has been divided into two designations - those areas for private leasing and those areas set aside as public oyster seed grounds. A map was shown that denoted approximately 2 million acres set aside as oyster seed grounds. There are an estimated 403,000 acres of leased areas which are located inside the public grounds. Mr. Dugas stated not all of the 2 million acres are in production at any one time. The area from the Mississippi River to the Atchafalaya River only has about 14,000 acres of public oyster seed grounds. The harvesters and the general public have requested adding more acreage into that area. The six areas proposed would add another 4,000 acres. The Oyster Task Force was "cool on the idea", stated Mr. Dugas. Commissioner McCall asked if there were any seed grounds west of Vermilion Bay? Mr. Dugas answered no, because there is no leasing in that area. Commissioner McCall asked Mr. Dugas to explain why there is no leasing in Calcasieu Lake. Chairman Gattle asked if Calcasieu Lake was under the jurisdiction of the Department? Mr. Dugas stated all state-owned waterbottoms are under the jurisdiction of the Department and Commission, and the statutes puts different management schemes with certain waterbodies. Commissioner Busbice asked why is the price of oysters low? Mr. Dugas stated production is high with 2.5 million sacks taken per year, but the consumers are just not buying them. Then Commissioner Busbice asked if the drum fishery was having an effect on the oysters? Mr. Dugas answered there is a problem, and LSU was conducting research trying to find a repellent. Lastly, Commissioner Busbice asked Mr. Dugas if he has heard from the Oyster Task Force? Mr. Dugas stated they would be coming to the next meeting. Commissioner McCall asked how does the

harvest in Calcasieu Lake look this year as compared to last year? Mr. Dugas stated a big problem has been the extreme drought, and if there is no fresh water soon, the oysters will be in trouble. Chairman Gattle asked what is the current rate for a leased oyster area? Mr. Dugas stated in 1902 the fee was \$1 per year, then in 1989 it was changed to \$2 per acre per year, and now it is fixed by statute. Commissioner Stone asked how close does the \$2 figure come to cost effective management? Hearing no further questions or comments, Chairman Gattle asked Mr. Dugas to read the Therefore Be It Resolved portion of the Resolution. Commissioner McCall made a motion accepting the Resolution. Commissioner Kelly seconded the motion and it passed with no opposition.

(The full text of the Resolution and Declaration of Emergency is made a part of the record.)

RESOLUTION

CREATION OF ADDITIONAL OYSTER SEED GROUNDS
adopted by the
Louisiana Wildlife and Fisheries Commission
February 3, 2000

- WHEREAS,** R.S. 56:434(A) states "The commission shall at its discretion from time to time designate and set aside such area from the waterbottoms of the state as it judges best adapted to the planting, propagation, growth, and policing of seed oysters. The area constitutes oyster seed grounds.", and
- WHEREAS,** oyster seed grounds, from which an oyster lessee may take small oysters for transport to his own leases, are an important component of Louisiana's oyster industry, and
- WHEREAS,** as much as 80% of Louisiana's oyster production between the Mississippi River and Atchafalaya River is dependent on seed oysters taken from the oyster seed grounds, and
- WHEREAS,** because of the small acreage of oyster seed grounds available west of the Mississippi River, oyster lessees must often travel to the oyster seed grounds east of the Mississippi River to obtain oyster seed, and

WHEREAS, changing coastal salinity regimes may necessitate the creation of additional oyster seed grounds to ensure a sufficient supply of seed in the future,

THEREFORE BE IT RESOLVED, that the Louisiana Wildlife and Fisheries Commission's notice of intent to create additional oyster seed grounds from portions of the state waterbottoms west of the Mississippi River is attached to and made a part of this resolution, and

BE IT FURTHER RESOLVED, that the Secretary is instructed to continue to accept applications for new leases within those areas presently available, but is not to issue leases within any locations which the Commission has defined in the attached Notice of Intent for possible inclusion into an oyster seed ground, and

BE IT FURTHER RESOLVED, that when the Final Rule is promulgated the Secretary will cancel all applications or portions of applications which include public oyster waters within the designated oyster seed grounds, and

BE IT FURTHER RESOLVED, that once the rule for the new oyster seed grounds is promulgated, all available state waterbottoms within the Lake Mechant area which were previously closed to leasing and which have not been designated oyster seed grounds, shall be available for leasing at a time and place to be announced at a future date, and

BE IT FURTHER RESOLVED, that the Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies in government.

Thomas M. Gattle, Jr., Chairman
Wildlife and Fisheries
Commission

James H. Jenkins, Jr., Secretary
Department of Wildlife and
Fisheries

NOTICE OF INTENT

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

The Wildlife and Fisheries Commission does hereby give notice of its intent to set aside additional areas in portions of Lake Mechant, Lake Tambour, Lake Chien, Lake Felicity, all in Terrebonne Parish, Deep Lake, Lafourche Parish, and Barataria Bay (next to Queen Bess Island), Jefferson Parish as public oyster seed grounds. This is being done under the authority of R.S. 56:434.

Title 76

WILDLIFE AND FISHERIES

Part VII. Fish and Other Aquatic Life

Chapter 5. Oyster

§517. Public Oyster Seed Grounds - Portions of Lake Mechant, Lake Tambour, Lake Chien, Lake Felicity, Deep Lake, and Barataria Bay

The following areas are designated as oyster seed grounds:

1. Lake Mechant, Terrebonne Parish: The state waterbottoms within a six (6) sided figure with the following corners:

29° 19' 45.36273" N	90° 58' 19.84034" W
29° 18' 52.50955" N	90° 57' 32.90680" W
29° 18' 41.04086" N	90° 55' 58.95532" W
29° 16' 47.29750" N	90° 56' 44.37133" W
29° 18' 33.55333" N	90° 57' 37.82946" W
29° 18' 46.69380" N	90° 59' 21.09926" W

2. Lake Tambour, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 30.73200" N	90° 31' 09.14598" W
29° 19' 51.16104" N	90° 29' 28.99726" W
29° 19' 59.29224" N	90° 29' 26.60078" W
29° 19' 50.06346" N	90° 30' 49.92953" W

3. Lake Chien, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 32.76107" N	90° 27' 00.06196" W
29° 19' 52.97766" N	90° 27' 17.37544" W
29° 19' 48.08926" N	90° 26' 08.51018" W
29° 20' 17.07711" N	90° 26' 01.32145" W

4. Lake Felicity, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 19' 04.72932" N	90° 26' 58.50922" W
29° 18' 01.44630" N	90° 27' 47.32882" W
29° 18' 24.61153" N	90° 24' 04.57895" W
29° 19' 11.54946" N	90° 25' 19.67927" W

5. Deep Lake, Lafourche Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 17' 59.74050" N	90° 21' 25.89465" W
29° 17' 18.88030" N	90° 21' 24.62348" W
29° 17' 17.26209" N	90° 21' 03.04101" W
29° 18' 17.57225" N	90° 21' 01.40994" W

6. Barataria Bay, Jefferson Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 13.14881" N	89° 56' 51.91540" W
29° 14' 47.14426" N	89° 56' 59.91355" W
29° 20' 12.06107" N	89° 56' 19.01249" W
29° 17' 46.05927" N	89° 56' 23.01176" W

AUTHORITY NOTE: Promulgated in accordance with R.S. 56:434.

HISTORICAL NOTE: Promulgated by the Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 26: .

The Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of

intent and final rule and the preparation of reports and correspondence to other agencies of government.

Interested persons may submit written comments relative to the proposed rule until 4:30 p.m., May 5, 2000 to Mr. Ron Dugas, Department of Wildlife and Fisheries, 1600 Canal St., Ste. 306, New Orleans, Louisiana 70112.

In accordance with Act #1183 of 1999, the Department of Wildlife and Fisheries/Wildlife and Fisheries Commission hereby issues its Family Impact Statement in connection with the preceding Notice of Intent: This Notice of Intent will have no impact on the six criteria set out at R.S. 49:972(B).

Thomas M. Gattle, Jr.
Chairman

Chairman Gattle stated he asked for the next agenda item, a **Recap of Civil Restitution**. Ms. Wynnette Kees began stating she would give a summary of the statistical report included in the packets. Since 1993, 4,000 Civil Restitution cases have been entered on the computer for a value \$2.5 million in assessments. Payments and other adjustments have occurred on 3,000 cases for a total of \$900,000. This leaves a balance of \$1.6 million and 1,000 outstanding cases. Of the 1,000 outstanding cases, 46 cases are current, 134 cases are delinquent and 900 cases are considered uncollectible. These cases did not have due process and the Department is planning to write off the \$1 million for those 900 cases. Ms. Kees then explained how the revocation procedure for the program was being improved. If payment is not received, notification is given to the License Section and Enforcement Division and the citation is turned over to a Collection Attorney. The impact from the License Section is that person's name will be flagged and he will be unable to purchase a license. The Enforcement Division will have a list of all offenders whose license has been revoked. Other areas to improve the cost effectiveness of the program is to review the values and increase the hearing costs. Commissioner Busbice asked if the computer license system was 100 percent implemented? Ms. Kees stated the program is statewide, but the names are just now being entered into the system. Commissioner Stone asked if the fees would include court costs and a late penalty? Ms. Kees stated there is no late penalty, but there is a discount if paid early. Chairman Gattle asked if the Department is allowed to charge late fees? Mr. Puckett stated a judgement from the Division of Administrative Law

would bear legal interest, the same as in a civil suit. Chairman Gattle felt Point of Sale was a good resource manager and would help. Then he noted he was appreciative of the way the uncollectibles were being cleaned up. Commissioner Stone asked if an uncollectible violators name would be entered into the system? Chairman Gattle stated since the due process was not followed, legally the Department can not hold them accountable.

The **Monthly Law Enforcement Report for January** was given by Major Keith LaCaze. The following numbers of citations and warnings were issued during the month of January.

- Region I - Minden - 72 citations and 13 warnings.
- Region II - Monroe - 105 citations and 20 warnings.
- Region III - Alexandria - 122 citations and 18 warnings.
- Region IV - Ferriday - 159 citations and 2 warnings.
- Region V - Lake Charles - 156 citations and 9 warnings.
- Region VI - Opelousas - 175 citations and 7 warnings.
- Region VII - Baton Rouge - 71 citations and 1 warning.
- Region VIII - New Orleans - 143 citations and 26 warnings.
- Region IX - Thibodaux - 185 citations and 22 warnings.
- Oyster Strike Force - 22 citations.
- Special Investigation Unit - 23 citations.
- Statewide Strike Force - 15 citations and 5 warnings.
- SWEP - 16 citations.

The grand total of citations issued statewide for the month of January was 1,407. Also there were 143 warning citations issued for the month.

The aviation report for January 2000 showed enforcement pilots flew three airplanes a total of 64.9 hours for enforcement and 40.8 hours for other divisions. Also there were 9 citations issued.

Commissioner McCall asked if the 25 hours running time for the boats was just one boat or two boats? Major LaCaze introduced Major Brian Spillman, supervisor of the SWEF section. Major Spillman stated the Riptide was down for several months for repowering, but is now up and working well. During this time, the Delta Tide was experiencing problems and now was on dry dock for repairs. Chairman Gattle asked for an explanation on "rallying migratory gamebirds".

Chairman Gattle then asked Mr. Steve Hebert for the **Division Report, Jackson-Bienville Habitat Project**. Jackson-Bienville Wildlife Management Area is roughly 32,000 acres that is free leased to the Department. Willamette Industries is the major land owner and manages the WMA for timber. Over the 40 years as a WMA, Jackson-Bienville has been used as a public hunting area and an experimental research area. The staff has managed the area by planting supplemental food plots, helping owners do control burns and regulating harvest. The Jackson-Bienville Wildlife Habitat program began about 3 years ago. A 21 acre spot where an Entergy powerline crossed the area had overgrown with woody vegetation which Willamette did not like the looks of and the Department did not like the habitat. The three companies got together with Turkey Federation funds and Quail Unlimited funds and stripped it down to the bare ground and planted productive wildlife foods. These 21 acres borders Highway 167 which leads into Ruston and during the course of the project, people were calling asking questions. Local individuals and businesses became interested in the project and became cooperators along with the three lead companies. Time, personnel and funding has been donated by the companies to help manage the wildlife resources on the WMA. Mr. Hebert felt this to be a win-win situation for the Department with wildlife habitat improving, the wildlife population improving and the Department's expense was only in the form of supervision. Barenbrug Seed Company has donated seed and planting expertise in order to try different plant types. American Cyanamid and Monsanto donated chemicals, personnel time and equipment which has enabled the Department to manage more habitat and change the vegetation on more acres with less expense. The Shreveport Chapter of Quail Unlimited donated \$5,000 each year for the last five years in an effort to further the quail population. The Turkey Federation donated funds to better the population and habitat management. Mr. Hebert stated the companies, besides being land stewards, like the publicity this program has caused. Mr. Prickett commended Mr. Hebert on this project. He then relayed a conversation he had with the head of Entergy for north Louisiana and how that company has benefitted

from this project. Mr. Prickett hoped to expand these type projects to other WMAs. Commissioner Carver felt this was an excellent program and was glad it may be expanded. He also stated this was what the Department needed, a good image. Commissioner Busbice asked if Luke Lewis with Willamette has been replaced? Mr. Hebert stated Willamette has hired someone, but his name has not been released yet. Commissioner Busbice asked if the Department was planting anything other than clover? Mr. Hebert answered no. Then Commissioner Busbice asked if there are any hog hunters that go onto Jackson-Bienville and are they allowed to chase with dogs? Mr. Hebert stated hog hunting on Jackson-Bienville and Bodcau WMAs has quite a following. Commissioner Busbice asked if the hogs were competing with deer for food sources? Mr. Hebert stated, if he had his choice, he would not have hogs on the WMA. Chairman Gattle asked if hogs are destructive? Mr. Hebert stated they can be destructive, but they were not destroying the area. Chairman Gattle agreed this was a good project.

Commissioner Carver asked about Point of Sale? Mrs. Janis Landry stated there are 751 vendors in operation with more vendors calling daily wanting to know how quickly they can get a machine. The program was going well and has been very positive. Chairman Gattle asked how long would it take to get a machine? Mrs. Landry stated it could be a week or longer.

The Commissioners agreed to hold the **June 2000 Meeting** on Thursday, June 1, 2000 beginning at 10:00 a.m. at the Baton Rouge Headquarters.

Chairman Gattle then asked if there were any **Public Comments** and none were heard.

There being no further business, Commissioner Busbice made a motion to **Adjourn** the meeting and it was seconded by Commissioner Kelly.

James H. Jenkins, Jr.
Secretary

JHJ:sch

COMMISSION MEETING
ROLL CALL

Thursday, February 3, 2000
Baton Rouge, LA
Wildlife & Fisheries Building

	Attended	Absent
Tom Gattle (Chairman)	<u>✓</u>	—
Tom Kelly	<u>✓</u>	—
Bill Busbice	<u>✓</u>	—
Glynn Carver	<u>✓</u>	—
Norman McCall	<u>✓</u>	—
Warren Delacroix	<u>✓</u>	—
Henry ^{Terry} Stone	<u>✓</u>	—

Mr. Chairman:

There are 7 Commissioners in attendance and we have a quorum.

Secretary Jenkins is also present.

AGENDA

LOUISIANA WILDLIFE AND FISHERIES COMMISSION
BATON ROUGE, LA
February 3, 2000
10:00 AM

1. Roll Call
2. Approval of Minutes of January 6, 2000
3. Consideration of Offshore Shrimp Closure - Mark Schexnayder
4. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead - Joey Shepard
5. Notice of Intent - Designation of Additional Public Oyster Seed Grounds - Ron Dugas
6. Recap of Civil Restitution - Tom Gattle
7. Enforcement & Aviation Reports/January - Keith LaCaze
8. Division Report
 - a. Jackson-Bienville Habitat Project - Steve Hebert
9. Set June 2000 Meeting Date
10. Public Comments
11. Adjournment

AGENDA

LOUISIANA WILDLIFE AND FISHERIES COMMISSION
BATON ROUGE, LA
February 3, 2000
10:00 AM

1. Roll Call
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7. Enforcement & Aviation Reports/January - Keith LaCaze
8. Division Report
9. Jackson-Bienville Habitat Project - Steve Hebert
9. Set June 2000 Meeting Date
10. Public Comments
11. Adjournment

RESOLUTION

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adopted by the
Louisiana Wildlife and Fisheries Commission

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WHEREAS, R.S. 56:498 provides the minimum legal count on white shrimp is 100 (whole shrimp) count per pound, except during the time period from October fifteenth through the third Monday in December when there shall be no count, and

WHEREAS, in the State's Territorial Waters, water temperatures are below 20 degrees Centigrade and the growth rate of white shrimp is therefore slow, and

WHEREAS, current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in a portion of the State's Territorial Waters do not average 100 count minimum size and are present in significant numbers, now

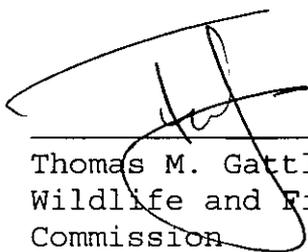
THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigation Canal Channel as delineated by the Channel Buoy line to the eastern shore of Freshwater Bayou, at 6 a.m. on Monday, February 7, 2000.

BE IT FURTHER RESOLVED, that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy line to the Houma Navigation Canal Channel as delineated by the Channel Buoy line shall reopen to shrimping at 6 a.m. on Monday, April 17, 2000.

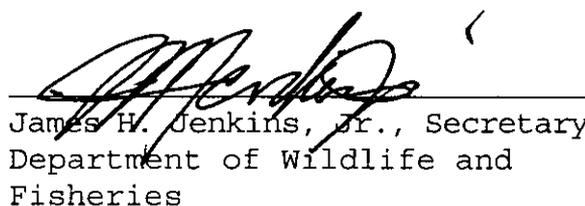
BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to open and close special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing the State's Territorial Waters is attached to and made a part of this resolution.



Thomas M. Gattle, Jr., Chairman
Wildlife and Fisheries
Commission



James H. Jenkins, Jr., Secretary
Department of Wildlife and
Fisheries

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of R.S. 49:953(B) and R.S. 49:967 of the Administrative Procedure Act which allows the Wildlife and Fisheries Commission to use emergency procedures to set shrimp seasons, and R.S. 56:497 which provides that the Wildlife and Fisheries Commission shall have the authority to open or close the State's offshore waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigational Canal Channel delineated by the Channel Buoy line to the eastern shore of Freshwater Bayou. This closure is effective at 6 a.m., Monday, February 7, 2000. The Commission also hereby orders that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigation Canal Channel as designated by the Channel Buoy line to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy Line, shall reopen to shrimping at 6 a.m., on Monday, April 17, 2000.

R.S. 56:498 provides that the minimum legal count on white shrimp is 100 (whole shrimp) count per pound after the third Monday in December. Current biological sampling conducted by the

Department of Wildlife and Fisheries has indicated that white shrimp in this portion of the State's outside waters do not average 100 count minimum legal size and are present in significant numbers. This action is being taken to protect these small white shrimp and allow them the opportunity to grow to a more valuable size.

The Wildlife and Fisheries Commission authorizes the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary; and hereby authorizes the Secretary of the Department of Wildlife and Fisheries to open and close special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

Thomas M. Gattle, Jr.

Chairman

RESOLUTION

2000 Offshore Shrimp Season Closure
adopted by the
Louisiana Wildlife and Fisheries Commission

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Commission, and

WHEREAS, R.S. 56:497 provides the Commission shall have the authority to set special seasons for all or part of the state waters, and

WHEREAS, R.S. 56:498 provides the minimum legal count on white shrimp is 100 (whole shrimp) count per pound, except during the time period from October fifteenth through the third Monday in December when there shall be no count, and

WHEREAS, in the State's Territorial Waters, water temperatures are below 20 degrees Centigrade and the growth rate of white shrimp is therefore slow, and

WHEREAS, current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in a portion of the State's Territorial Waters do not average 100 count minimum size and are present in significant numbers, now

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigation Canal Channel as delineated by the Channel Buoy line to the eastern shore of Freshwater Bayou, at 6 a.m. on Monday, February 7, 2000.

BE IT FURTHER RESOLVED, that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy line to the Houma Navigation Canal Channel as delineated by the Channel Buoy line shall reopen to shrimping at 6 a.m. on Monday, April 17, 2000.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to open and close special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing the State's Territorial Waters is attached to and made a part of this resolution.

Thomas M. Gattle, Jr., Chairman
Wildlife and Fisheries
Commission

James H. Jenkins, Jr., Secretary
Department of Wildlife and
Fisheries

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of R.S. 49:953(B) and R.S. 49:967 of the Administrative Procedure Act which allows the Wildlife and Fisheries Commission to use emergency procedures to set shrimp seasons, and R.S. 56:497 which provides that the Wildlife and Fisheries Commission shall have the authority to open or close the State's offshore waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigational Canal Channel delineated by the Channel Buoy line to the eastern shore of Freshwater Bayou. This closure is effective at 6 a.m., Monday, February 7, 2000. The Commission also hereby orders that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Houma Navigation Canal Channel as designated by the Channel Buoy line to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy Line, shall reopen to shrimping at 6 a.m., on Monday, April 17, 2000.

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Department of Wildlife and Fisheries has indicated that white shrimp in this portion of the State's outside waters do not average 100 count minimum legal size and are present in significant numbers. This action is being taken to protect these small white shrimp and allow them the opportunity to grow to a more valuable size.

The Wildlife and Fisheries Commission authorizes the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary; and hereby authorizes the Secretary of the Department of Wildlife and Fisheries to open and close special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

Thomas M. Gattle, Jr.

Chairman

Below is the peer review list for the 2000 stock assessments: black drum, striped mullet, southern flounder, and sheepshead.

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FWCC/FMRI FAX COVER SHEET

DATE: 1/31/2000

TO: Randy Pausius

OF: LA Dept of Wildlife & Fisheries

FAX#: (225) 765-2489

PHONE#: " " -2889

NO OF PAGES (INCLUDES COVER): 3 pps

From: Jean L Williams | Fisheries Assessment for

Message: Tim Mac Donald and Mike Murphy

Comments for stock assessments: black drum

sheepshead & S flounder. Belzard Th. is

doing striped mullet, so we should have

that to you fairly soon. (Jean) 414

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

* * * * *



Florida Fish & Wildlife Conservation Commission

James L. "Jaudie" Adams, Jr. Barbara C. Barsh Quinton L. Hedgepeth, DDS H.A. "Herky" Hufman
 Bushnell Jacksonville Miami Deltona

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January 31, 2000

Randall Pausina
 Marine Fisheries Division
 Department of Fish and Wildlife
 P.O. Box 98000
 Baton Rouge, LA 70898-9000

Dear Randall,

I was asked to review the black drum and southern flounder assessment summaries you sent us a few weeks back. I've reviewed both a few times in the past and notice that many of my initial thoughts on this new assessment are the same as comments I've made on past versions. Therefore, I am going to skip any minor details that I think I've commented on in the past and address some major problems I have with this new assessment.

Black drum

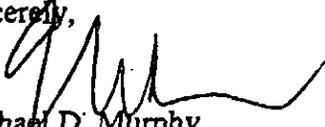
- 1.) Age length keys would be a more appropriate way to convert length frequencies to ages and still preserve the underlying year-class strength fluctuations.
- 2.) The use of 'static' analyses of YPR and SPR are fine but more recent estimates of fishing mortality and selectivity patterns are needed if these are to be used to predict the future condition of the stock.

Southern flounder

- 1.) As you've mentioned, sex-specific catch data are necessary for the SPR and even the YPR analyses since male and female growth and life span differ in this species.
- 2.) The 'regression-analysis' approach to estimating selectivity wouldn't reveal a selectivity pattern where offshore adults are less vulnerable to the fishery than juveniles. The good news is that if this occurs, you are being conservative with your assumption of a flat-topped selectivity pattern.
- 3.) Should you mention the impact of shrimp trawling and bycatch reduction devices on the fishery for flounders?

Thanks for the opportunity to look these over.

Sincerely,


 Michael D. Murphy
 Research Scientist



Florida Fish & Wildlife Conservation Commission

James L. "Jamie" Adams, Jr. Barbara C. Barnh Quinton L. Hedgepeth, DMS H.A. "Herky" Huffman
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January 31, 2000

Review of the Stock Assessment for Sheepshead Of the Louisiana Department of Fish and Wildlife For the Year 2000

Overall

- There are several instances where "data was" is used instead of the correct "data were"
- Pg. 4: "This year's assessment" not "This years assessment"
- Pg. 5:
 - "am" written instead of "an"
 - "years" misspelled as "yeas"
 - unnecessary word "ogive" immediately prior to selectivity regression equation
- Pg 8: repeated word – "changed changed"

5.2 Mortality

Although this will not influence the results of the SPR/YPR analyses, the natural mortality calculations results seem inconsistent. For instance, rounding is inconsistent in the Alagaraja (1984) method; M1% is rounded down to 0.2 from 0.23 while M0.1% is rounded up from 0.345 to 0.35. Also, with the Hoenig (1983) method and a TM of 25, I calculate an M of 0.17 not 0.2.

5.3 Disappearance Rates and Fishing Mortality

The two assumptions (constant recruitment and fishery in equilibrium) for conducting catch curve total mortality analyses are briefly discussed, but there is no attempt to determine whether or not the data meet these assumptions. Although I agree that this is the best way to derive total mortality with the available data, it is clear that both the recruitment (Figure 5.5 and 5.6) and the fishery (new regulations) assumptions have not been met. I think a brief discussion of these biases would be in order.

Tim MacDonald
 Associate Research Scientist
 Fisheries Independent Monitoring

Pausina, Randy

From: Pausina, Randy
Sent: Tuesday, February 01, 2000 9:05 AM
To: Shepard, Joey
Subject: Stock Assessment Comments

Comments from Vanderkooy (GSMFC)

General

-Format for References Varies between four assessments

Mullet

-pg.6 Dis. Rate needs to be defined, Z not defined

-pg.8 frep.?

-Pg.9 mullet appear or appears

Flounder

-explain that only southern flounder used in data not gulf and southern

Comments from Mike Murphy (Miss)

-no comment

Comments on southern flounder stock assessment

The assumption that the maximum age of female southern flounder has been truncated from 9 to 7 years due to fishing has no basis. In a data set of 1201 female southern flounder collected in Louisiana by Dr. Bruce Thompson and myself, only 1 female was aged at 7 years. Only 0.58% of the entire data set was aged at 5 years or older. In addition, only one study has aged a female over seven years of age. Nall (1979) used whole otoliths to determine the maximum age for female southern flounder at 10 years. Nall did not, however, validate his methods. This maximum age of 10 years is suspect due to the use of whole otoliths which often times produce increased age estimates due to the presence of secondary checks or rings that could be perceived as additional annuli.

Andrew J. Fischer
Coastal Fisheries Institute
Louisiana State University
Baton Rouge, LA 70803
(225)388-6371
afische@lsu.edu

Randy -

we finished
with two of them.

Look like good updates

we made a few comments

Chad

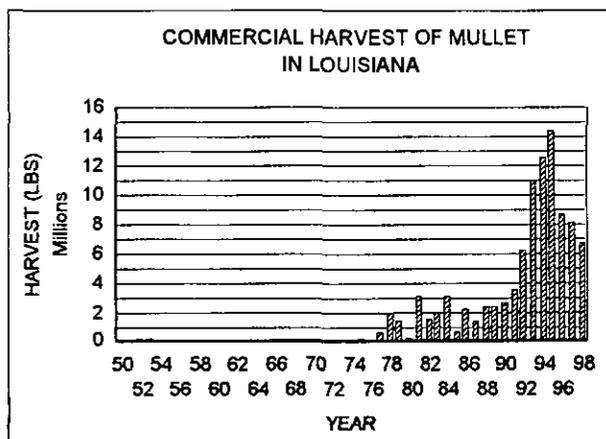
DRAFT
STRIPED MULLET
SUMMARY OF CHANGES FROM 1999 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 1998 assessment conducted for striped mullet.

- There is no substantive changes in methods from the 1999 assessment.

2000 DOCUMENT HIGHLIGHTS

- 1998 commercial landings of 6.6 million was the lowest harvest since regulations implemented in 1995.
- The results of YPR analysis indicate that if $M=0.3$ (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating above $F_{0.1}$ and F_{MAX} with yield of 96% to 99% of maximum, and SPR at 31% to 36%. An M of 0.6 would indicate a more lightly fished stock with yield being 74% to 83% of maximum and with SPR being 63% to 69%.



- It should be noted that the method used in this assessment to determine the status of the stock, reflected in the estimates of disappearance, is not immediately sensitive to changes in regulations. It takes several years, depending on the longevity of the species, before the impact of changes in fishing mortality are realized.

Looks good
one reference
missing
GFW

Samples were assigned ages through use of an age-length key developed from otolith aging of fish by Thompson (unpublished data) and LDWF's ongoing aging study. The age-length key categorized fish in increments of one-inch (25.4 mm) total length. Fish with only fork length measurements available were converted to total length using the equation provided by Thompson *et al.* (1991) ($TL=1.13*FL-3.40$, $r^2=.995$). Only data from female mullet ~~was~~ ^{were} included (males, immature fish, and fish where sex was not recorded were all deleted). Data from purse seine samples from Mississippi waters, and from mullet in the Sabine (LA) Refuge impoundment were deleted from the LSU dataset, as the length/age relationships for these fish are expected to differ from the fish harvested in the ongoing Louisiana fishery. Most fishery-independent collections were deleted from the dataset for the same reason. However, the age distribution for 11-inch fish was derived from fishery-independent samples since no fishery-dependent ages were available for that size class. This size class represented less than one percent of the total harvest, so any error due to misassignment of ages should have minimal impact on the assessment. In all 1,103 female mullet were used in the development of the age-length-key (Table 5.2).

38/1123
10% or
12.5%

As noted earlier, the fishery is concentrated in the area East of the Mississippi River, and in the Mississippi River delta. Examination of fishery-dependent age-length keys and length-frequency samples from different areas of the state demonstrated substantial differences in length-frequency and in age-at-length between areas. Therefore only samples taken East of 90°W longitude were included in this assessment. Exclusion of the samples from the remainder of the state should provide a more accurate assessment of the potential yield of this area, where the majority of the fishery operates. Spawning potential ratio (SPR) estimates specifically calculated by this method would not be valid for the state as a whole, but should be more accurate representation of the status of the fished portion of the population in this region.

Fecundity is estimated from the length/fecundity relationship of Thompson *et al.* (1991) where:

$$\text{Fecundity} = 5.6 \times 10^{-3} (\text{FL})^{3.18}$$

Fish were assumed to be sexually mature at age 2.

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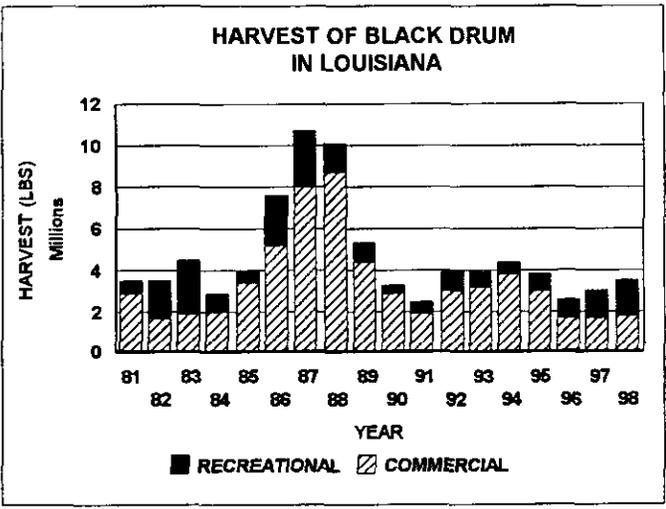
BLACK DRUM
SUMMARY OF CHANGES FROM 1999 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 1999 assessment conducted for black drum.

- There is no substantive changes in methods from the 1999 assessment.

2000 DOCUMENT HIGHLIGHTS

- 1998 combined commercial and recreational harvest of 3,467,725 pounds was the highest harvest of the three years after regulatory action in 1995 (Act 1316). However, 1998 harvest is well below the record set in 1987 at 10,747,017 pounds.



- The results of YPR analysis indicate that if $M=0.1$ (the most conservative value within the range of estimates), the fishery prior to existing regulations (Act 1316) was operating above $F_{0.1}$ and below F_{MAX} with yield of 92% of maximum, and SPR at 42%. An M of 0.15 or 0.2 would indicate a more lightly fished stock with yield being 67% to 45% of maximum and with SPR being 56% to 67% respectively.

Lodges good

See comment

BLACK DRUM

5.0 STOCK ASSESSMENT

This assessment uses yield-per-recruit (YPR) and Spawning Potential Ratio (SPR) to estimate the impact of fishing pressure on potential yield and the spawning potential of the black drum stock in Louisiana waters. Estimates derived from YPR and SPR are based on information regarding the growth rate and spawning potential of the fish, and on estimates of the natural mortality rate (M) and fishing mortality rate (F) on the stock. The results from this assessment provide a generalized approach towards estimating the impact of fishing on the spawning potential and potential yield of the fish stock. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock; therefore, where possible, only data on female black drum are used. Yield-per-recruit and SPR analysis, as with many other generalized assessments, should be used only as a guide until a more comprehensive assessment can be conducted.

In developing a stock assessment, the unit stock must be defined. While a unit stock is often represented by that portion of the population which is genetically similar, for our purpose, the most applicable definition seems to be one which considers the unit stock as that portion of the population which is either dependent on Louisiana waters, or which is available to Louisiana fishermen.

5.1 Growth

Luquet (1996) presents several growth equations for black drum. The one chosen for this assessment was developed by Geaghan and Garson (unpublished), and is a sloped asymptote model fitted to a von Bertalanffy growth equation. The data used by Geaghan and Garson (unpublished) was from Beckman et al. (1988) who used otolith sections in aging fish caught in Louisiana waters.

The sloped asymptote model proved to fit the data better than did other equations. The equation is as follows:

Beckman, et al. (1988) Affected

$$L_t = (610 + 9.959 * t) * (1 - e^{-0.6226(t-0.1229)})$$

cite ?

where, L_t = length at age t , and t = age in years.

The length-weight regression described by Beckman et al. (1988) from fish harvested in Louisiana was used in this assessment. The equation is as follows:

$$\log(W) = 3.05 * \log(FL) - 4.943$$

where, W = weight in grams, and FL = fork length in millimeters.

5.2 Natural Mortality

Natural mortality is one part of total mortality (Z) and is the mortality due to all causes other than fishing. These include predation, disease, spawning stress, starvation, and old age. Typically, natural mortality is estimated, as it is difficult to directly measure, especially on exploited fish stocks where natural mortality and fishing mortality occur simultaneously.

This assessment follows the former Louisiana Department of Wildlife and Fisheries (1990) assessment in using a range of values for natural mortality (0.1, 0.15, 0.2) to evaluate the sensitivity of M on the resulting spawning stock.

5.3 Fishing Mortality

Fishing mortality estimates derived in the former Louisiana Department of Wildlife and Fisheries (1990) assessment were used in this assessment to evaluate the impact of current fishing regulations on the spawning potential of the stock. The former assessment did not address the concept of spawning potential as a management measure. Only recently has this concept become widely used.

The former assessment used the growth equation described in Section 5.1 to develop annual catch-at-age tables.

5.4 Yield-per-Recruit

Yield-per-recruit and SPR analysis provides basic information about the dynamics of a fish stock by estimating the impact of mortality on yield and the spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential.

The growth parameters described in Section 5.1, the age-specific fishing mortality rates described in Section 5.3, and the natural mortality rates described in Section 5.2 were incorporated into the yield-per-recruit and spawning potential analysis. Fecundity estimates derived by Wilson et al. (1992) were used to estimate spawning potential. The equation is as follows:

$$\ln(\text{BF}) = 0.76 * \ln(\text{Age}) + 12.24 \quad \left. \begin{array}{l} \text{Use Nieland and} \\ \text{Wilson (1993) instead!} \end{array} \right\}$$

where, BF=batch fecundity. The results are presented in Table 5.1, which contains estimates of F_{MAX} (fishing mortality rate that produces maximum yield), $F_{0.1}$ (fishing mortality rate representing 10% of the slope at the origin of a yield-per-recruit curve), $F_{20\% \text{SPR}}$ (fishing mortality that produces 20% SPR), $F_{30\% \text{SPR}}$ (fishing mortality that produces 30% SPR), and estimates of F from Section 5.3. *Afterward.*

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FAX COVER SHEET

From: Jean Williams for Behzad Mahmoodi
Fisheries Assessment

Fish. Assessment FAX: (727)893-1374 Phone: (727) 896--8626
SunCom: 523-1011 FWC/FMRI Main FAX: (727) 823--0166

Date: 2/2/2000 No. of Pages (Includes Cover): 2 pp.

To: Randy Pausnia

Of: Louisiana Dept of Fish & Wildlife/Marine Fisheries

FAX #: 225+765-2489 Phone #: 225+765-2889

FROM: Your request: striped mullet stock assessment

Message: Attached are review comments for
striped mullets which completes
the assessments we received,

If you should have any questions
please let us know. Jean Williams
EXT. 4117

* * * * *

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Review of the 1999 striped mullet assessment -

1. I have no comments concerning methods used for the 2000 assessment since there have been no changes from the 1998 or 1999 assessments.
2. I would suggest to add summary results of the fishery-independent data analysis as a part of the document highlights.
3. If there has been a change of fishing season and gear (mesh size) in the fishery after 1995, it is more appropriate to use data from the most recent years (i.e., 1997 and 1998) for calculations of the relative selectivities.
4. The decline in CPUE observed in the past two to three years in the experimental gillnets is not consistent with increased abundance of the YOY in recent years.
5. The assessment of status of stock based on YPR analyses is reasonable and discussions concerning the sensitivity of the model to M is appropriate.

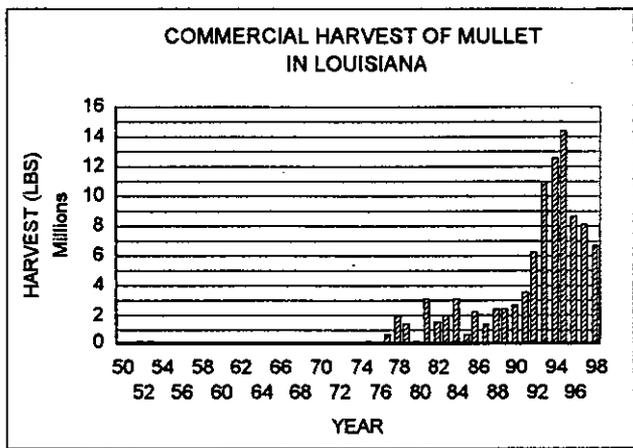
DRAFT
STRIPED MULLET
SUMMARY OF CHANGES FROM 1999 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 1998 assessment conducted for striped mullet.

- There is no substantive changes in methods from the 1999 assessment.

2000 DOCUMENT HIGHLIGHTS

- 1998 commercial landings of 6.6 million was the lowest harvest since regulations implemented in 1995.
- The results of YPR analysis indicate that if $M=0.3$ (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating above $F_{0.1}$ and F_{MAX} with yield of 96% to 99% of maximum, and SPR at 31% to 36%. An M of 0.6 would indicate a more lightly fished stock with yield being 74% to 83% of maximum and with SPR being 63% to 69%.



- It should be noted that the method used in this assessment to determine the status of the stock, reflected in the estimates of disappearance, is not immediately sensitive to changes in regulations. It takes several years, depending on the longevity of the species, before the impact of changes in fishing mortality are realized.

STRIPED MULLET 5.0 STOCK ASSESSMENT

This assessment uses yield per recruit (YPR), spawning potential ratio (SPR) and catch curve analyses to estimate the impact of current fishing pressure on the potential yield and the spawning potential of the Louisiana striped mullet stock. Estimates of YPR and SPR are based on knowledge of the growth of the fish, and on estimates of the natural mortality rate (M) and fishing pressure (F) on the stock. Catch curve analysis is used to estimate the disappearance rates (Z') from the fishery. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock. Therefore, this analysis uses growth rates for female mullet, and considers the effects of fishing on the female portion of the stock. The results of this type of assessment provide a generalized approach for estimating the impact of fishing on the spawning potential and the potential yield of the fish stock. As with any assessment, the results are subject to the limitation of the data from which they are derived. The present analysis should be used only as guidance until more comprehensive analyses, using additional data collected consistently over an extended time span, can be conducted.

The definition of the unit stock must be considered in the development of a stock assessment. While a unit stock is often defined as that portion of the population which is genetically similar, for our purpose in this stock assessment, the most applicable definition seems to be one which considers the unit stock as that portion of the stock which is either dependent on Louisiana waters, or which is available to Louisiana fishermen. We recognize that the geographic distribution implicit in this definition of unit stock is likely to be different from the genetically based definition, given the wide geographic distribution and offshore spawning grounds of the species (Mapes *et al.* 1998). We chose to use this definition because it provides the best picture of the Louisiana fishery, and we do not have information with which to quantitatively define fishing mortality on a regional basis. Information from tagging studies along the west coast of Florida (Mahmoudi, 1991) indicate that once recruited to an estuary, mullet have a strong tendency to return to that estuary after spawning offshore. If this tendency is also expressed in Louisiana, then fishing mortality rates in one area of the state would primarily affect the abundance of the adult population in that area, and not in other areas, unless fishing mortality rates over the entire spawning pool were high enough to affect recruitment on a wide scale.

Estimates of fishing mortality are derived with the knowledge that the existing fishery is not evenly distributed over the entire state, but concentrated in the Southeastern region, and mainly east of the Mississippi River (over 80% of the harvest is typically from that region). The analysis must assume that either the distribution of the fishery does not change, or that all fish in the State are equally available to the fishery for predictive yield calculations to be reasonably accurate. Without

knowledge of movement of adult mullet over the entire year, it is difficult to infer how much of the population is actually exposed to the fishery. Only that portion exposed to the fishery is described here. In order to reduce problems associated with variable growth rates and variable fishing pressures across the state, information for this assessment was limited to that collected from the easternmost part of the state (East of 90°W longitude).

For purposes of this assessment, we did not consider the effects of recreational harvest on the stock. The best information available at this time indicates that recreational harvest is relatively light, typically less than 200,000 pounds of fish per year (National Marine Fisheries Service, Marine Recreational Fishing Statistics Survey, 1981-1998). Based on the sparse length frequency distribution of surveyed fish, most of the recreational harvest is at a size prior to entry into the commercial fishery. The available data suggest that inclusion of recreational harvest data would not have any appreciable effect on the analyses we used (Table 5.1).

This assessment uses a fishing year beginning in February of one year and running through January of the following year for analysis of fishery-dependent information. Thus, the 1997 fishing year, as defined for this report, consists of February 1997 through January 1998. This is to accommodate the existing season for commercial harvest, which runs from the 3rd Monday in October until the 3rd Monday of the following January. Harvest values are presented for each calendar year rather than fishing year for consistency with other reports.

5.1 Growth and Fecundity

Thompson *et al.* (1991) described growth of striped mullet from Louisiana waters. They found significant differences in growth rates between sexes of mullet, and in growth rates from different parts of the state. For this assessment, a von Bertalanffy growth equation was developed from aged samples of female striped mullet from East of the Mississippi River provided by Thompson (pers. comm.). Growth rates from this area were used since this area of the state provides the majority of the harvest. We reanalyzed these data, combining them with juveniles assigned to age 0 by length frequency analysis from LDWF fishery-independent seine samples (Mapes *et al.* 1998, Figure 2.1). These data were used to estimate a three-parameter von Bertalanffy growth equation:

$$L_t = L_{\infty} * (1 - e^{-k(t-t_0)})$$

where L_t is the length at age (t) in years, L_{∞} is the maximum length, k is a parameter describing the rate of growth, and t_0 is the intercept of the function on the time axis. The function was estimated using nonlinear approximation procedure (SAS, 1987). The parameters derived from this method were: $L_{\infty}=453.9$, $k=0.332$, $t_0=-0.05$. These parameters were used in some methods of estimating natural mortality, and for yield estimation.

Samples were assigned ages through use of an age-length key developed from otolith aging of fish by Thompson (unpublished data) and LDWF's ongoing aging study. The age-length key categorized fish in increments of one-inch (25.4 mm) total length. Fish with only fork length measurements available were converted to total length using the equation provided by Thompson *et al.* (1991) ($TL=1.13*FL-3.40$, $r^2=.995$). Only data from female mullet was included (males, immature fish, and fish where sex was not recorded were all deleted). Data from purse seine samples from Mississippi waters, and from mullet in the Sabine (LA) Refuge impoundment were deleted from the LSU dataset, as the length/age relationships for these fish are expected to differ from the fish harvested in the ongoing Louisiana fishery. Most fishery-independent collections were deleted from the dataset for the same reason. However, the age distribution for 11-inch fish was derived from fishery-independent samples since no fishery-dependent ages were available for that size class. This size class represented less than one percent of the total harvest, so any error due to misassignment of ages should have minimal impact on the assessment. In all 1,103 female mullet were used in the development of the age-length-key (Table 5.2).

As noted earlier, the fishery is concentrated in the area East of the Mississippi River, and in the Mississippi River delta. Examination of fishery-dependent age-length keys and length-frequency samples from different areas of the state demonstrated substantial differences in length-frequency and in age-at-length between areas. Therefore only samples taken East of 90°W longitude were included in this assessment. Exclusion of the samples from the remainder of the state should provide a more accurate assessment of the potential yield of this area, where the majority of the fishery operates. Spawning potential ratio (SPR) estimates specifically calculated by this method would not be valid for the state as a whole, but should be more accurate representation of the status of the fished portion of the population in this region.

Fecundity is estimated from the length/fecundity relationship of Thompson *et al.* (1991) where:

$$\text{Fecundity}=5.6 \times 10^{-3}(\text{FL})^{3.18}$$

Fish were assumed to be sexually mature at age 2.

5.2 Natural Mortality

There was no change in the techniques used or the input parameters for estimation of natural mortality for striped mullet since the development of the 1997 and 1998 reports. The various estimates and the citation describing the methodology used to derive that estimate are listed below.

Citation	Input parameters	Natural Mortality estimate
Pauly (1980)	k =0.332 L _∞ =453.9 x̄ water temperature (°C)=22.7	M _{schooling fish} (est. *0.8)=0.56 M _{clupeids} (est. *0.6)=0.42
Hoenig (1983)	Age _(max) =10	M=0.42
Alagaraja (1984)	99% of fish die by Age 10 99.9 % of fish die by Age 10	M1%=0.46 M0.1%=0.69
Beverton and Holt (1959)	1.5 to 2.5 von Bertalanffy growth parameter (k), k=0.332	M=0.50-0.83

Two estimates of natural mortality (M) are available for striped mullet in the existing literature. Pauly (1980) cites Ih-Hsiu (1970) as reporting an M of 0.31 for male striped mullet from Taiwan. Mahmoudi (1991) estimated M as 0.30 using tagging data from southwest Florida.

Some investigators (Restrepo *et al.* 1991, Helser *et al.* 1992) have attempted to use a range of estimates of M and incorporate variation within this range as a variable in their analyses of other fish species. However, the selection of the range to be used, and the distribution of M estimates within that range remains arbitrary. We have chosen, rather, to select several point estimates of M, and to present the results of changes in the estimate. We have presented estimates based on M values of 0.3, 0.4, 0.5, and 0.6. This provides a feeling for the differences resulting from various estimates of M, without implying any additional precision.

In this report, an M of 0.3 is the most conservative estimate of natural mortality. This estimate may be low, based on the lack of mullet older than 10 years in the Western part of Louisiana, though there was no established mullet fishery in that area when the samples were taken. Using a low value of M results in higher estimates of F in the analysis. If the actual value is above estimates used here, estimates of fishing mortality from catch curve analysis will be lower than estimated here. Additionally estimates of spawning potential ratio at any level of fishing mortality would also be increased, and potential yield will be higher than estimated with that value. A low estimate of M would also increase the harvest age structure required to maximize yield, which could influence proposed size or gear regulations.

5.3 Disappearance Rates and Fishing Mortality

It must be recognized that any estimate of disappearance (Z') from the fishery includes both the total mortality while the fish is exposed to the fishery, and the availability of the fish to the gear. Availability as used here includes both changes in distribution or behavior of the fish that might change effectiveness of the fishery (e.g. migration, food preference, etc.), and size or other selectivity of the gear or fishery. The predominant gear in the Louisiana mullet fishery at the present time is a 3½ -4 inch stretch gill net, though some larger mesh sizes are occasionally used (see Mapes *et al.*, 1998). Gill nets are size selective for mullet, therefore estimates of disappearance likely reflect fishing mortality confounded by some degree of gear selectivity. For the present analysis, no estimation of gear selectivity or availability to capture was available for fish past full recruitment. Selectivity of younger fish is estimated from the method presented in Sparre and Venema (1992), using a linearized catch curve to determine the selectivity of fish not fully recruited to the fishery. The ratio of the observed catches to the expected catches at each age is the relative probability of capture or selectivity of the fishery. Selectivities for ages up to full age-at-recruitment were used to describe the relative fishing mortality to that point; for ages at or above full recruitment, selectivities are usually assumed to be 1, or 100% selected.

Length frequency data from the mullet fishery, derived from Trip Intercept Program (TIP) sampling (LDWF unpubl. data), are available for the fishing years 1994-1998. These samples were aged, using an age-length key (Table 5.2). The relative selectivities for each age are as follows:

Ages	Relative selectivity
0	0
1	0.0002
2	0.0175
3	0.1652
4	0.7139
5 and over	1.0

Disappearance rates (Z') were derived by regression of the descending arm of the catch curve (Figures 5.1A-E). The resulting estimates of Z' are provided in table 5.3.

These estimates of Z' and relative selectivity could be confounded by variable sizes of cohorts within the fishery. Variation in cohort size could skew the estimate of Z' in either a positive or negative direction, depending on the distribution of the various cohorts within the fishery. Greater recruitment in the older year classes would provide a lower estimate of Z' , while if in younger ages, would provide an overestimate of the true value of Z . This uncertainty can only be addressed by use

of several years of information on the fishery, and using estimates of Z based on specific cohorts rather than using annual estimates, that run across several cohorts.

5.4 Yield per Recruit

Yield per recruit (YPR) analysis provides basic information about the dynamics of a fish stock by estimating the impact of mortality rates on yield and spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential. The present yield per recruit (YPR) analysis is based on several assumptions. A fish is assumed to consistently recruit to any given fishery at a given age; that is, selectivity by age does not change over time. Partial recruitment of fish is estimated from the relative abundance of age 1 through age 4 fish in the TIP samples compared to age 5 and over fish, which are fully recruited. *Once the fish are fully recruited to the fishery, fishing pressure is assumed to be at a constant rate.* The present YPR analysis does not take into account any variation in growth rate or other factors which may affect the results. Use of YPR analysis requires:

- 1) information on natural and fishing mortality rates,
- 2) knowledge of the growth parameters of the fish.

Methods used for estimation of natural mortality (M) and fishing mortality (F) rates in this analysis are presented in Sections 5.2 and 5.3 above. The existing mullet fishery is mainly a roe fishery, targeting female fish (Thompson, 1989). Therefore, we have used the growth parameters for female mullet to calculate yield per recruit.

5.5 Conservation Standard

Conservation standards are based on one of a number of biological measures of the dynamics of fish stocks, that are intended to protect the viability of that stock for future generations. These standards have historically been based on different measures of the dynamics of fish stocks, depending on the data available, the needs of fishery and of the resource. Conservation standards should be separated into two types: a conservation threshold which is entirely biologically based, and a conservation target which considers biological measures modified by relevant social, economic, and ecological factors.

Conservation "thresholds" are intended to provide a biological baseline for harvest of a fish stock based on stock recruit relationships, or other biological parameters specific to the stock, if possible. This baseline standard, below which the stock should not be allowed to go, has been described as a "threshold" by some researchers, and has also been referred to as an "overfishing level" (GMFMC 1995). Beyond this "threshold", management "targets" may be set, which provide for other management goals in the fishery. Such goals may be in terms of yield in weight, yield in numbers of

fish, catch rate per effort, harvest rate per effort, employment, profit, or some other goal. These targets must be set at a fishing rate below the "threshold" in order to ensure that the biological integrity of the stock is not unduly compromised by fishing.

Recently, use of a stock measure, spawning stock biomass per recruit (SSBR) or spawning potential ratio (SPR) has become widely used. This measure compares the estimated female spawning biomass of the stock that survive fishing with the estimated biomass of the stock under unfished conditions. The analysis does not take into account any density-dependent relationships due to the changes in the size of the fished stock. Using the Spawning Potential Ratio (SPR) concept as developed by Gabriel et al. (1984) and refined by Goodyear (1991), a "threshold" value can be defined that provides a minimum spawning stock biomass (or egg production) per recruit, below which existing data cannot evaluate impacts to future recruitment, and below which the fishery should not be allowed to operate.

Ideally, "threshold" levels should be evaluated from information on the stock in question. However, the information base necessary to adequately describe this level is often not available. In such cases, it has been recommended by Goodyear (1989) that a spawning stock biomass per recruit (SSBR) or SPR of 20% be used as a "threshold" in absence of sufficient evidence to provide a standard specific to the stock in question. This standard is also based on work on North Atlantic groundfisheries (Gabriel et al. 1984, Gabriel, 1985). A SSBR of 35% has been recommended for Spanish mackerel, and 20% for king mackerel (GMFMC 1990, 1995). A SSBR of 8-13% has been demonstrated to be sufficient for Gulf menhaden (Vaughan 1987). In prior analyses of the Louisiana spotted seatrout fisheries (LDWF 1991), we recommended an SPR of 15% after analysis of several years of available data. Mace and Sissenwine (1993) examined 90 stocks of 27 species, and recommended that 30% SPR be maintained when there is no other basis for estimating the replacement level. That level is sufficient for 80% of the stocks considered by those authors. They also noted that 30% may be overly conservative for an "average" stock. The average replacement %SPR for the stocks they considered was 18.7% while the most resilient quarter of the stocks considered required a maximum FREP of 8.6% SPR. Three-quarters of the stocks required a maximum FREP of 27.1% SPR. In the prior assessment of striped mullet (Shepard et al., 1992), a SPR of 20% was recommended as the conservation standard for the Louisiana fishery. This standard was considered, rather than 30% SPR, due to several factors: the fishery is mainly prosecuted on the stocks of mullet east of the Mississippi River, and the estimate of SPR is based on only the fished stocks. The relatively unfished stocks to the west of the Mississippi River are only minimally considered in the assessment, with the result that the SPR ratios are underestimated.

Sufficient information is not available to directly estimate a conservation threshold for striped mullet in Louisiana. However, the conservation target of 30% SPR established by Act 1316 of the 1995 Regular Session of the Louisiana Legislature for black drum sheepshead, southern flounder and

striped mullet appear to be adequate to maintain the striped mullet stock and prevent recruitment overfishing.

The use of any measure of health of a fish stock as a perfect index is arguable. Intuitively it seems more logical that growth overfishing would occur at a much lower fishing rate than would threaten recruitment. However, Mace and Sissenwine (1993) provide information to suggest that some stocks may have reduced levels of recruitment at levels of fishing that would not reduce yield per recruit. The preferable position for making recommendations on appropriate levels of fishing for a stock is to base those recommendations on actual measures of spawning stock and recruitment for that species, in the same fishery. This requires a base of information on that fishery that requires monitoring of both the stock and the fishery over a variety of conditions. Without this information, inappropriate conservation standards may either underestimate or overestimate the potential of the fishery. If the potential is underestimated, the society loses the economic and social benefits of the harvest. If the potential is overestimated, the society also loses the benefits of a sustainable fishery, which must at least go through some period of rebuilding, when effort must be reduced from the non-sustainable levels (Hilborn and Walters, 1993). Some researchers have speculated that over-harvest of some stocks may lead to their replacement in the ecosystem by other, often less preferred stocks. The frequency of such an occurrence is unknown, and the cause of shifts in species dominance in an ecosystem may be difficult to ascertain, even after the fact. Such a shift does seem to have occurred over time in the Grand Banks area, where prolonged, intense harvest of cod and haddock have been implicated in gradual increases in skate and spiny dogfish populations (CUD - NEFSC 1993).

5.6 Status of the Stock

The trends in harvest for striped mullet in the Louisiana fishery have been reviewed by Mapes *et al.* (1998). The harvest increased in the early 1990's, as the roe fishery continued to develop (Figure 5.2). Harvest declined after 1995 as a direct result of regulations implemented August, 1995 eliminating the harvest of mullet outside of the period between the third Monday in October through the middle of the following January. Regulations also outlawed fishing for mullet at night, on weekends, in freshwater areas, and using gear other than strike gill nets.

Annual recruitment of mullet has been evaluated from fishery-independent seine and experimental gill net samples taken statewide since 1986. Catch/effort information are compiled for January through May of each year, and the abundance is measured as $\ln(\text{catch}/\text{effort})+1$. Seine catches of fish larger than young-of-the-year (>70 mm) are removed from the calculation of abundance indices (Figure 5.3). Gill net data from 2", 2.5", and 3" (5.08, 6.35, and 7.62 cm.) stretch mesh panels are used to provide relative abundance indices of mullet prior to harvest by legal saltwater commercial gears (Figures 5.4A-D).

Seine CPUE indices show higher mean catches of young-of-the-year (YOY) in the last four years examined (1996-1999); however, there is little statistical difference between the estimates. In the last four years examined only 1991 was significantly lower at the 95% confidence limit. There appears to be no long term downward trend in YOY indices for the years examined. Gill net CPUE indices seem to cycle throughout the period examined with no long term downward trend. There is some question however, after reviewing the relatively consistent annual pattern of different mesh sizes, whether the gill net samples actually measure relative abundance or simply measure annual availability to the sampling gear. One would expect to find more annual variation between mesh sizes as fish grew and became increasingly available to the larger mesh size. The three mesh sizes, standardized to their mean, are presented in figure 5.4D. There does seem to be an annual pattern found between the mesh sizes with the last three years being relatively lower than previous years.

The results of YPR analysis indicate that if $M=0.3$ (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating above $F_{0.1}$ and F_{MAX} with yield of 96% to 99% of maximum, and SPR at 31% to 36%. An M of 0.6 would indicate a more lightly fished stock with yield being 74% to 83% of maximum and with SPR being 63% to 69% (Table 5.4).

In all of these analyses, assumptions listed in prior sections of this report have a strong influence in the results. If M is actually near or above the upper end of the range considered here then increases in yield per recruit would be possible, and SPR would be above the minimum estimated values. Estimates of potential yield presented here do not account at all for potential extension of the fishery into areas of the state that do not now have a significant fishery. Any substantive change in geographic distribution of the fishery could substantially change the overall harvest levels.

Based on this generalized assessment, for all natural mortality rates examined, if fishing mortality rates continue at the current levels, then striped mullet are not being harvested at a rate that would drive the stock below the target SPR of 30% established by the Louisiana Legislature.

5.7 Research and Data Needs

As with any analysis, the accuracy of the assessment is dependent on the accuracy of the information on which it is based. The present analyses, along with the biological data presented by Mapes *et al.* (1998) identify several areas for research to address.

Estimates of natural mortality used in the present assessment are derived from general literature sources, and show wide variation. This variation reduces the potential of the present assessment to provide a precise prediction of the yield potential of the stock, and also reduces the

confidence level of the present estimate of SPR. A more precise estimate of natural mortality, based on Louisiana data, would assist in both of these problems.

Definition of sub-populations based on migratory patterns would help define exploitation rates within different areas of the state. This may help managers develop area-specific management to optimize yield from a given stock, while protecting the stock from overharvest.

Recruitment mechanisms are poorly defined for the species. Mullet are recorded to spawn beyond the shelf break, in the central Gulf of Mexico. No genetically distinct stocks have been identified within the Gulf. However, lack of genetic distinctness does not necessarily mean that stocks are homogeneously mixed by spawning and recruitment mechanisms, only that populations are not so removed from each other that gene structure is identifiably different. Better understanding of recruitment mechanisms, merged with measurement of oceanographic or other driving forces could help in understanding the sub-genetic distinctiveness of mullet populations from different regions of the state of the Gulf of Mexico.

Factors that influence the year-class strength of mullet are essentially unknown. Investigation of these factors could help better define causes of inter-annual variation in abundance, and perhaps also the underlying stock-recruit relationships in the species.

The relationship between wetlands losses or modifications and the continuation of fishery production within the state has been discussed by many authors. However, this relationship is likely to be different for any of a suite of different species. Understanding of this relationship for mullet should be an ongoing priority.

In the presence of changing regulations, fishery-dependent information is not a reliable source of the data necessary to assess the status of a fish stock. However, such data is necessary to measure the effects of fishing on that stock. Consistent fishery-dependent and fishery-independent data sources, in a comprehensive monitoring plan, are essential to understanding the status of fishery stocks, and to identifying causes of changes in stock abundance. Present programs should be assessed for adequacy with respect to their ability to evaluate stock status, and modified or enhanced to optimize their capabilities.

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Table 5.1. Annual commercial and recreational harvest of mullet from Louisiana waters, expressed in pounds. Commercial harvest values from dealer landings reports, recreational harvest from NMFS MRFSS estimates of fish landed plus those discarded dead.

Year	Commercial Harvest (lbs.)	Recreational Harvest (lbs.)	Total Harvest (lbs.)	%Commercial
81	3,051,461	564	3,052,025	99.98%
82	1,533,452	16,546	1,549,998	98.93%
83	1,886,654	0	1,886,654	100.00%
84	3,157,215	2,793	3,160,008	99.91%
85	579,297	7,505	586,802	98.72%
86	2,277,713	52,921	2,330,634	97.73%
87	1,439,425	0	1,439,425	100.00%
88	2,367,106	105,878	2,472,984	95.72%
89	2,413,768	75,287	2,489,055	96.98%
90	2,645,927	296,113	2,942,040	89.94%
91	3,563,137	26,303	3,589,440	99.27%
92	6,214,532	121,274	6,335,806	98.09%
93	11,026,497	185,015	11,211,512	98.35%
94	12,560,261	97,511	12,657,772	99.23%
95	14,545,610	89,551	14,635,161	99.39%
96	8,658,881	217,807	8,876,688	97.55%
97	8,082,591	127,594	8,824,069	98.55%
98	6,675,574	15,459	6,691,033	99.77%

Table 5.2 - Age-at-Length distribution of female striped mullet used in age-length key development.

Length (inches)	Age									Total
	1	2	3	4	5	6	7	8	9	
10	0	0	0	1	0	0	0	0	0	1
11	0	46	57	30	5	0	0	0	0	138
12	0	1	3	0	0	0	0	0	0	4
13	0	6	9	5	1	1	0	0	0	22
14	0	13	28	19	5	1	0	1	0	67
15	3	39	65	65	22	6	0	0	0	200
16	0	38	83	95	31	3	1	0	0	251
17	0	21	77	69	37	10	2	1	0	217
18	0	3	25	46	26	8	1	1	0	110
19	0	0	7	21	23	4	1	0	0	56
20	0	0	0	6	9	10	4	0	1	30
21	0	0	1	1	2	1	1	0	0	6
22	0	0	0	0	0	1	0	0	0	1
All	3	167	355	358	161	45	10	3	1	1103

Table 5.3 Regression Output from the Estimation of Disappearance Rates

1994		1995	
Regression Output:		Regression Output:	
Constant	19.057467	Constant	19.949608
Std Err of Y Est	0.8244318	Std Err of Y Est	0.2940063
R Squared	0.9030398	R Squared	0.9876694
No. of Observations	6	No. of Observations	6
Degrees of Freedom	4	Degrees of Freedom	4
X Coefficient(s)	-1.20288	X Coefficient(s)	-1.258003
Std Err of Coef.	0.1970769	Std Err of Coef.	0.0702809
1996		1997	
Regression Output:		Regression Output:	
Constant	18.110774	Constant	18.465046
Std Err of Y Est	0.3958338	Std Err of Y Est	0.593716
R Squared	0.9750613	R Squared	0.9548261
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-1.045919	X Coefficient(s)	-1.153462
Std Err of Coef.	0.0748055	Std Err of Coef.	0.1122018
1998			
Regression Output:			
Constant	18.690557		
Std Err of Y Est	0.3643677		
R Squared	0.9778461		
No. of Observations	6		
Degrees of Freedom	4		
X Coefficient(s)	-1.157339		
Std Err of Coef.	0.0871005		

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Table 5.4 - Results of Yield per Recruit and SPR Analysis for Mullet

M=0.3

	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max	0.6014	85.5059	451,848	39.91%	100.00%	Benchmarks
F0.1	0.3109	78.7271	611,466	54.01%	92.07%	
F20%	2.7932	65.7578	226,433	20.00%	76.90%	
F30%	1.0984	80.9436	339,650	30.00%	94.66%	
1994	0.9029	83.2948	372,207	32.88%	97.41%	Estimate
1995	0.9580	82.6548	361,974	31.97%	96.67%	
1996	0.7459	84.8516	407,568	36.00%	99.23%	
1997	0.8535	83.8380	382,249	33.76%	98.05%	
1998	0.8573	83.7967	381,428	33.69%	98.00%	

M=0.4

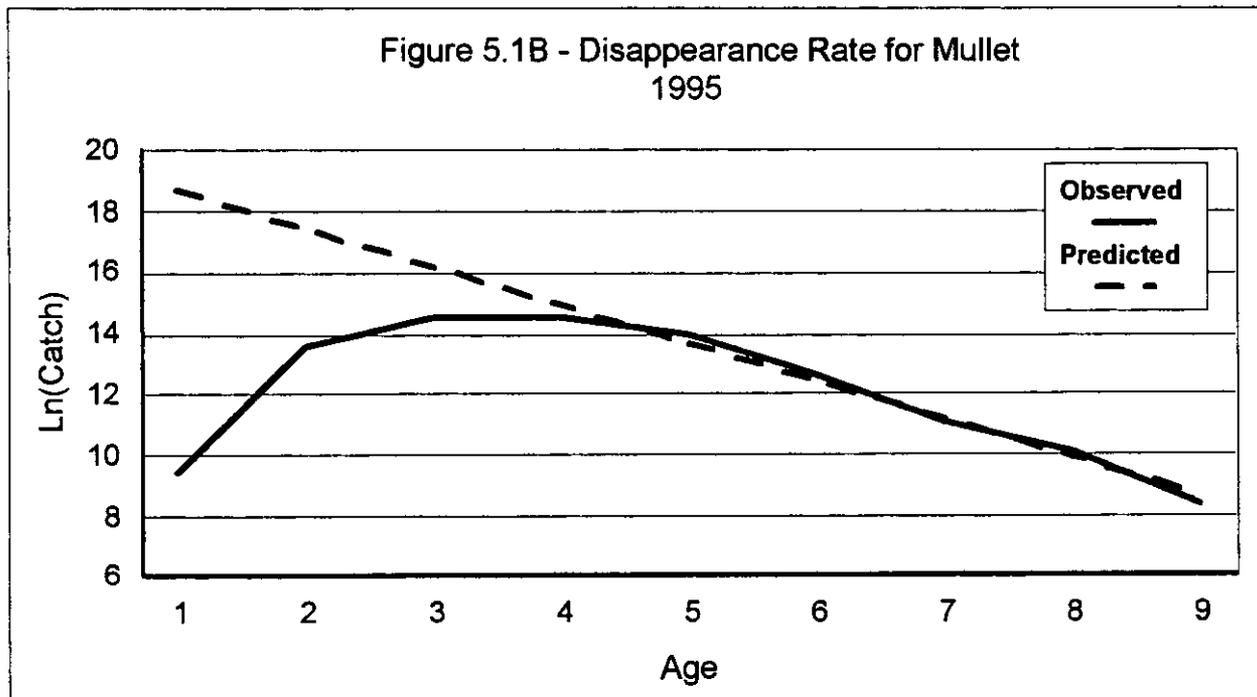
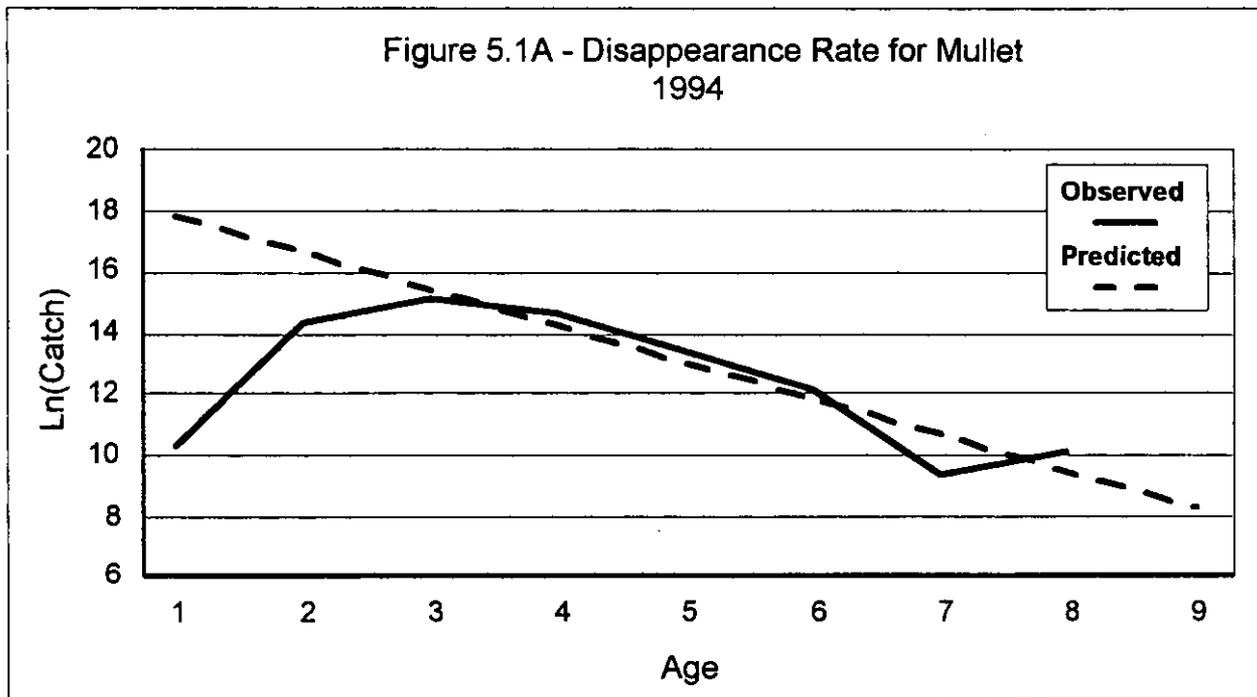
	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max	0.8306	49.6029	259,954	43.11%	100.00%	Benchmarks
F0.1	0.3925	45.1159	346,588	57.48%	90.95%	
F20%	6.2285	38.0982	120,602	20.00%	76.81%	
F30%	2.1144	45.0830	180,903	30.00%	90.89%	
1994	0.8029	49.5944	263,472	43.69%	99.98%	Estimate
1995	0.8580	49.5952	256,630	42.56%	99.98%	
1996	0.6459	49.1162	287,088	47.61%	99.02%	
1997	0.7535	49.5318	270,183	44.81%	99.86%	
1998	0.7573	49.5392	269,635	44.71%	99.87%	

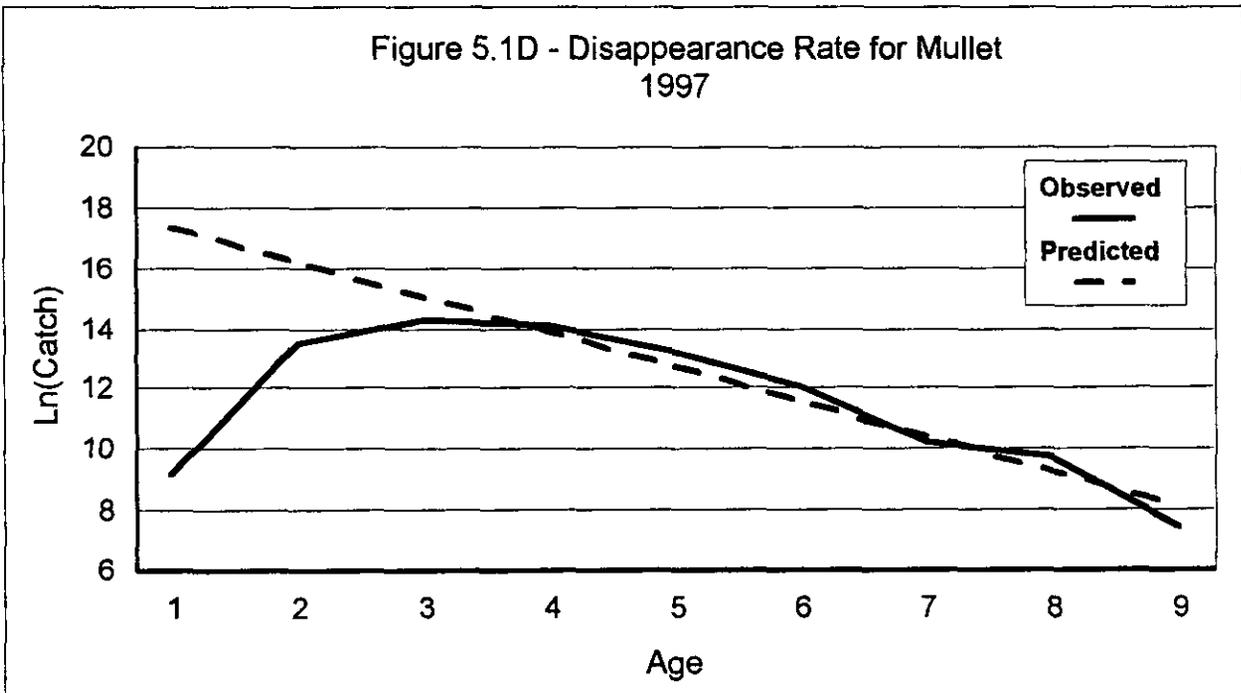
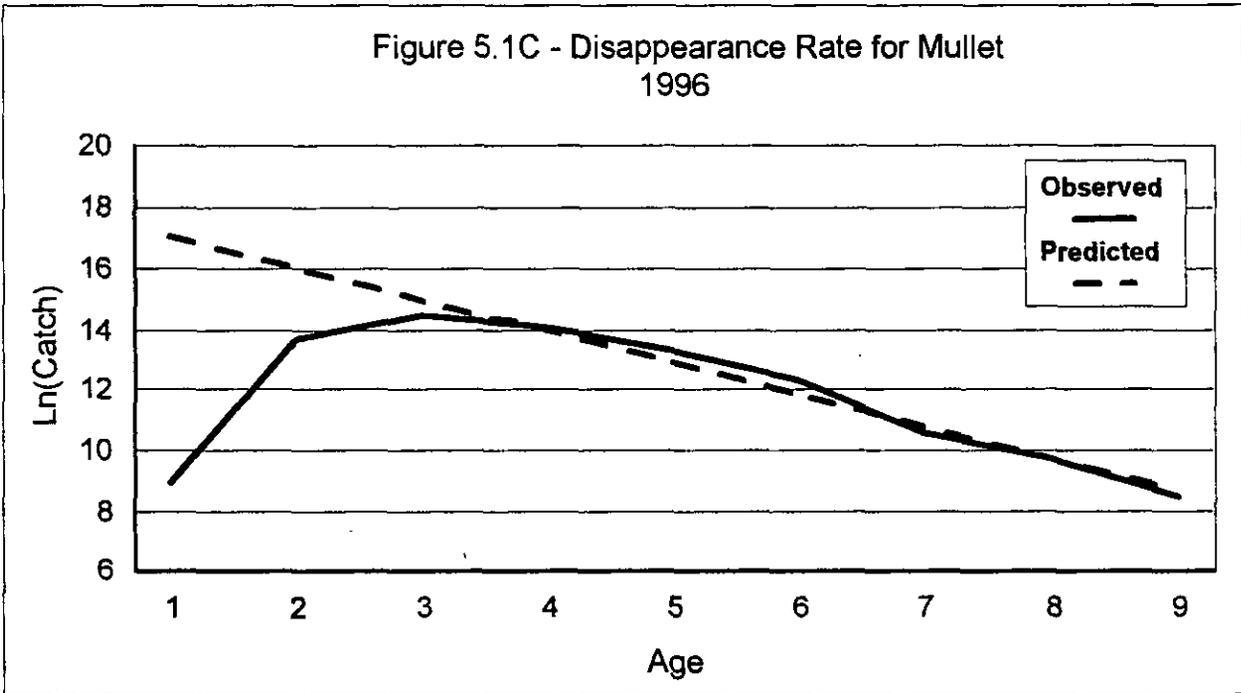
M=0.5

	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max	1.1501	30.0586	158,969	46.24%	100.00%	Benchmarks
F0.1	0.4874	26.9900	210,282	61.17%	89.79%	
F20%	12.4924	23.6858	68,757	20.00%	78.80%	
F30%	4.1688	27.1541	103,136	30.00%	90.34%	
1994	0.7029	29.0880	187,269	54.47%	96.77%	Estimate
1995	0.7580	29.3728	182,692	53.14%	97.72%	
1996	0.5459	27.7634	203,046	59.06%	92.36%	
1997	0.6535	28.7644	191,755	55.78%	95.69%	
1998	0.6573	28.7924	191,389	55.67%	95.79%	

M=0.6

	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max	1.8945	18.8999	99,801	48.18%	92.65%	Benchmarks
F0.1	0.5962	16.6755	134,065	64.73%	81.75%	
F20%	22.3753	15.1322	41,424	20.00%	74.18%	
F30%	7.7273	17.8130	62,137	30.00%	87.32%	
1994	0.6029	16.7260	133,677	64.54%	81.99%	Estimate
1995	0.6580	17.1044	130,614	63.06%	83.85%	
1996	0.4459	15.1751	144,220	69.63%	74.39%	
1997	0.5535	16.3229	136,676	65.99%	80.02%	
1998	0.5573	16.3570	136,432	65.87%	80.18%	





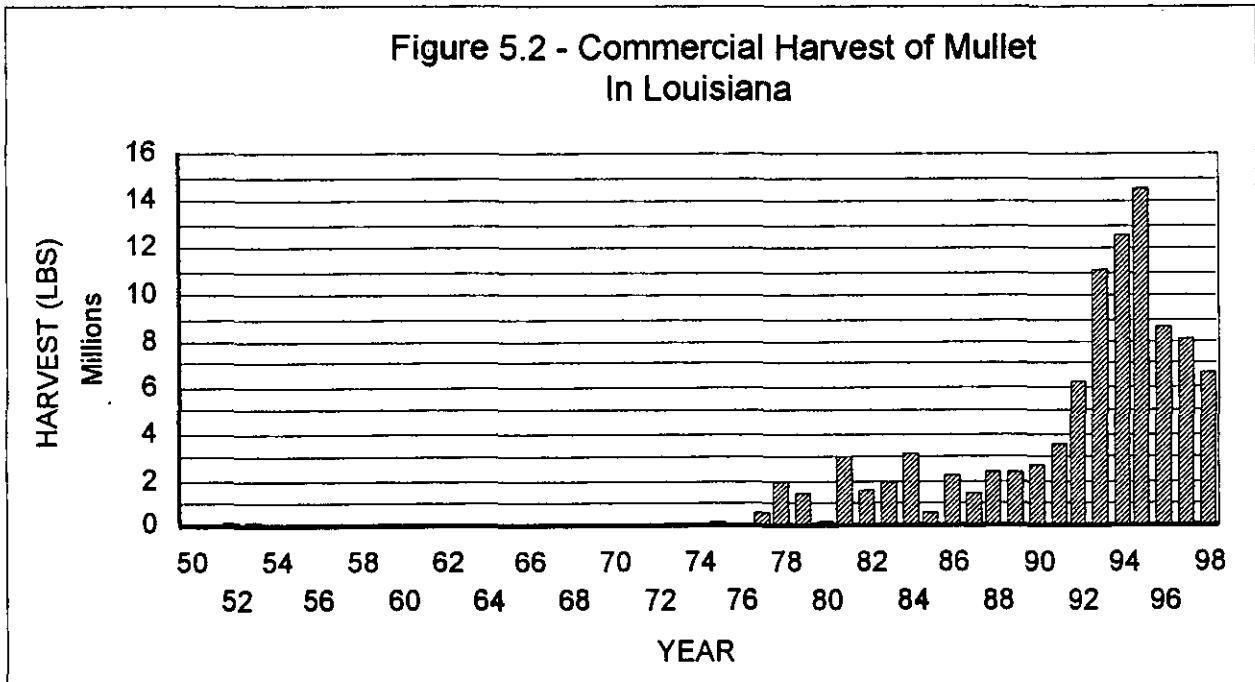
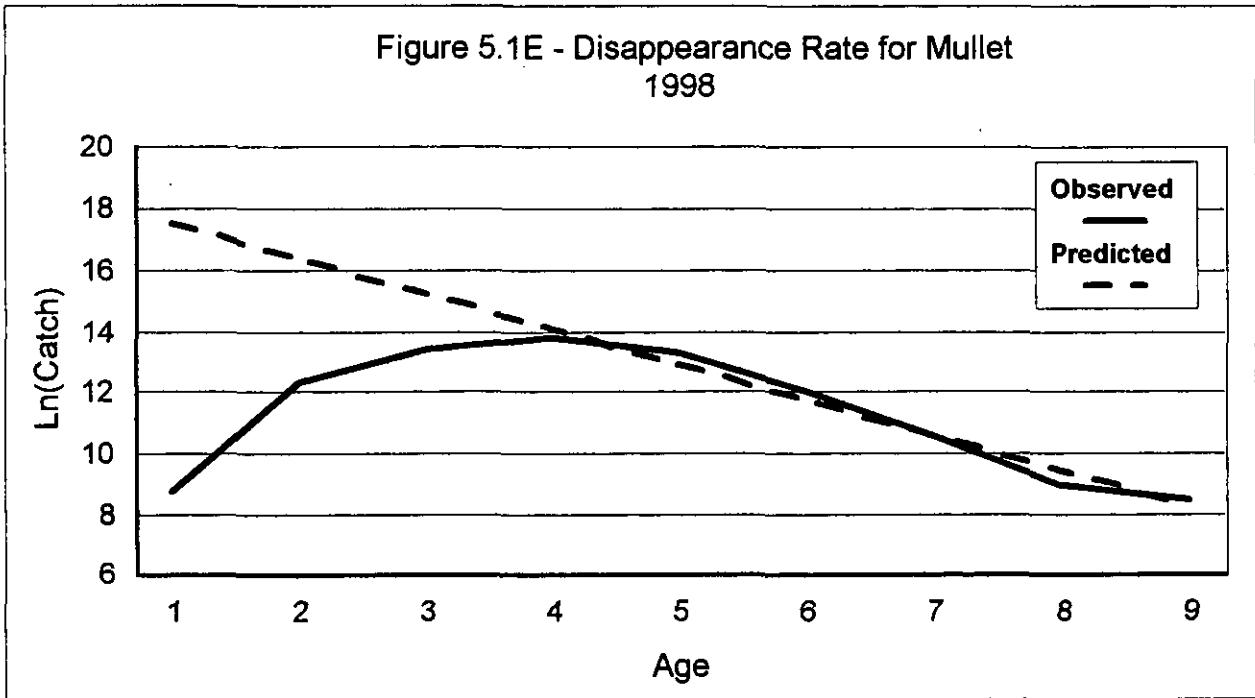


Figure 5.3 - Catch per Effort of Striped Mullet in Seines
Marine Fisheries Division, Monitoring Program (January - May)

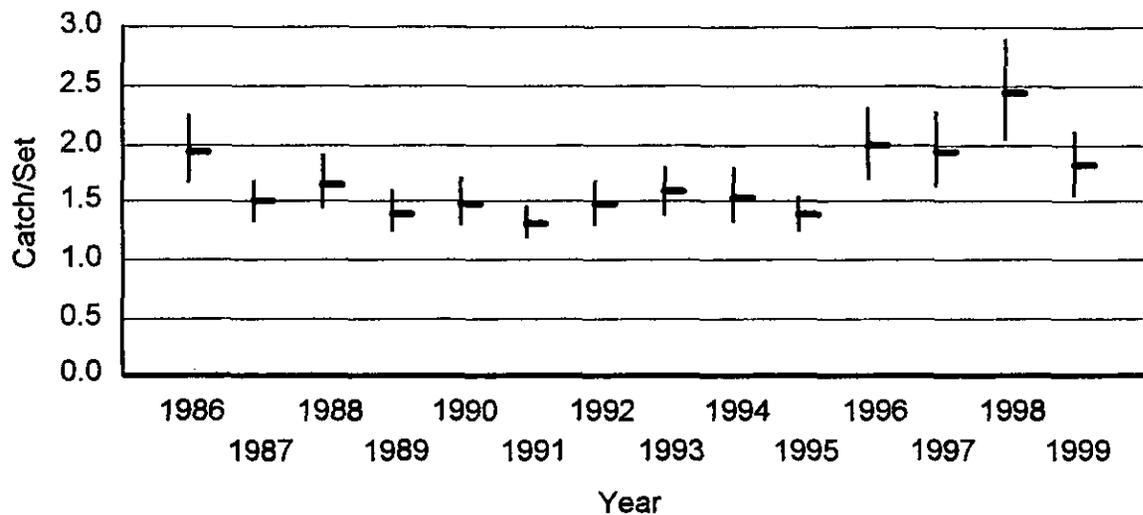


Figure 5.4A - Catch per Effort of Striped Mullet in 2" Stretch Gillnets
Marine Fisheries Division, Monitoring Program

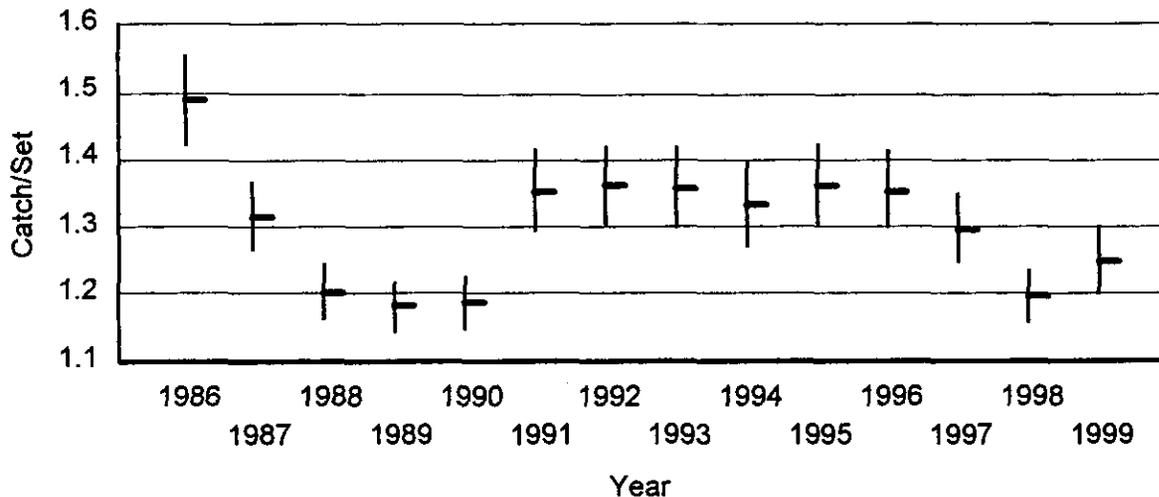


Figure 5.4B - Catch per Effort of Striped Mullet in 2.5" Stretch Gillnets
 Marine Fisheries Division, Monitoring Program

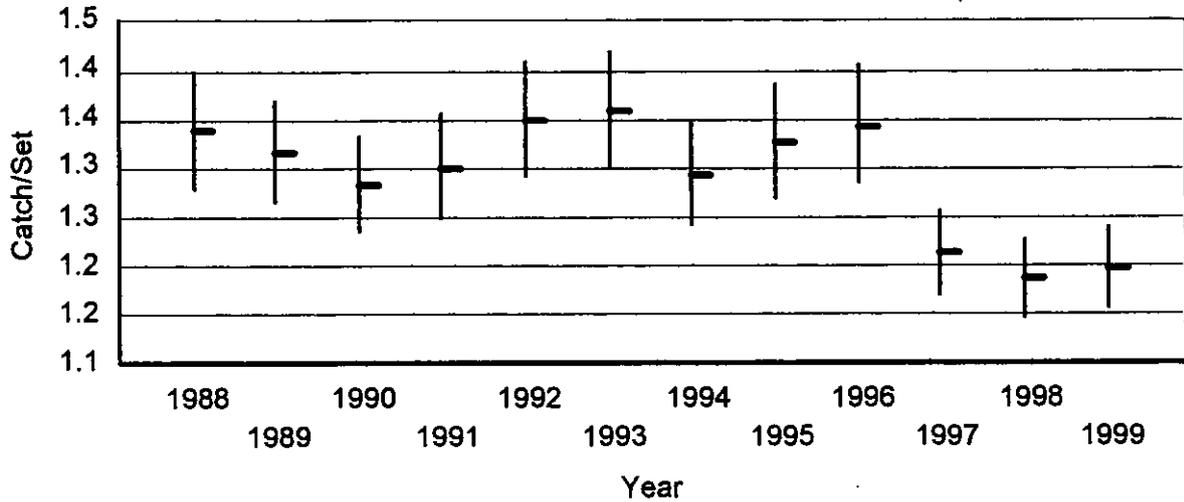
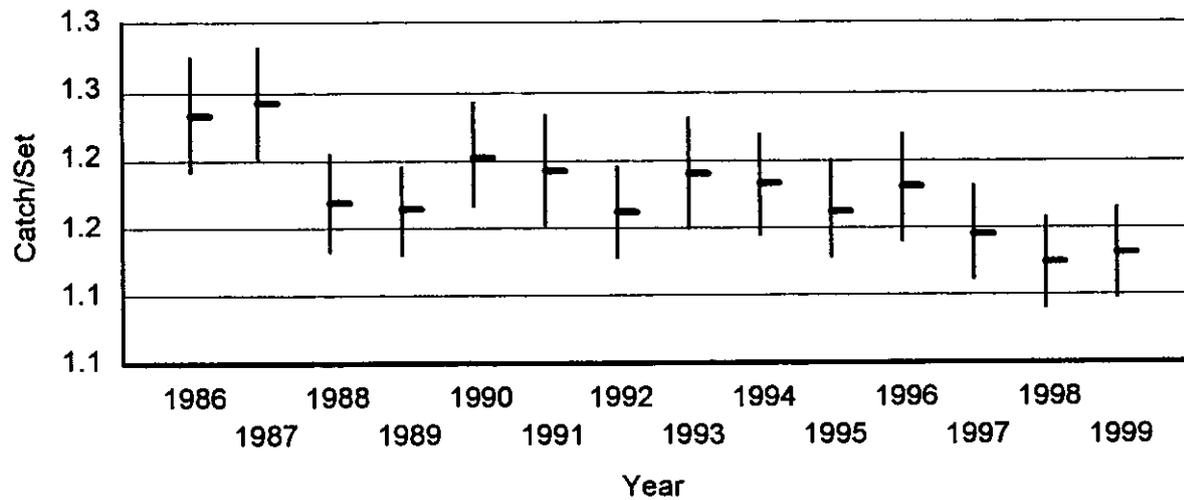
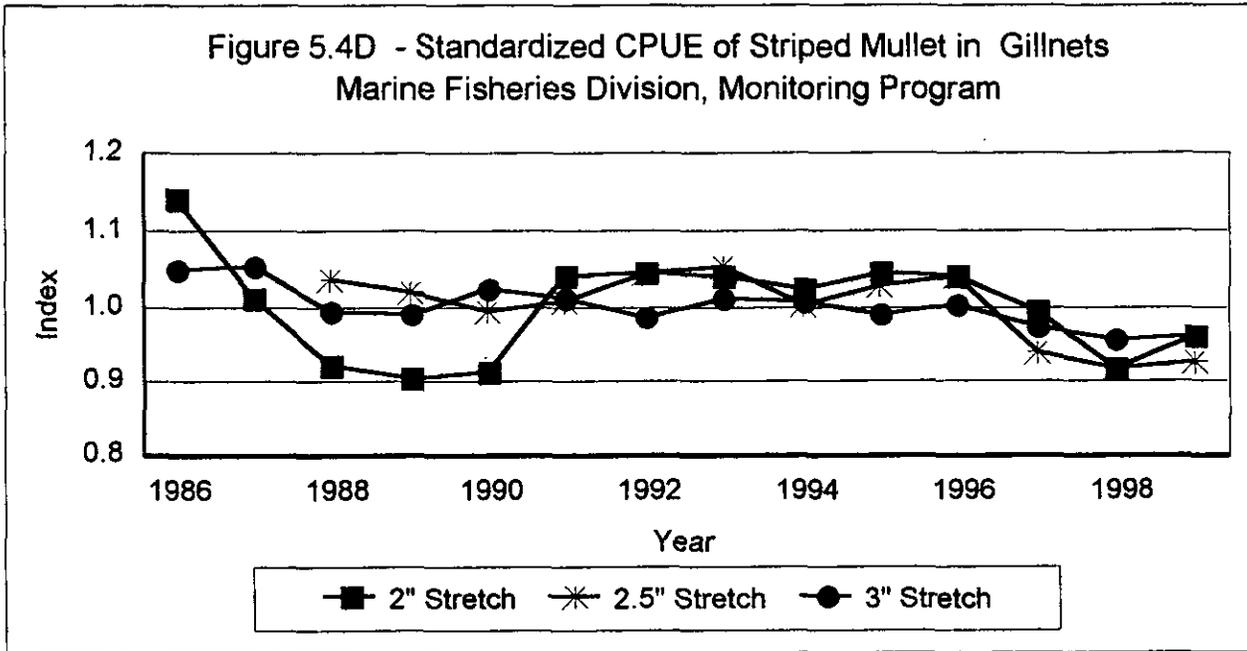


Figure 5.4C - Catch per Effort of Striped Mullet in 3" Stretch Gillnets
 Marine Fisheries Division, Monitoring Program





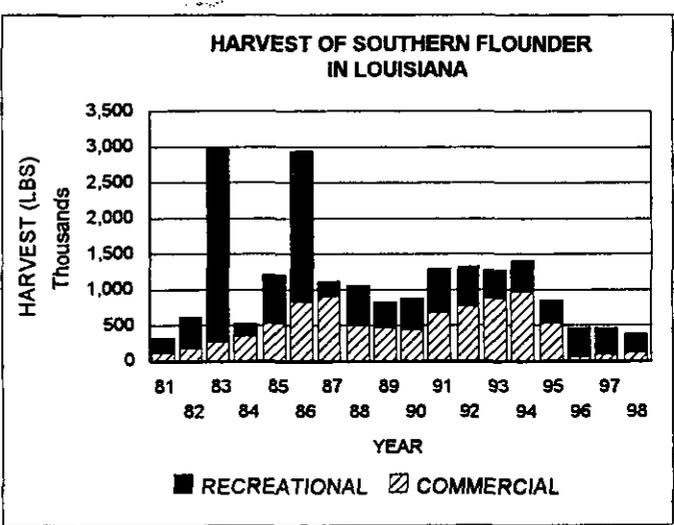
SOUTHERN FLOUNDER
SUMMARY OF CHANGES FROM 1999 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 1999 assessment conducted for southern flounder.

- There was one improvement to the assessment for 2000. Formerly, disappearance rates were calculated separately for the commercial and recreational fishery. This assessment combines the commercial and recreational catch to produce an annual catch-at-age matrix. Disappearance rates are then calculated on the fishery as a whole and better reflect the cumulative impact of the fishery on the flounder stock. Past assessments relied on the assumption that commercial and recreational selectivities were similar. This year's assessment eliminates the need to make that assumption.

2000 DOCUMENT HIGHLIGHTS

- 1998 combined commercial and recreational harvest of 411,242 pounds is the second lowest harvest for the years examined.
- The results of YPR analysis indicate that for the years assessed (1994-1998) if $M=0.5$ (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating between $F_{0.1}$ and F_{MAX} , with yields of 90% to 92% of maximum and SPR at 27% to 30%. An M of 0.8 (the highest value within the range examined) would produce yields of 52% to 57% of maximum with SPR at 51% to 56%.



- Regulations implemented between 1995 and 1997 have significantly reduced harvest and have likely reduced fishing mortality rates from those currently estimated. The change in regulations in 1999 will likely increase commercial harvest. It is premature to determine with any precision the impact of current regulations on fishing mortality rates. However, we can speculate that fishing mortality rates will increase to some extent if flounder that were caught as by-catch and released alive are now retained. It is anticipated though, that fish released alive are a small proportion of the flounder catch, and retention of these fish will not have a substantial impact on fishing mortality rates.
- It should be noted that the method used in this assessment to determine the status of the stock, reflected in the estimates of disappearance, is not immediately sensitive to changes in regulations. It takes several years, depending on the longevity of the species, before the impact of changes in fishing mortality are realized.

SOUTHERN FLOUNDER 5.0 STOCK ASSESSMENT

This assessment uses yield-per-recruit (YPR), Spawning Potential Ratio (SPR) and catch curve analyses to estimate the impact of fishing pressure on potential yield and the spawning potential of the southern flounder stock in Louisiana waters. Estimates derived from YPR and SPR are based on information regarding the growth rate and spawning potential of the fish, and on estimates of the natural mortality rate (M) and fishing mortality rate (F) on the stock. Catch-curve analysis estimates disappearance rates (Z') from the fishery based on the relative abundance of each age class in the harvest. The results from this assessment provide a generalized approach towards estimating the impact of fishing on the spawning potential and potential yield of the fish stock. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock; therefore, where possible, only data on female southern flounder are used. Yield-per-recruit and SPR analysis, as with many other generalized assessments, should be used only as a guide until a more comprehensive assessment can be conducted.

In developing a stock assessment, the unit stock must be defined. While a unit stock is often represented by that portion of the population which is genetically similar, for our purpose, the most applicable definition seems to be one which considers the unit stock as that portion of the population which is either dependent on Louisiana waters, or which is available to Louisiana fishermen.

5.1 Growth

Von Bertalanffy growth parameters were calculated for female southern flounder in Louisiana by using aged samples collected by Thompson (B. Thompson, Coastal Fisheries Institute, Louisiana State University, unpublished data) combined with juveniles assigned to age 0 (< 100 mm total length) by length frequency analysis from LDWF fishery-independent trawl samples. From the combined data, a three-parameter von Bertalanffy growth equation was estimated using nonlinear approximation (SAS, 1987). The equation is as follows:

$$\text{Female } L_t = 509(1 - e^{-0.8846(t-0.0954)})$$

where, L_t = length at age t . A plot of the data and predicted growth is provided in Figure 5.1. A length-weight regression for female southern flounder was derived using fish collected in Louisiana by Thompson (unpublished data) and the LDWF fishery-independent surveys. The resulting output of the SAS regression analysis is presented in Table 5.1. The length-weight regression used is as follows:

$$\log W = 3.18369 * \log L - 5.386116$$

where, W = body weight in grams, and L = total length in millimeters. A plot of the data and predicted weight-at-length is provided in Figure 5.2.

5.2 Natural Mortality

Natural mortality is one part of total mortality (Z) and is the mortality due to all causes other than fishing. These include predation, disease, spawning stress, starvation, and old age. Typically,

natural mortality is estimated as it is difficult to directly measure, especially on exploited fish stocks where natural mortality and fishing mortality occur simultaneously. No direct measure of natural mortality for southern flounder is available; therefore, several established estimation procedures were used to derive an estimate. The procedures are presented below and are taken from Sparre and Venema (1992).

Pauly (1980) provides a method of estimating natural mortality from a set of parameters including the asymptotic length and growth rate of the fish, and the average water temperature of the environment. The growth parameters from the von Bertalanffy growth equation described in Section 5.1 and the mean annual water temperature, derived from readings from a set of four constant recorders located throughout the Barataria Bay system, were used in the calculation. The mean water temperature was 22.7°C for the period 1989 - 1992 (pers. comm., M. Kasprzak, 4/13/92). These values were incorporated into the length-based function of Pauly (1980):

$$\ln(M) = -0.0152 - 0.279 * \ln(L_{\infty}) + 0.6543 * \ln(K) + 0.463 * \ln(T)$$

where, $\ln(M)$ = natural log of natural mortality, $\ln(L_{\infty})$ = natural log of the asymptotic length, $\ln(K)$ = natural log of the growth coefficient and $\ln(T)$ = natural log of the mean annual temperature in degrees Celsius.

Use of Louisiana data on growth and water temperature applied to Pauly's function results in a natural mortality estimate of $M=0.68$.

Alagaraja (1984) and Hoenig (1983) provide methods of estimating M based on the fish's lifespan or longevity with the assumption that $M=Z$. Longevity is also difficult to determine for exploited fish stocks, since the age distribution is usually truncated by fishing, but these methods are as useful as any in providing provisional estimates of natural mortality. The functions described by Alagaraja (1984) are:

$$\begin{aligned} M_{1\%} &= -\ln(0.01)/T_m \\ M_{0.1\%} &= -\ln(0.001)/T_m \end{aligned}$$

where, $M_{1\%}$ and $M_{0.1\%}$ are the natural mortality rates corresponding to 99% and 99.9% mortality, respectively, given a fish's lifespan (T_m) in years. Female southern flounder in Louisiana have been aged to 7-years-old (Thompson, personal communication). If it is assumed that 99% or 99.9% of the fish die by age 7 then corresponding natural mortality rates for $M_{1\%}$ and $M_{0.1\%}$ would be 0.66 and 0.99 respectively.

The function described by Hoenig(1983) is :

$$\ln(Z) = 1.46 - 1.01 * \ln(T_m)$$

where, when $M=Z$, longevity (T_m) can be defined as the maximum survival age. If we assume that the maximum age of southern flounder has been truncated due to fishing from 9 to 7 years, the resulting estimate of natural mortality, given $T_m=7$, would be 0.60. However, if our assumption is incorrect and the maximum age is 9 years then the estimate of natural mortality would be 0.47.

Another method of estimating M is described by Rikhter and Efanov (1976) and utilizes population age at sexual maturity. The function is:

$$M = 1.521 / (Tm50\%^{0.720}) - 0.155$$

where, $Tm50\%$ is the age at which 50% of the population is mature. Age 1 is assumed to be the age at 50% maturity, based on the length at sexual maturity found by several researchers (Adkins et al. 1996), and results in an M of 1.37. However, if 50% maturity occurs at age 2 rather than age 1, the estimate of natural mortality would be 0.77.

In summary, the estimated rates of natural mortality for southern flounder in Louisiana using a variety of estimation procedures are as follow:

Pauly (1980)	0.68
Alagaraja (1984)	0.66 and 0.99
Hoening (1983)	
1) Longevity 9 years	0.47
2) Longevity 7 years	0.60
Rikhter and Efanov (1976)	
1) 50% maturity age 1	1.37
2) 50% maturity age 2	0.77

5.3 Disappearance Rates and Fishing Mortality

The disappearance rate (Z') from the fishery comprises total mortality (natural + fishing) and some unknown rate of decreasing availability of the fish to the fishery. If the unknown rate of availability is small or nonexistent, then the disappearance rate will be a reasonable estimate of total mortality. However, if a large portion of the disappearance rate is due to fish not being available to the fishery, then assuming $Z'=Z$ will overestimate the impact of fishing.

There was one improvement to the assessment for 2000. Formerly, disappearance rates were calculated separately for the commercial and recreational fishery. This assessment combines the commercial and recreational catch to produce an annual catch-at-age matrix. Disappearance rates are then calculated on the fishery as a whole and better reflect the cumulative impact of the fishery on the flounder stock. Past assessments relied on the assumption that commercial and recreational selectivities were similar. This year's assessment eliminates the need to make that assumption.

An annual catch-at-age matrix was developed by applying a single age-length-key to the years where length frequency data for the commercial and recreational fishery was available (1994 - 1998). Length frequency data were obtained from the Trip Interview Program (TIP) for the commercial fishery, and from the NMFS Marine Recreational Fishery Statistics Survey (MRFSS) for the recreational fishery. The data from both of the surveys did not distinguish between sexes, therefore we assumed for this assessment that all fish sampled were female. An age-length-key was developed from otolith aging of fish by Thompson (unpublished data) and LDWF's ongoing aging study. Eleven hundred and seventy nine aged fish were used in the development of the age-length key (Table 5.2). To calculate disappearance rates, we regressed the natural log of the catch-at-age, beginning with

the age at full recruitment to the fishery. This method assumes that recruitment is constant and the fishery is in equilibrium. A range of natural mortality rates were used in the assessment. After reviewing estimates of M in Section 5.2, we chose not to assume either method of estimating M was better than another, but rather to present results for the range of estimates. The range of M was from 0.47 - 1.37. We chose to use an M of 0.5 - 0.8 that encompass most of the estimates. Disappearance rates were calculated from the combined commercial and recreational catch-at-age data by year for 1994 - 1998. The calculated disappearance rates ranged from 1.20 to 1.29 (Table 5.3 and Figures 5.3A-E).

Catch-at-age from the fishery for the years 1994-1998 was used to derive age-specific selectivities to be used in yield-per-recruit analysis. The method presented in Sparre and Venema (1992) was used to develop selectivities. This method uses a linearized catch curve to determine the selectivity of fish not yet fully recruited to the fishery. The ratio of the observed catches to the expected catches at each age is the probability of capture or selectivity of the fishery at age. This selection ogive is then regressed in the equation:

$$\ln(1/S_t - 1) = T1 - T2 * t$$

where, S_t = the selectivity at age t , and $T1$ and $T2$ are constants corresponding to the intercept and slope of the regression. To develop theoretical or estimated selectivities at age the following equation is used:

$$S_t \text{ (estimate)} = 1 / (1 + \exp(T1 - T2 * t))$$

Selectivities for ages up to full age-at-recruitment were used to describe the relative fishing mortality to that point; for age at full recruitment and older, selectivities are assumed to be 1, or 100% selected. Selectivities are as follows:

$$\begin{aligned} \text{age } 0 &= 0.0119 \\ \text{ages } 1 \text{ and older} &= 1. \end{aligned}$$

5.4 Yield per Recruit

Yield-per-recruit and SPR analysis provide basic information on fish stock dynamics by estimating the impact of mortality on yield and the spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential.

The growth parameters described in Section 5.1, sexual maturity described in Section 5.2 and the age-specific selectivities described in Section 5.3 were incorporated into the yield-per-recruit and spawning potential analysis. Fecundity estimates were not available, therefore, mean weight at age was used in the estimation of spawning potential. Natural mortality rates of 0.5 to 0.8 by 0.1 were used in the analysis because they are on the lower end of the range of estimates and would provide the most conservative results. These rates are also used to describe the sensitivity of M on yield and spawning potential. The results are presented in Table 5.4, which contains estimates of F_{MAX} (fishing mortality rate that produces maximum yield), $F_{0.1}$ (fishing mortality rate representing 10% of the slope at the origin of a yield-per-recruit curve), $F_{20\%SPR}$ (fishing mortality that produces 20% SPR), $F_{30\%SPR}$

(fishing mortality that produces 30% SPR), and annual estimates of F from the disappearance rates calculated in Section 5.3.

5.5 Conservation Standards

Conservation standards are intended to protect the viability of a fish stock for future generations. These standards have historically been based on a number of biological measures of the dynamics of fish stocks, depending on the availability and adequacy of data. Conservation standards should be separated into two types: a conservation threshold which is entirely biologically based and, a conservation target which considers biological measures modified by relevant social, economic, and ecological factors. A conservation threshold is a biological baseline for the harvest of a fish stock and should not be exceeded. It is the highest level of fishing mortality that will ensure that recruitment overfishing will not occur. Beyond the conservation threshold, a conservation target may be set, providing for other management goals in the fishery. Such goals may include maximizing yield in weight or numbers of fish, economic benefits or profit, employment, or some other measurable goal. These targets should be set at a fishing mortality rate below that of the conservation threshold in order to ensure that the biological integrity of the stock is not damaged by fishing.

The spawning potential ratio (SPR) concept described by Goodyear (1989), is a species specific value expressed as the ratio of the spawning stock biomass (or egg production) per recruit (SSB/R) in a fished condition to the SSB/R in an unfished condition. The concept is based on the premise that below some level of SPR, recruitment will be reduced. Goodyear (1989), recommends that in the absence of sufficient data to provide a value specific to the stock in question an SPR of 20% be used as a threshold. Work on North Atlantic ground fisheries also resulted in the calculation of a threshold SPR of 20% (Gabriel et al. 1984, Gabriel 1985). An SPR of 20% has been recommended for Spanish and king mackerel in the Gulf of Mexico (National Oceanic and Atmospheric Administration/National Marine Fisheries Service 1995), while an SPR of 8-13% has been demonstrated to be sufficient for gulf menhaden (Vaughan 1987). In earlier analyses of Louisiana spotted seatrout fisheries (Louisiana Department of Wildlife and Fisheries 1991), an SPR threshold of 15% was recommended based on several years of data. Mace and Sissenwine (1993) examined 90 stocks of 27 species, and reported that the average replacement SPR for all these stocks was 18.7%, while the most resilient quarter of the stocks required a maximum of only 8.6%. These authors recommended that an SPR of 30% be maintained when there is no other basis for estimating the replacement level, as this level was sufficient in maintaining recruitment for 80% of the stocks examined. However, they noted that 30% may be overly conservative for an "average" stock, and reiterated the need for stock-specific evaluations of standards to enhance both safety and benefits in the fishery.

Sufficient information is not available to directly estimate a conservation threshold for southern flounder in Louisiana. However, the conservation target of 30% SPR established by the 1995 Regular Session of the Louisiana Legislature for black drum, southern flounder, sheepshead, and striped mullet appears to be adequate to maintain the southern flounder stock and prevent recruitment overfishing.

The use of any measure of the health of a fish stock as a perfect index is arguable. It is logical to conclude that growth overfishing should occur at a much lower fishing rate than that which would

threaten recruitment. However, Mace and Sissenwine (1993) provide information to suggest that some stocks may have reduced recruitment at levels of fishing that would not reduce yield-per-recruit. The preferable position for making recommendations on appropriate levels of fishing for a stock is to base those recommendations on actual measures of spawning stock size and recruitment for both the species and fishery in question. This requires a base of information resulting from monitoring of both the stock and the fishery over a variety of conditions. Without this information, conservation standards may either underestimate or overestimate the potential of a fishery. If the potential is underestimated, society loses the economic and social benefits of the harvest. If the potential is overestimated and the fishery is allowed to operate beyond sustainable levels, society loses the benefits of a sustainable fishery, and recovery will require some period of rebuilding, when effort must be reduced from the non-sustainable levels (Hilborn and Walters, 1993). Some researchers have speculated that overharvest of some stocks may lead to their replacement in the ecosystem by other, often less preferred, stocks. The frequency of such replacements is unknown, and the cause of shifts in species predominance in an ecosystem are difficult to ascertain, even after the fact. Such a shift has been reported in the Georges Bank area, where prolonged, intense harvest of cod and haddock has been implicated in gradual increases in skate and spiny dogfish populations (National Oceanic and Atmospheric Administration 1993).

5.6 Status of the Stock

Rules for the harvest of southern flounder have changed substantially over the last four years. Commercial harvest methods were changed on August 15, 1995 when Act 1316 of the 1995 Regular Legislative Session, the Marine Resources Conservation Act of 1995, became effective. This act outlawed the use of "set" gill nets or trammel nets in saltwater areas of Louisiana, and restricted flounder harvest by the use of "strike" nets to the period between the third Monday in October and March 1 of the following year. A "Restricted Species Permit" was required in order to harvest flounder, and several criteria were established in order to qualify for that permit. After March 1, 1997, all harvest by gill or trammel nets was banned, and commercial harvesters must utilize other legal commercial gear to harvest flounder. This set of regulations had the effect of substantially reducing the harvest of flounder by this segment of the commercial fishing industry.

A second set of regulations became effective on May 1, 1996. Recreational harvesters were restricted to a creel limit of ten (10) southern flounder, with one day's limit in possession. At the same time, the use of strike nets for the harvest of southern flounder was outlawed, and other commercial harvesters were limited to a possession limit of ten (10) fish per person aboard a commercial vessel. This set of regulations reduced the ability of some recreational harvesters to retain southern flounder, and also reduced the harvest potential of the commercial fishing industry.

In 1997, regulations were changed by Acts 1163 and 1352 of the 1997 Regular Legislative Session. Recreational and commercial harvesters continued to have a daily take limit of 10 fish, but were allowed that take limit for each day on the water. Additionally, commercial shrimping vessels are limited to 100 pounds of southern flounder per shrimping trip.

In 1999, regulations were changed by Act 220 of the 1999 Regular Legislative Session. The act eliminated the 100 pound harvest limit on commercial shrimping when southern flounder are harvested as by-catch. The Act became effective in August of 1999.

Commercial landings have fluctuated over the period 1950-1998 with the highest landings in the mid-1980s and mid-1990s at 0.94 and 0.97 million pounds, respectively (Figure 5.4). Regulatory measures implemented in 1995, 1996 and 1997 had much to do with the reduction in commercial harvest to 61,755 pounds in 1996, 94,898 pounds in 1997 and 139,929 in 1998. Recreational landings were equal to or greater than those of the commercial fishery until 1991 when the commercial fishery began harvesting a greater percentage of the total harvest (Figure 5.5). As a result of the regulatory measures described above the recreational harvest was greater than the commercial harvest in 1996, 1997, and 1998. Harvest from the recreational fishery has fluctuated for the years examined (1981-1998), and has been relatively stable since 1988. Mean catch-per-trip from the recreational fishery was calculated by selecting those trips that had southern flounder in the catch. The means with 95% confidence limits are presented in Figure 5.6. The catch-per-effort (CPUE) indices seem to cycle over the years examined, with 1987 having the lowest mean cpue. Since 1990 cpue has shown a declining trend with 1998 being significantly lower than 1982, 1983, 1990 and 1991. Catch-per-effort data from the Departments, fishery-independent trammel net (750' - 1 5/8" inner, 6" outer wall) and 16-foot flat otter trawl samples were calculated as follows:

$$\text{Mean CPUE} = (\exp (\sum \ln (\text{catch} + 1) / N)) - 1$$

where, catch is the total number caught in each set and, N is the number of samples taken annually. Trammel net data were used for the period 1986-1999, and 16-foot trawl data were used for the period 1967- 1999. Trammel net samples are collected from October through March. In order to use the most recent data available to us in this report, trammel net CPUE was estimated for two periods (January-March and October-December). This allowed the use of 1999 data through December. CPUE estimates from trammel nets fluctuated without any indication of a downward trend (Figure 5.7A-C). The large amount of variation in January - March samples for 1987 is due to small sample size (Figure 5.7A). Standardized CPUE estimates presented in Figure 5.7C indicate better than average catches in the latter half of the years examined. Trawl data were used to provide an index of young-of-the-year recruitment. The long-term database provide by 16-foot trawl data shows how CPUE cycles over time and represent natural fluctuations in recruitment. Whatever the cause of the cyclic nature of the indices, no evidence from the 16-foot trawl data indicates a long-term downward trend in CPUE for southern flounder (Figure 5.8).

It should be noted that the following results of YPR and SPR analysis do not reflect the impact of current regulations described above. With this type of general assessment, it will take several years before the impact of regulations will be observed in the disappearance rates from the fishery.

The results of YPR analysis indicate that if $M=0.5$ (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating between $F_{0.1}$ and F_{MAX} , with yields of 90% to 92% of maximum and SPR at 27% to 30%. An M of 0.8 (the highest value within the range examined) would produce yields of 52% to 57% of maximum with SPR at 51% to 56% (Table 5.4).

Regulations implemented between 1995 and 1997 have significantly reduced harvest and have likely reduced fishing mortality rates from those currently estimated. The change in regulations in

1999 will likely increase commercial harvest. It is premature to determine with any precision the impact of current regulations on fishing mortality rates. However, we can speculate that fishing mortality rates will increase to some extent if flounder that were caught as by-catch and released alive are now retained. It is anticipated though, that fish released alive are a small proportion of the flounder catch, and retention of these fish will not have a substantial impact on fishing mortality rates.

5.7 Research and Data Needs

Estimates of natural mortality used in the present assessment show wide variation. This variation reduces the reliability of the present assessment in providing an accurate prediction of the potential yield of the stock, and also reduces the confidence level of the present estimate of SPR. A more precise estimate of natural mortality would assist in both of these problems.

Annual sex specific age-length keys should continue to be developed to provide catch-at-age data necessary to conduct age-based population assessments. The department is in the process of collecting otoliths for development of annual age-length keys.

Sex specific fishery dependent length frequency data is essential in adequately partitioning catch from the fishery. In the case of flounder, males grow slower and do not get as large as females. There can be significant improvement in the accuracy of this assessment if sex is collect.

The relationship between wetlands losses or modifications and the continuation of fishery production within the state has been discussed by many authors. However, this relationship is likely to be different for the various fishery species. Understanding of this relationship for southern flounder should be an ongoing priority.

In the presence of changing regulations, fishery-dependent information is not a reliable source of data necessary to assess the status of a fish stock. However, such data is necessary to measure the effects of fishing on that stock. Consistent fishery-dependent and fishery-independent data sources, in a comprehensive monitoring plan, are essential to understanding the status of fishery stocks, and to identifying causes of changes in stock abundances. Present programs should be assessed for adequacy with respect to their ability to evaluate stock status, and modified or enhanced to optimize their capabilities.

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Table 5.1 - SAS output from length-weight regression analysis

The SAS System

Model: MODEL1

Dependent Variable: LOG_W

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	1	54.62048	54.62048	14726.405	0.0001
Error	966	3.58291	0.00371		
C Total	967	58.20339			

Root MSE	0.06090	R-square	0.9384
Dep Mean	2.90704	Adj R-sq	0.9384
C.V.	2.09497		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > T
INTERCEP	1	-5.386116	0.06836746	-78.782	0.0001
LOG_L	1	3.183690	0.02623508	121.352	0.0001

Table 5.2 - Age-at-length distribution of fish used in age-length key development.

Length (inches)	AGE								Total
	0	1	2	3	4	5	6	7	
5		1							1
6									
7		1							1
8	6	4							10
9	2	10							12
10	12	17							29
11	10	21	3	2					36
12	5	40	8	2					55
13	8	57	8	3					76
14	4	94	29	1					128
15	1	139	38	5			1		184
16		122	48	7	1				178
17	1	87	53	14	3				158
18		64	45	13	2	3			127
19		34	33	7	5	2		1	82
20		10	16	2	6	1			35
21		10	15	8	5				38
22			3	4	1		1		9
23			5	2	3	1			12
24				3	1	2			6
25					1				1
26				1					1
Total	49	712	304	74	28	9	2	1	1,179

Table 5.3 Regression Output from the Estimation of Disappearance Rates

1994		1995	
Regression Output:		Regression Output:	
Constant	14.767423	Constant	14.229906
Std Err of Y Est	0.1867269	Std Err of Y Est	0.2122708
R Squared	0.9957955	R Squared	0.9945205
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-1.214348	X Coefficient(s)	-1.20846
Std Err of Coef.	0.0352881	Std Err of Coef.	0.0401154
1996		1997	
Regression Output:		Regression Output:	
Constant	13.546918	Constant	13.602032
Std Err of Y Est	0.2944606	Std Err of Y Est	0.3683023
R Squared	0.9906222	R Squared	0.9845337
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-1.278901	X Coefficient(s)	-1.241746
Std Err of Coef.	0.0556478	Std Err of Coef.	0.0696026
1998			
Regression Output:			
Constant	13.627804		
Std Err of Y Est	0.2602787		
R Squared	0.9928173		
No. of Observations	7		
Degrees of Freedom	5		
X Coefficient(s)	-1.293108		
Std Err of Coef.	0.0491881		

Table 5.4 Results of Yield per Recruit and SPR Analysis for Southern Flounder

M=0.5

	F Ratio	YPR	SPR	%SPR	%YPR	
F-max =	5.8346	0.6563	0.1125	4.09%	100.00%	Benchmarks
F0.1 =	0.5521	0.5600	1.0143	36.86%	85.32%	
F30% =	0.7207	0.5950	0.8256	30.00%	90.66%	
F20% =	1.1450	0.6302	0.5504	20.00%	96.01%	
1994 =	0.7143	0.5940	0.8316	30.22%	90.51%	Estimates
1995 =	0.7085	0.5931	0.8372	30.42%	90.36%	
1996 =	0.7789	0.6031	0.7743	28.14%	91.89%	
1997 =	0.7417	0.5981	0.8064	29.30%	91.13%	
1998 =	0.7931	0.6048	0.7626	27.71%	92.15%	

M=0.6

	F Ratio	YPR	SPR	%SPR	%YPR	
F-max =	8.3340	0.6030	0.0700	3.54%	100.00%	Benchmarks
F0.1 =	0.6678	0.4757	0.7099	35.91%	78.90%	
F30% =	0.8460	0.5038	0.5931	30.00%	83.56%	
F20% =	1.3629	0.5422	0.3954	20.00%	89.93%	
1994 =	0.6143	0.4643	0.7533	38.11%	77.01%	Estimates
1995 =	0.6085	0.4630	0.7584	38.36%	76.78%	
1996 =	0.6789	0.4779	0.7014	35.48%	79.26%	
1997 =	0.6417	0.4704	0.7305	36.95%	78.01%	
1998 =	0.6931	0.4806	0.6909	34.95%	79.70%	

M=0.7

	F Ratio	YPR	SPR	%SPR	%YPR	
F-max =	9.1723	0.5411	0.0567	3.89%	100.00%	Benchmarks
F0.1 =	0.7970	0.4105	0.5126	35.13%	75.86%	
F30% =	0.9842	0.4332	0.4377	30.00%	80.05%	
F20% =	1.6064	0.4726	0.2918	20.00%	87.34%	
1994 =	0.5143	0.3522	0.6824	46.77%	65.10%	Estimates
1995 =	0.5085	0.3505	0.6870	47.08%	64.78%	
1996 =	0.5789	0.3692	0.6354	43.55%	68.24%	
1997 =	0.5417	0.3598	0.6618	45.35%	66.49%	
1998 =	0.5931	0.3726	0.6259	42.89%	68.86%	

M=0.8

	F Ratio	YPR	SPR	%SPR	%YPR	
F-max =	9.9844	0.4863	0.0465	4.22%	100.00%	Benchmarks
F0.1 =	0.9435	0.3596	0.3788	34.37%	73.94%	
F30% =	1.1347	0.3777	0.3306	30.00%	77.68%	
F20% =	1.8747	0.4174	0.2204	20.00%	85.85%	
1994 =	0.4143	0.2571	0.6182	56.10%	52.88%	Estimates
1995 =	0.4085	0.2552	0.6224	56.48%	52.47%	
1996 =	0.4789	0.2768	0.5757	52.24%	56.92%	
1997 =	0.4417	0.2658	0.5995	54.40%	54.67%	
1998 =	0.4931	0.2807	0.5670	51.45%	57.73%	

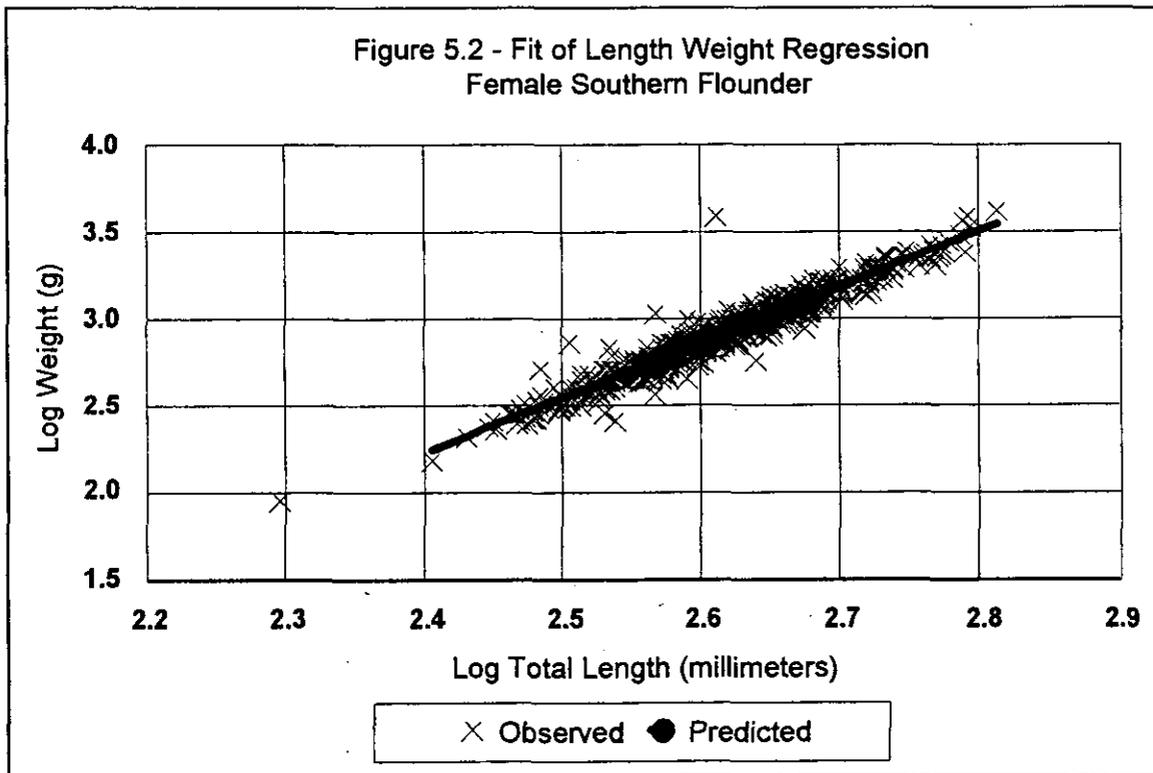
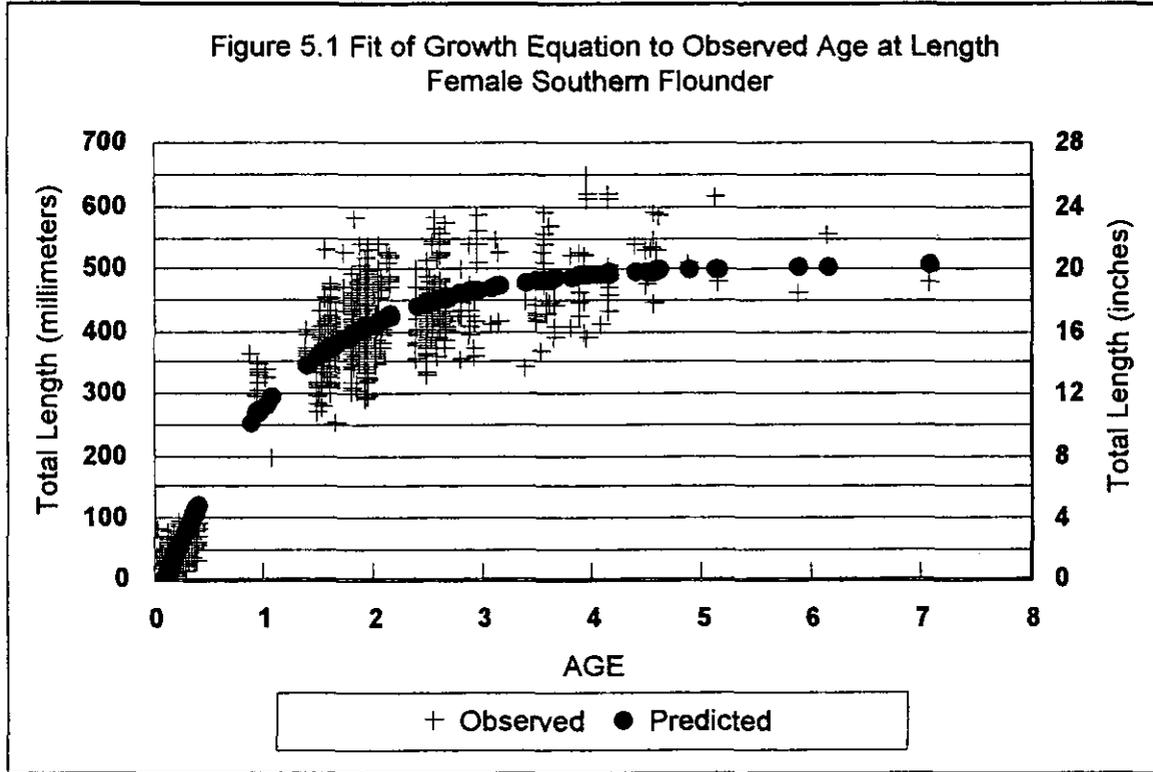


Figure 5.3A - Disappearance Rate for Southern Flounder
1994

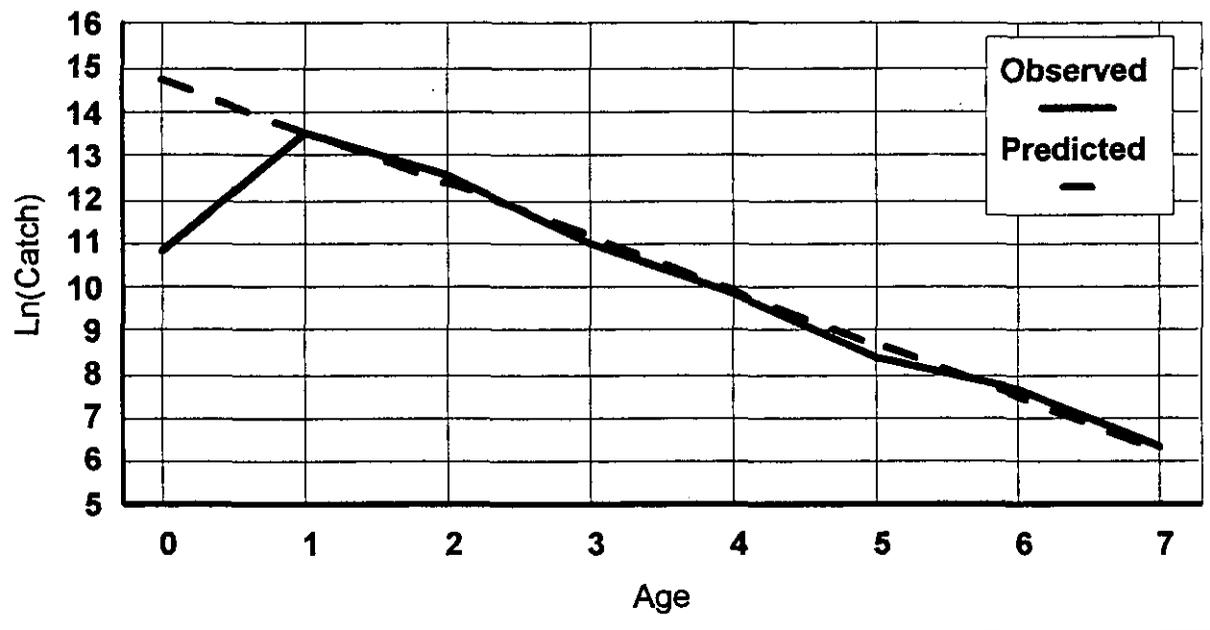


Figure 5.3B - Disappearance Rate for Southern Flounder
1995

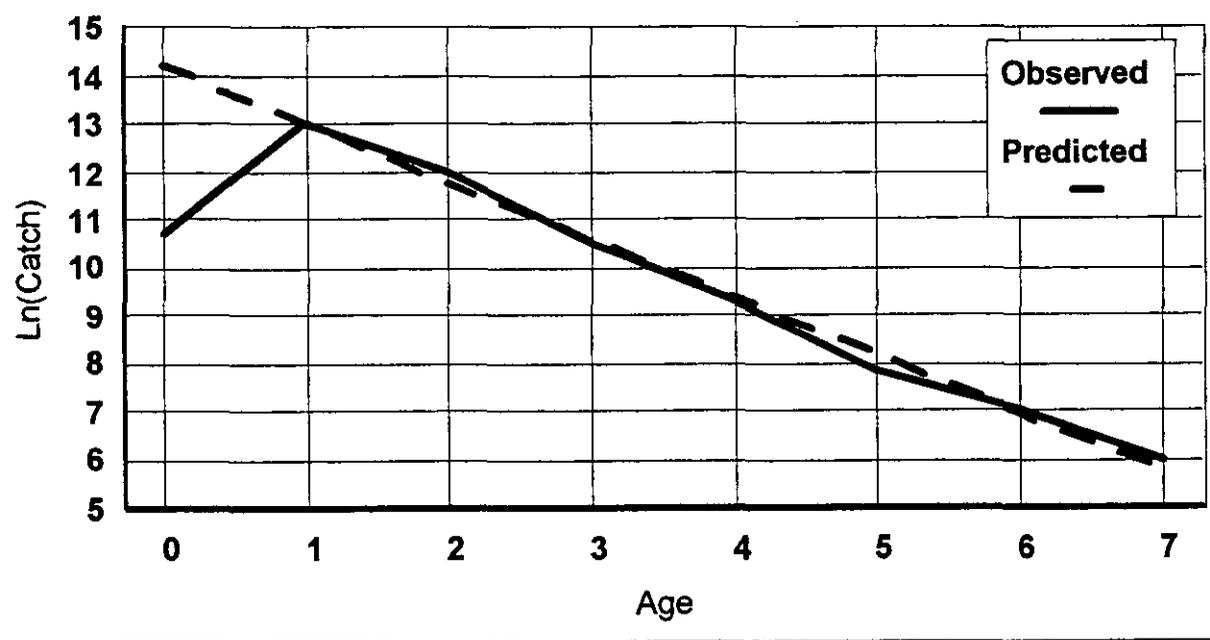


Figure 5.3C - Disappearance Rate for Southern Flounder
1996

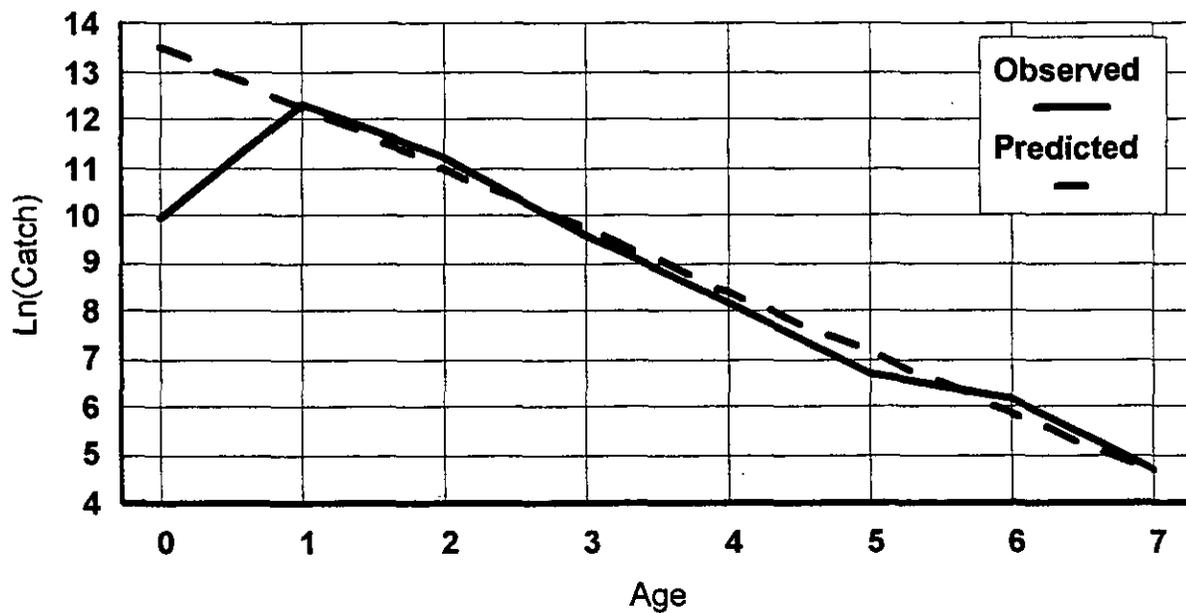


Figure 5.3D - Disappearance Rate for Southern Flounder
1997

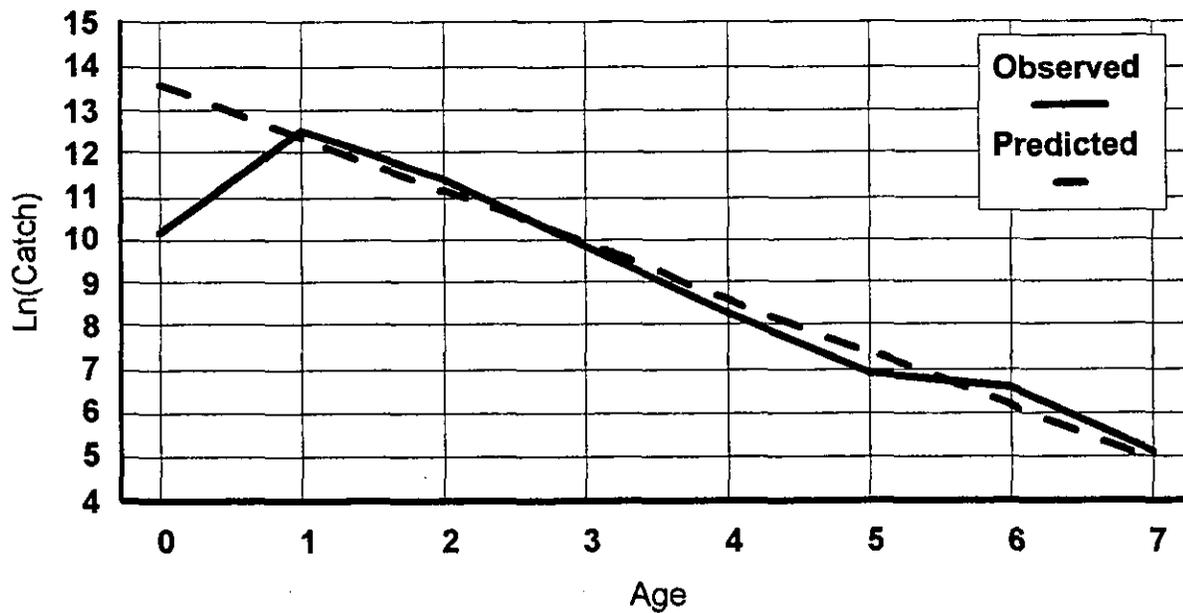


Figure 5.3E - Disappearance Rate for Southern Flounder 1998



Figure 5.4 - Commercial Harvest of Southern Flounder in Louisiana

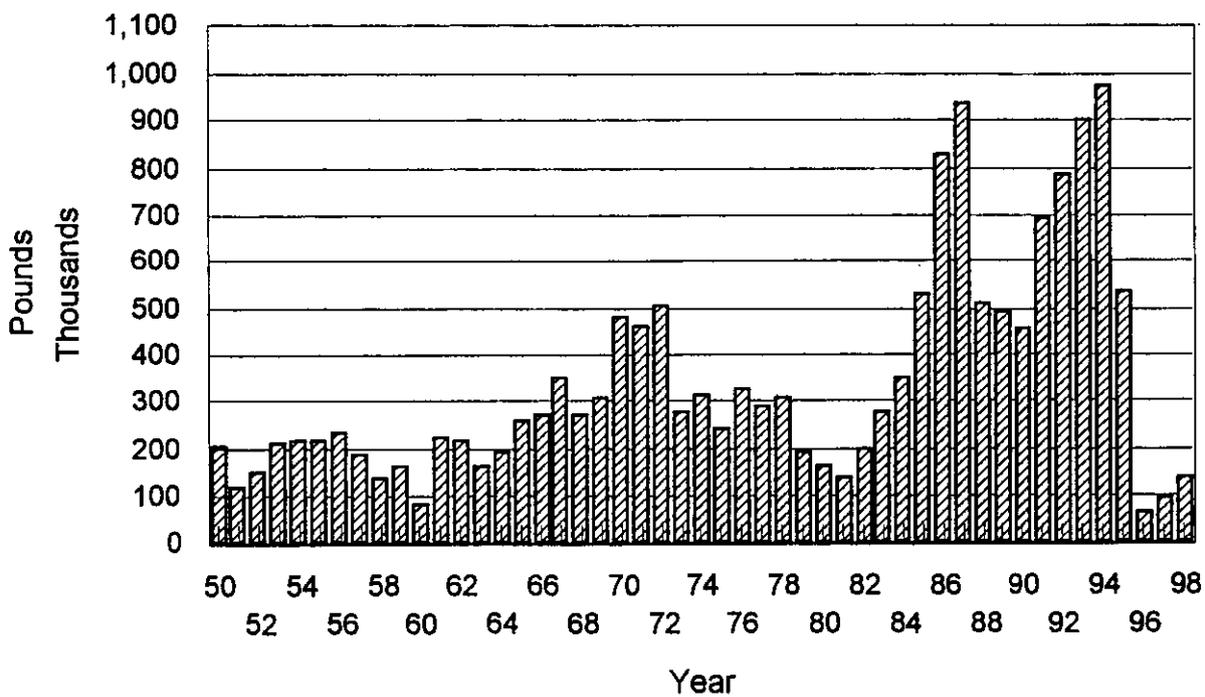


Figure 5.5 - Louisiana Commercial and Recreational Harvest of Southern Flounder

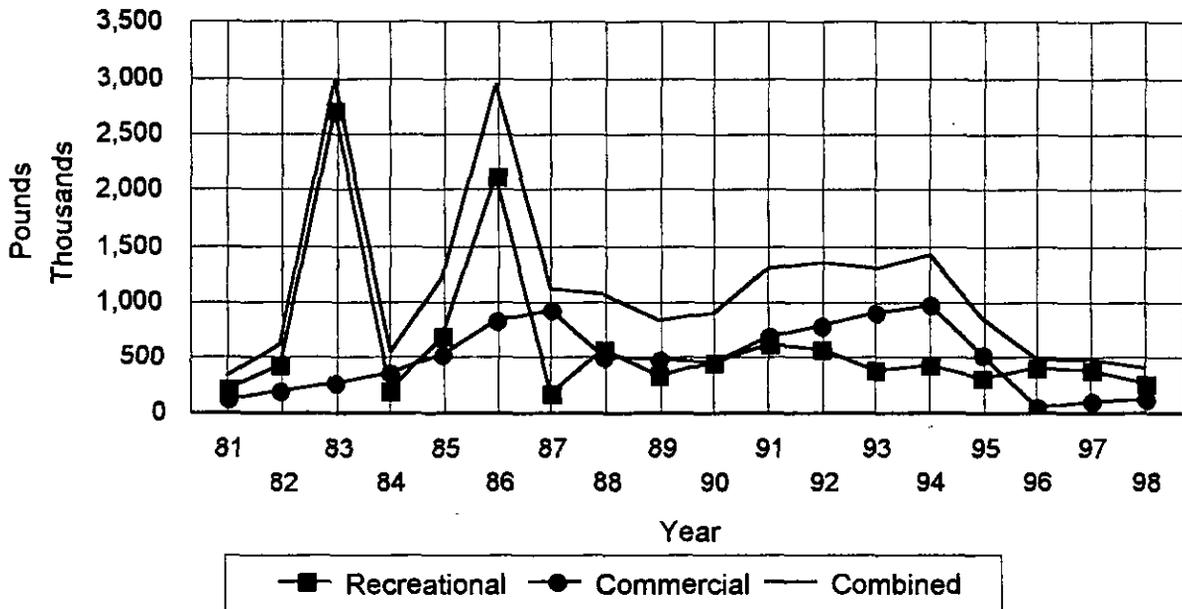
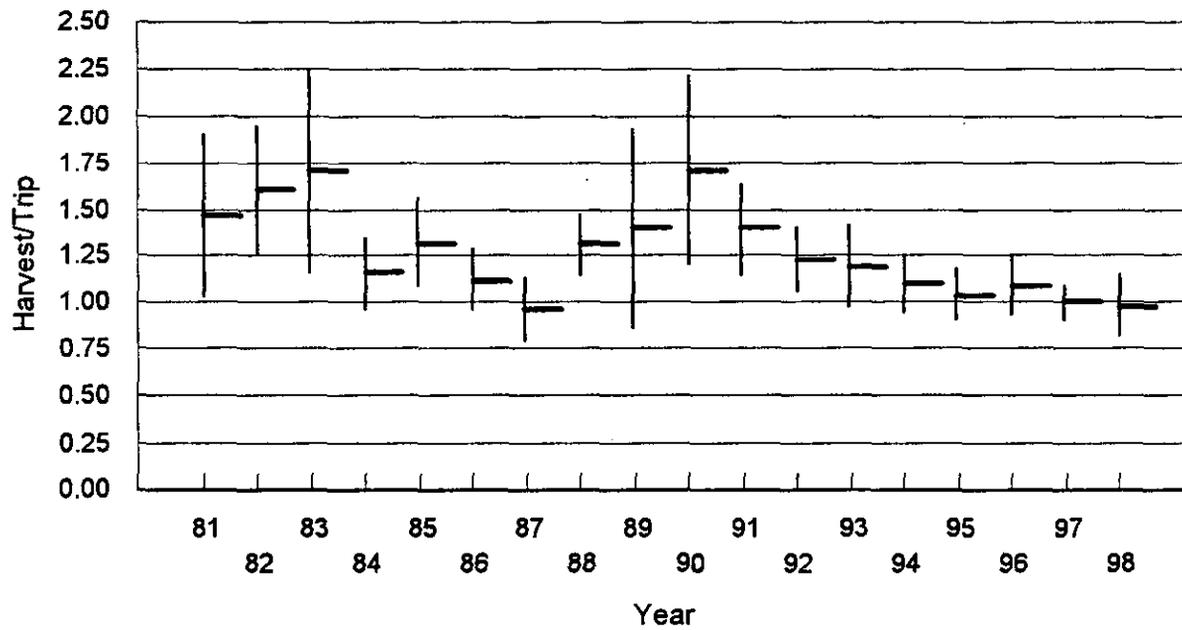
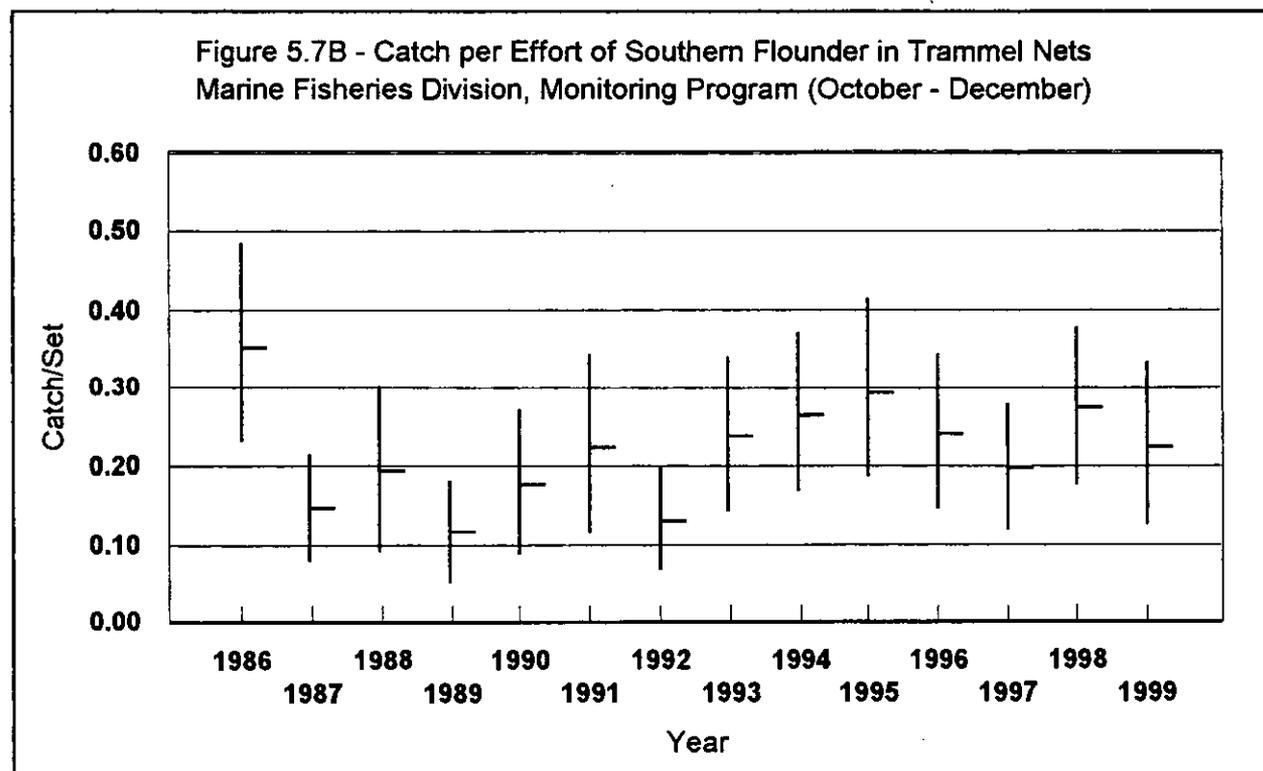
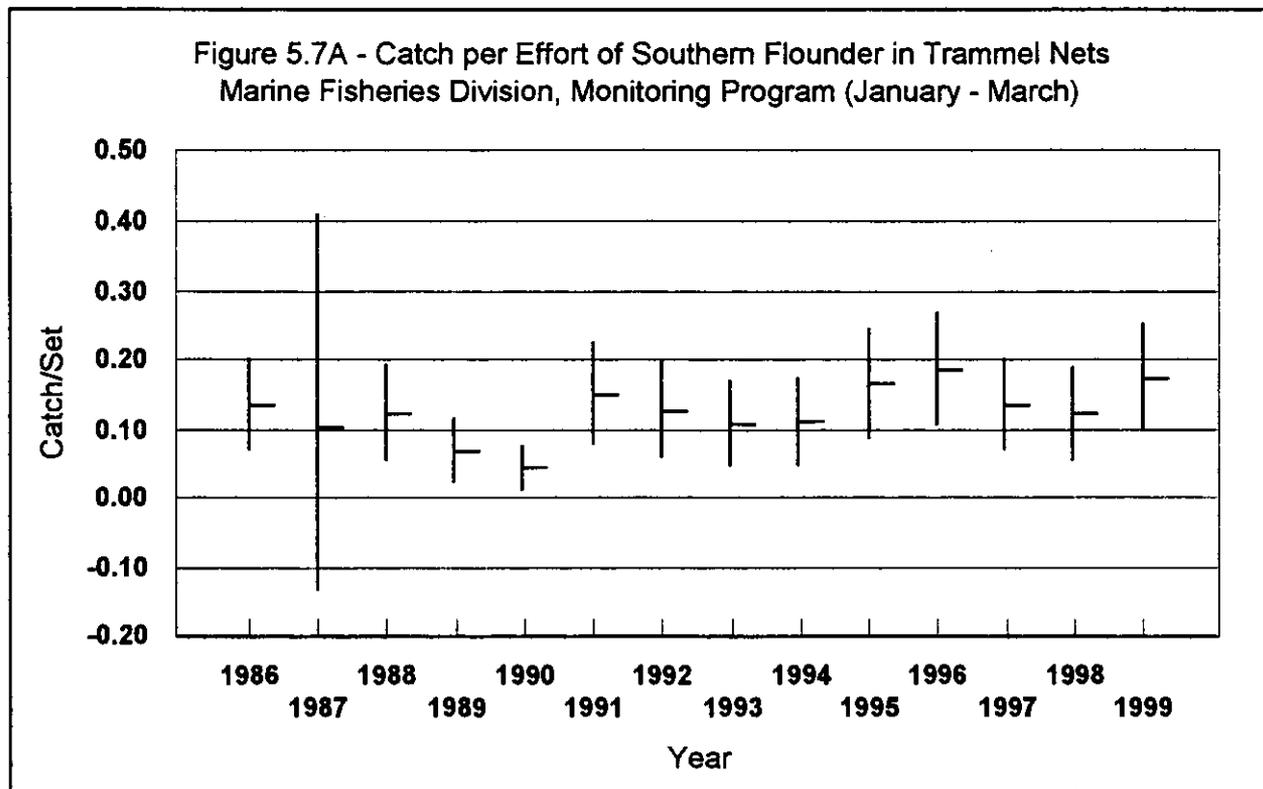
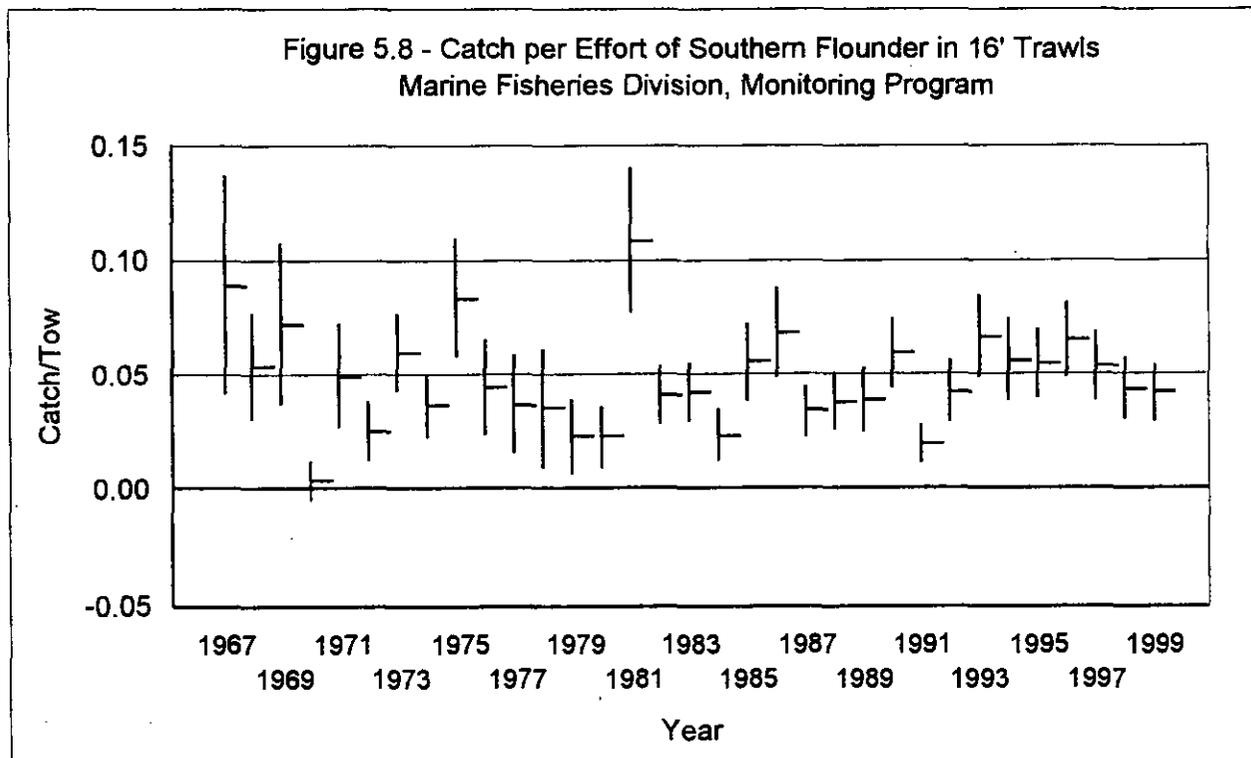
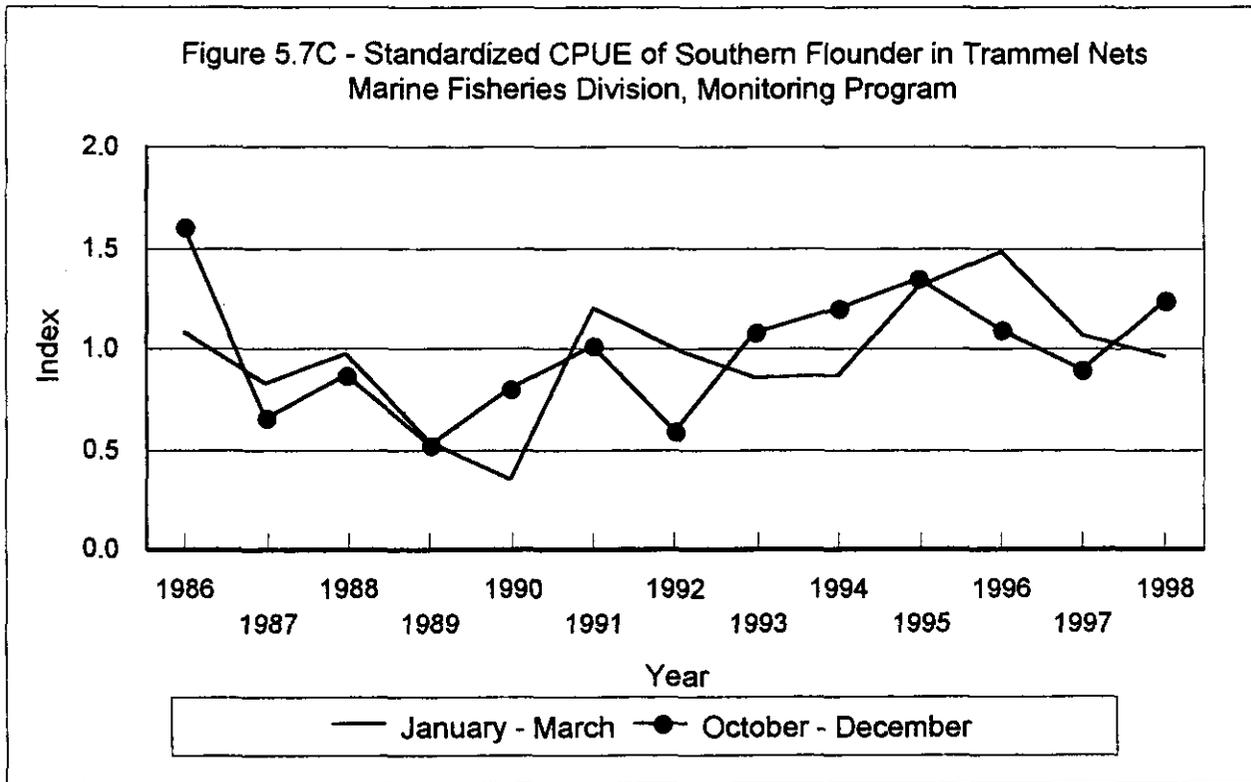


Figure 5.6 - Catch per Effort of Southern Flounder in Louisiana NMFS Marine Recreational Fishery Statistics Survey







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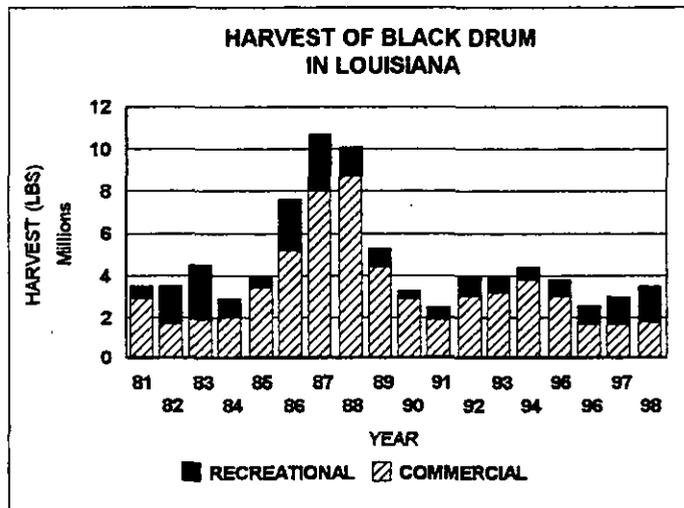
BLACK DRUM
SUMMARY OF CHANGES FROM 1999 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 1999 assessment conducted for black drum.

- There is no substantive changes in methods from the 1999 assessment.

2000 DOCUMENT HIGHLIGHTS

- 1998 combined commercial and recreational harvest of 3,467,725 pounds was the highest harvest of the three years after regulatory action in 1995 (Act 1316). However, 1998 harvest is well below the record set in 1987 at 10,747,017 pounds.
- The results of YPR analysis indicate that if $M=0.1$ (the most conservative value within the range of estimates), the fishery prior to existing regulations (Act 1316) was operating above $F_{0.1}$ and below F_{MAX} with yield of 92% of maximum, and SPR at 42%. An M of 0.15 or 0.2 would indicate a more lightly fished stock with yield being 67% to 45% of maximum and with SPR being 56% to 67% respectively.



BLACK DRUM

5.0 STOCK ASSESSMENT

This assessment uses yield-per-recruit (YPR) and Spawning Potential Ratio (SPR) to estimate the impact of fishing pressure on potential yield and the spawning potential of the black drum stock in Louisiana waters. Estimates derived from YPR and SPR are based on information regarding the growth rate and spawning potential of the fish, and on estimates of the natural mortality rate (M) and fishing mortality rate (F) on the stock. The results from this assessment provide a generalized approach towards estimating the impact of fishing on the spawning potential and potential yield of the fish stock. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock; therefore, where possible, only data on female black drum are used. Yield-per-recruit and SPR analysis, as with many other generalized assessments, should be used only as a guide until a more comprehensive assessment can be conducted.

In developing a stock assessment, the unit stock must be defined. While a unit stock is often represented by that portion of the population which is genetically similar, for our purpose, the most applicable definition seems to be one which considers the unit stock as that portion of the population which is either dependent on Louisiana waters, or which is available to Louisiana fishermen.

5.1 Growth

Luquet (1996) presents several growth equations for black drum. The one chosen for this assessment was developed by Geaghan and Garson (unpublished), and is a sloped asymptote model fitted to a von Bertalanffy growth equation. The data used by Geaghan and Garson (unpublished) was from Beckman et al. (1988) who used otolith sections in aging fish caught in Louisiana waters. The sloped asymptote model proved to fit the data better than did other equations. The equation is as follows:

$$L_t = (610 + 9.959 * t) * (1 - e^{-0.6226(t-0.1229)})$$

where, L_t = length at age t , and t = age in years.

The length-weight regression described by Beckman et al. (1988) from fish harvested in Louisiana was used in this assessment. The equation is as follows:

$$\log(W) = 3.05 * \log(FL) - 4.943$$

where, W = weight in grams, and FL = fork length in millimeters.

5.2 Natural Mortality

Natural mortality is one part of total mortality (Z) and is the mortality due to all causes other than fishing. These include predation, disease, spawning stress, starvation, and old age. Typically, natural mortality is estimated, as it is difficult to directly measure, especially on exploited fish stocks where natural mortality and fishing mortality occur simultaneously.

This assessment follows the former Louisiana Department of Wildlife and Fisheries (1990) assessment in using a range of values for natural mortality (0.1, 0.15, 0.2) to evaluate the sensitivity of M on the resulting spawning stock.

5.3 Fishing Mortality

Fishing mortality estimates derived in the former Louisiana Department of Wildlife and Fisheries (1990) assessment were used in this assessment to evaluate the impact of current fishing regulations on the spawning potential of the stock. The former assessment did not address the concept of spawning potential as a management measure. Only recently has this concept become widely used.

The former assessment used the growth equation described in Section 5.1 to develop annual catch-at-age tables.

5.4 Yield-per-Recruit

Yield-per-recruit and SPR analysis provides basic information about the dynamics of a fish stock by estimating the impact of mortality on yield and the spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential.

The growth parameters described in Section 5.1, the age-specific fishing mortality rates described in Section 5.3, and the natural mortality rates described in Section 5.2 were incorporated into the yield-per-recruit and spawning potential analysis. Fecundity estimates derived by Wilson et al. (1992) were used to estimate spawning potential. The equation is as follows:

$$\ln(\text{BF}) = 0.76 * \ln(\text{Age}) + 12.24$$

where, BF=batch fecundity. The results are presented in Table 5.1, which contains estimates of F_{MAX} (fishing mortality rate that produces maximum yield), $F_{0.1}$ (fishing mortality rate representing 10% of the slope at the origin of a yield-per-recruit curve), $F_{20\% \text{SPR}}$ (fishing mortality that produces 20% SPR), $F_{30\% \text{SPR}}$ (fishing mortality that produces 30% SPR), and estimates of F from Section 5.3.

5.5 Conservation Standards

Conservation standards are intended to protect the viability of a fish stock for future generations. These standards have historically been based on a number of biological measures of the dynamics of fish stocks, depending on the availability and adequacy of data. Conservation standards should be separated into two types: a conservation threshold which is entirely biologically based and, a conservation target which considers biological measures modified by relevant social, economic, and ecological factors. A conservation threshold is a biological baseline for the harvest of a fish stock and should not be exceeded. It is the highest level of fishing mortality that will ensure that recruitment overfishing will not occur. Beyond the conservation threshold, a conservation target may be set, providing for other management goals in the fishery. Such goals may include maximizing yield in weight or numbers of fish, economic benefits or profit, employment, or some other measurable goal. These targets should be set at a fishing mortality rate below that of the conservation threshold in order to ensure that the biological integrity of the stock is not damaged by fishing.

The spawning potential ratio (SPR) concept described by Goodyear (1989), is a species specific value expressed as the ratio of the spawning stock biomass (or egg production) per recruit (SSB/R) in a fished condition to the SSB/R in an unfished condition. The concept is based on the premise that below some level of SPR, recruitment will be reduced. Goodyear (1989), recommends that in the absence of sufficient data to provide a value specific to the stock in question an SPR of 20% be used as a threshold. Work on North Atlantic ground fisheries also resulted in the calculation of a threshold SPR of 20% (Gabriel et al. 1984, Gabriel 1985). An SPR of 20% has been recommended for Spanish and king mackerel in the Gulf of Mexico (National Oceanic and Atmospheric Administration/National Marine Fisheries Service 1995), while an SPR of 8-13% has been demonstrated to be sufficient for gulf menhaden (Vaughan 1987). In earlier analyses of Louisiana spotted seatrout fisheries (Louisiana Department of Wildlife and Fisheries 1991), an SPR threshold of 15% was recommended based on several years of data. Mace and Sissenwine (1993) examined 90 stocks of 27 species, and reported that the average replacement SPR for all these stocks was 18.7%, while the most resilient quarter of the stocks required a maximum of only 8.6%. These authors recommended that an SPR of 30% be maintained when there is no other basis for estimating the replacement level, as this level was sufficient in maintaining recruitment for 80% of the stocks examined. However, they noted that 30% may be overly conservative for an "average" stock, and reiterated the need for stock-specific evaluations of standards to enhance both safety and benefits in the fishery.

Sufficient information is not available to directly estimate a conservation threshold for black drum in Louisiana. However, the conservation target of 30% SPR established by the 1995 Regular Session of the Louisiana Legislature for black drum, southern flounder, sheepshead, and striped mullet appears to be adequate to maintain the black drum stock and prevent recruitment overfishing.

The use of any measure of the health of a fish stock as a perfect index is arguable. It is logical to conclude that growth overfishing should occur at a much lower fishing rate than that which would threaten recruitment. However, Mace and Sissenwine (1993) provide information to suggest that some stocks may have reduced recruitment at levels of fishing that would not reduce yield-per-recruit. The preferable position for making recommendations on appropriate levels of fishing for a stock is to base those recommendations on actual measures of spawning stock size and recruitment for both the species and fishery in question. This requires a base of information resulting from monitoring of both the stock and the fishery over a variety of conditions. Without this information, conservation standards may either underestimate or overestimate the potential of a fishery. If the potential is underestimated, society loses the economic and social benefits of the harvest. If the potential is overestimated and the fishery is allowed to operate beyond sustainable levels, society loses the benefits of a sustainable fishery, and recovery will require some period of rebuilding, when effort must be reduced from the non-sustainable levels (Hilborn and Walters, 1993). Some researchers have speculated that overharvest of some stocks may lead to their replacement in the ecosystem by other, often less preferred, stocks. The frequency of such replacements is unknown, and the cause of shifts in species predominance in an ecosystem is difficult to ascertain, even after the fact. Such a shift has been reported in the Georges Bank area, where prolonged, intense harvest of cod and haddock has been implicated in gradual increases in skate and spiny dogfish populations (National Oceanic and Atmospheric Administration 1993).

5.6 Status of the Stock

Black drum were lightly exploited until the early 1980s when commercial harvest began to increase dramatically (Figure 5.1). Commercial landings went from 0.4 million pounds in 1980 to 8.7 million pounds in 1988. Regulations implemented in 1989 reduced the commercial harvest to between 2 and 4 million pounds annually. Regulations implemented in 1995 (ACT 1316) may have reduced harvest even further as evidenced from 1996 - 1998, where landings were less than 2 million pounds. Harvest from the recreational fishery fluctuated, between 0.5 and 2.7 million pounds, for the years prior to regulation (1981-1988), and 0.4 to 1.6 million pounds post-regulations (Figure 5.2). Recreational harvest since regulations were implemented in 1989 have remained stable. Mean catch-per-trip from the recreational fishery was calculated by selecting those trips that had black drum in their catch. The results are presented in Figure 5.3 along with 95% confidence limits around the mean. The catch-per-unit-effort (CPUE) indices cycled throughout the period examined (1981-1998), with no indication of a long-term downward trend. The years 1985, 1991 and 1996 showed the lowest CPUE and only significantly lower than 1982, 1986, 1993, 1994 and 1998. Catch-per-effort data from the Departments, fishery-independent trammel net (750' - 1 5/8" inner, 6" outer wall) and small mesh bag seine (50' - 1/4" delta mesh) samples were calculated as follows:

$$\text{Mean CPUE} = (\exp (\sum \ln (\text{catch} + 1) / N)) - 1$$

where, catch is the total number caught in each set and, N is the number of samples taken annually. Trammel net and seine data were used for the period 1986-1999. The CPUE fluctuates throughout the time period in both the seine and trammel net samples with no indication of a long-term downward trend (Figure 5.4 and 5.5). The year 1988 was the only year where CPUE in seines showed any significant difference at the 95% confidence level and, only lower than 1986, 1992, 1996 1997, 1998 and 1999. Trammel net CPUE was highly variable throughout the period as indicated by the wide confidence limits associated with the years examined. The years 1986, 1988 and 1989 had the lowest CPUE, and only significantly lower than 1996, 1998 and 1999. Mean CPUE in 1999 was the highest recorded.

Rules for the harvest of black drum changed recently. Commercial harvest methods were changed on August 15, 1995 when Act 1316 of the 1995 Regular Legislative Session, the Marine Resources Conservation Act of 1995, became effective. This act outlawed the use of "set" gill nets or trammel nets in saltwater areas of Louisiana, and restricted black drum harvest by the use of "strike" nets to the period between the third Monday in October and March 1 of the following year. A "Restricted Species Permit" was required in order to harvest black drum, and several criteria were established in order to qualify for that permit. After March 1, 1997, all harvest by gill or trammel nets was banned, and commercial harvesters must utilize other legal commercial gear to harvest black drum. This set of regulations had the effect of reducing the harvest of black drum by this segment of the commercial fishing industry.

It should be noted that the following results of YPR and SPR analysis do not reflect the impact of current regulations described above. With this type of general assessment, it will take several years before the impact of regulations will be observed in the disappearance rates from the fishery.

The results of YPR analysis indicate that if $M=0.1$ (the most conservative value within the range of estimates), the fishery prior to existing regulations (Act 1316) was operating above $F_{0.1}$ and below F_{MAX} with yield of 92% of maximum, and SPR at 42%. An M of 0.15 or 0.2 would indicate a more lightly fished stock with yield being 67% to 45% of maximum and with SPR being 56% to 67% respectively (Table 5.1).

5.7 Research and Data Needs

Estimates of natural mortality used in the present assessment show wide variation. This variation reduces the reliability of the present assessment in providing an accurate prediction of the potential yield of the stock, and also reduces the confidence level of the present estimate of SPR. A more precise estimate of natural mortality would assist in both of these problems.

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Annual age-length keys should continue to be developed to provide catch-at-age data necessary to conduct age-based population assessments. The department is in the process of collecting otoliths for development of annual age-length keys.

The relationship between wetlands losses or modifications and the continuation of fishery production within the state has been discussed by many authors. However, this relationship is likely to be different for the various fishery species. Understanding this relationship for black drum should be an ongoing priority.

In the presence of changing regulations, fishery-dependent information is not a reliable source of data for assessing the status of a fish stock. However, such data are necessary to measure the effects of fishing on that stock. Consistent fishery-dependent and fishery-independent data sources, in a comprehensive monitoring plan, are essential to understanding the status of fishery stocks, and to identifying causes of changes in stock abundance. Present programs should be assessed for adequacy with respect to their ability to evaluate stock status, and modified or enhanced to optimize their capabilities.

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Table 5.1 - Results of Yield Per Recruit and SPR Analysis for Black Drum

M=0.1

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax	1.000	3.0259	1,889,656	21.80%	100.00%	Benchmarks
F0.1	0.260	2.4809	4,668,498	53.87%	81.99%	
F20%	1.084	3.0223	1,733,321	20.00%	99.88%	
F30%	0.705	2.9862	2,599,982	30.00%	98.69%	
* Regulations	0.426	2.7925	3,655,175	42.18%	92.29%	Estimate

M=0.15

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax	2.100	2.1766	426,128	10.85%	100.00%	Benchmarks
F0.1	0.605	1.7506	1,704,392	43.40%	80.43%	
F20%	1.405	2.1260	785,399	20.00%	97.67%	
F30%	0.971	1.9981	1,178,098	30.00%	91.80%	
* Regulations	0.376	1.4562	2,201,492	56.06%	66.90%	Estimate

M=0.2

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax	3.000	1.8019	134,357	6.51%	100.00%	Benchmarks
F0.1	1.153	1.5197	625,337	30.32%	84.34%	
F20%	1.633	1.6709	412,499	20.00%	92.73%	
F30%	1.165	1.5248	618,749	30.00%	84.62%	
* Regulations	0.326	0.8173	1,375,910	66.71%	45.36%	Estimate

* Regulations prior to 1995 and Act 1316

Figure 5.1 - Commercial Harvest of Black Drum in Louisiana

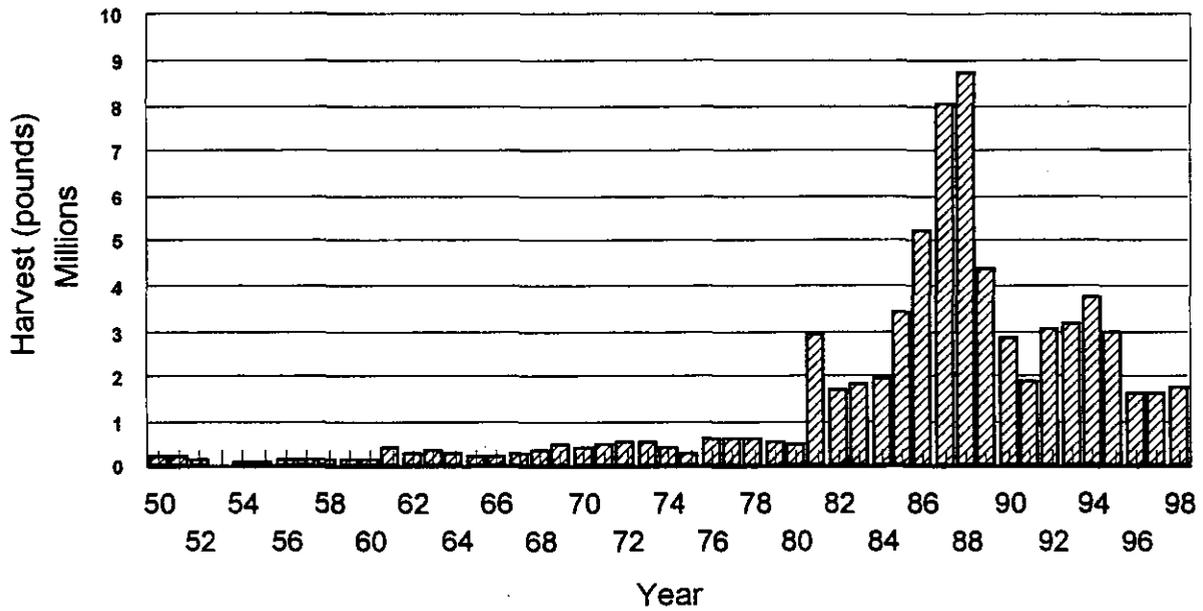


Figure 5.2 - Louisiana Commercial and Recreational Harvest of Black Drum

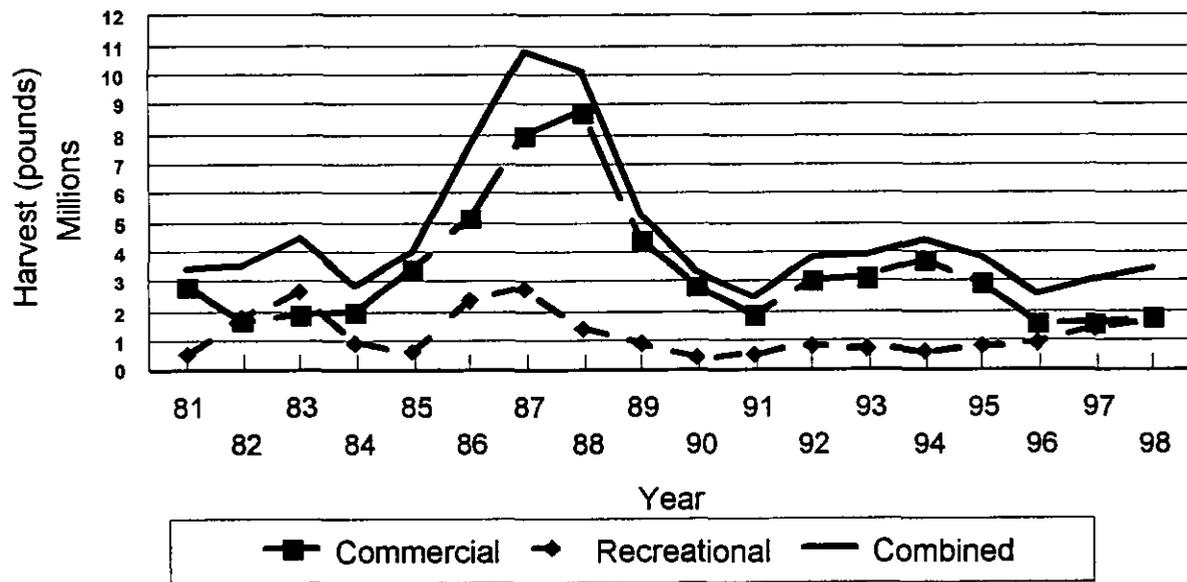


Figure 5.3 - Catch per Effort of Black Drum in Louisiana
NMFS Marine Recreational Fishery Statistics Survey

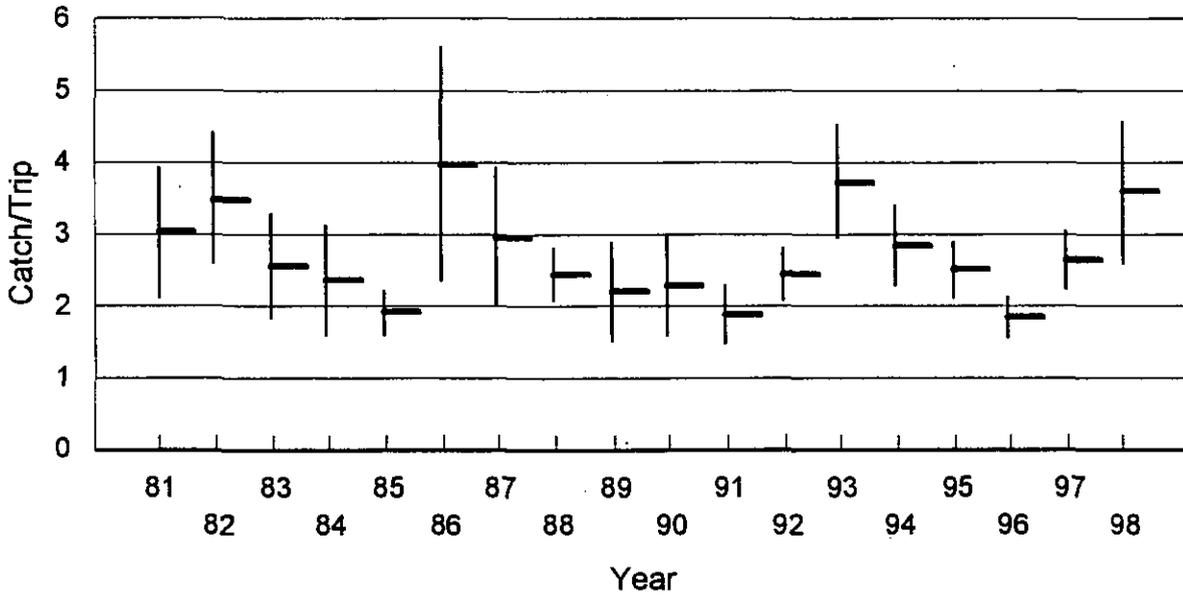
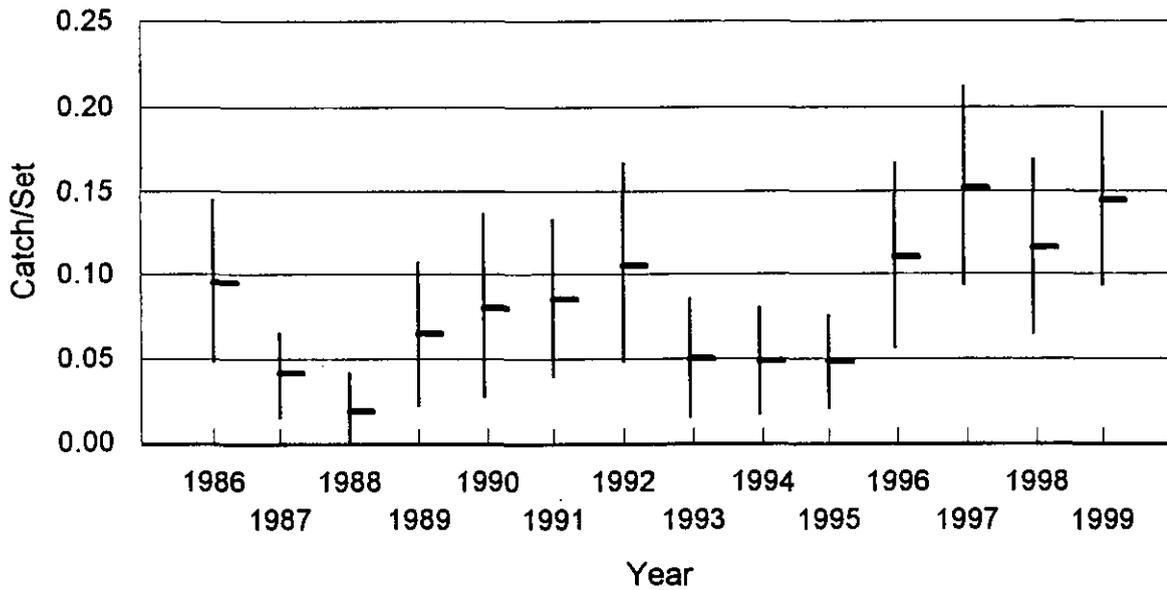
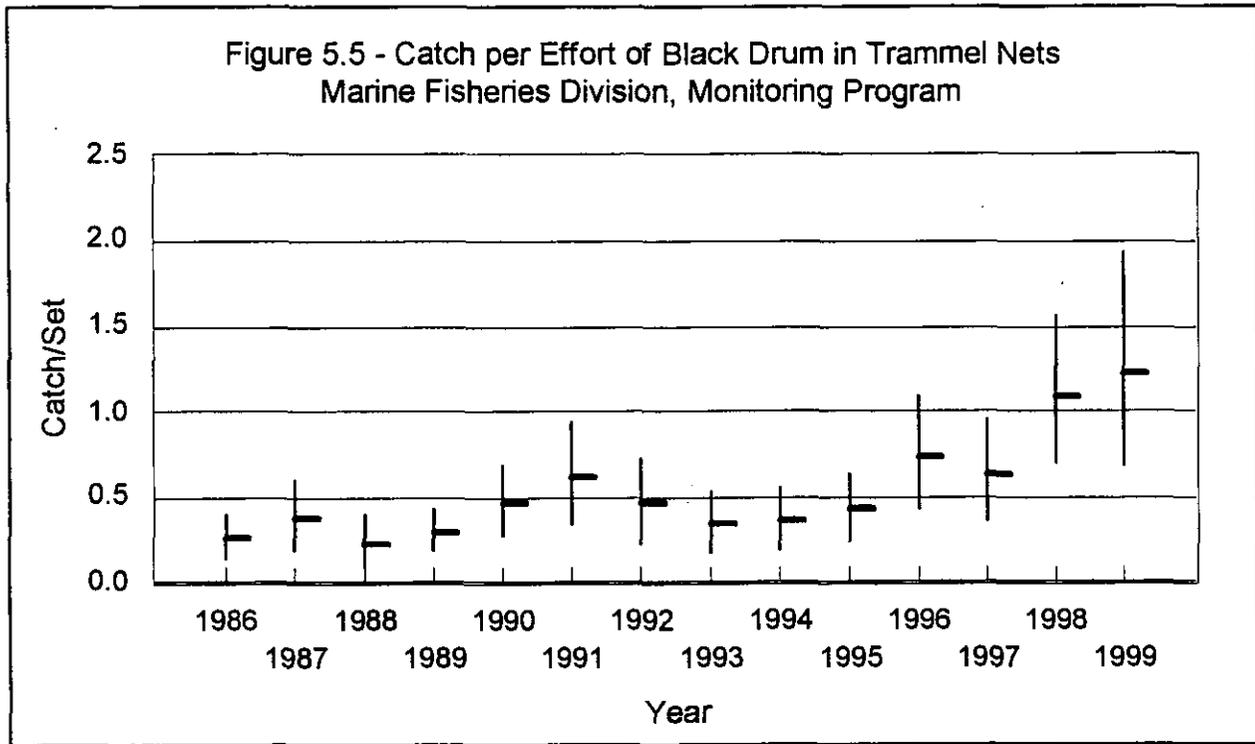


Figure 5.4 - Catch per Effort of Black Drum in Seines
Marine Fisheries Division, Monitoring Program





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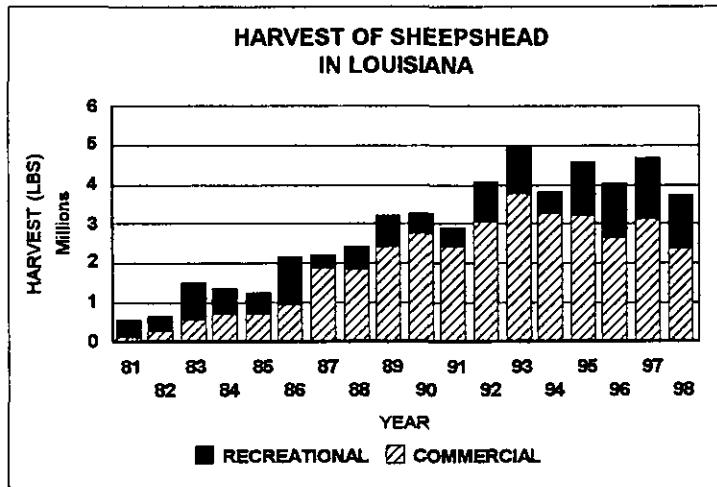
SHEEPSHEAD
SUMMARY OF CHANGES FROM 1999 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 1999 assessment conducted for Sheepshead.

- There was one improvement to the assessment for 2000. Formerly, disappearance rates were calculated separately for the commercial and recreational fishery. This assessment combines the commercial and recreational catch to produce an annual catch-at-age matrix. Disappearance rates are then calculated on the fishery as a whole and better reflect the cumulative impact of the fishery on the sheepshead stock. Past assessments relied on the assumption that commercial and recreational selectivities were similar. This year's assessment eliminates the need to make that assumption.

2000 DOCUMENT HIGHLIGHTS

- 1998 combined commercial and recreational harvest of 3,712,292 pounds is down from the previous 6 years.
- The results of YPR analysis indicate that if $M=0.2$ (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating at approximately $F_{0.1}$ and well below F_{MAX} , with yield of 56% to 82% of maximum, and SPR at 45% to 66%. An M of 0.3 (the highest value examined) would indicate a more lightly fished stock with yield being 11% to 53% of maximum and with SPR being 64% to 92%.
- It should be noted that the method used in this assessment to determine the status of the stock, reflected in the estimates of disappearance, is not immediately sensitive to changes in regulations. It takes several years, depending on the longevity of the species, before the impact of changes in fishing mortality are realized.



SHEEPSHEAD 5.0 STOCK ASSESSMENT

This assessment uses yield-per-recruit (YPR), Spawning Potential Ratio (SPR) and catch curve analyses to estimate the impact of fishing pressure on potential yield and the spawning potential of the sheepshead stock in Louisiana waters. Estimates derived from YPR and SPR are based on information regarding the growth rate and spawning potential of the fish, and on estimates of the natural mortality rate (M) and fishing mortality rate (F) on the stock. Catch-curve analysis estimates disappearance rates (Z') from the fishery based on the relative abundance of each age class in the harvest. The results from this assessment provide a generalized approach towards estimating the impact of fishing on the spawning potential and potential yield of the fish stock. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock; therefore, where possible, only data on female sheepshead are used. Yield-per-recruit and SPR analysis, as with many other generalized assessments, should be used only as a guide until a more comprehensive assessment can be conducted.

In developing a stock assessment, the unit stock must be defined. While a unit stock is often represented by that portion of the population which is genetically similar, for our purpose, the most applicable definition seems to be one which considers the unit stock as that portion of the population which is either dependent on Louisiana waters, or which is available to Louisiana fishermen.

5.1 Growth

Von Bertalanffy growth parameters developed by Wilson et al. (1988) from fish harvested in Louisiana were used to calculate length and weight at age for female sheepshead. The equations are as follows:

$$\text{Female } L_t = 446(1 - e^{-0.367(t+1.025)})$$

$$\text{Female } W_t = 2556(1 - e^{-0.220(t+3.231)})^3$$

where, L_t = length at age t , W_t = weight at age t and t = age in years. Age at length is calculated as:

$$t = 1.025 + \ln(1 - L_t/446)/-0.367$$

5.2 Natural Mortality

Natural mortality is one part of total mortality (Z) and is the mortality due to all causes other than fishing. These include predation, disease, spawning stress, starvation, and old age. Typically, natural mortality is estimated, as it is difficult to directly measure, especially on exploited fish stocks where natural mortality and fishing mortality occur simultaneously. No direct measure of natural mortality for sheepshead is available; therefore, several established estimation procedures were used

to derive an estimate. The procedures are presented below and are taken from Sparre and Venema (1992).

Pauly (1980) provides a method of estimating natural mortality from a set of parameters including the asymptotic length and growth rate of the fish, and the average water temperature of the environment. The growth parameters from the von Bertalanffy growth equation described in Section 5.1 and the mean annual water temperature, derived from readings from a set of four constant recorders located throughout the Barataria Bay system, were used in the calculation. The mean water temperature was 22.7°C for the period 1989 - 1992 (pers. comm., M. Kasprzak, 4/13/92). These values were incorporated into the length-based function of Pauly (1980):

$$\ln(M) = -0.0152 - 0.279 * \ln(L_{\infty}) + 0.6543 * \ln(K) + 0.463 * \ln(T)$$

where, $\ln(M)$ = natural log of natural mortality, $\ln(L_{\infty})$ = natural log of the asymptotic length, $\ln(K)$ = natural log of the growth coefficient and $\ln(T)$ = natural log of the mean annual temperature in degrees Celsius.

Use of Louisiana data on growth and water temperature applied to Pauly's function results in a natural mortality estimate of $M=0.4$.

Alagaraja (1984) and Hoenig (1983) provide methods of estimating M based on the fishes lifespan or longevity, and with the assumption that $M=Z$. Longevity is also difficult to determine for exploited fish stocks, since the age distribution is usually truncated by fishing, but these methods are as useful as any in providing provisional estimates of natural mortality. The functions described by Alagaraja (1984) are:

$$\begin{aligned} M1\% &= -\ln(0.01)/T_m \\ M0.1\% &= -\ln(0.001)/T_m \end{aligned}$$

where, $M1\%$ and $M0.1\%$ are the natural mortality rates corresponding to 99% and 99.9% mortality, respectively, given a fishes lifespan (T_m) in years. Sheepshead in Louisiana have been aged to 20-years-old (Wilson et al. 1988). If it is assumed that 99% or 99.9% of the fish die by age 20 then the corresponding natural mortality rates for $M1\%$ and $M0.1\%$ would be 0.2 and 0.35 respectively.

The function described by Hoenig(1983) is:

$$\ln(Z) = 1.46 - 1.01 * \ln(T_m)$$

where, when $M=Z$, longevity (T_m) can be defined as the maximum survival age. If we assume that the maximum age of sheepshead has been truncated due to fishing from 25 to 20 years, the resulting estimate of natural mortality, given $T_m=25$, would be 0.2.

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Another method of estimating M is described by Rikhter and Efanov (1976) and utilizes population age at sexual maturity. The function is:

$$M = 1.521 / (Tm50\%^{0.720}) - 0.155$$

where, $Tm50\%$ is the age at which 50% of the population is mature. Age 2 is assumed the age at 50% maturity for the sheepshead population (Wilson et al. 1988) resulting in an M of 0.77.

In summary, the estimated rates of natural mortality for sheepshead in Louisiana using a variety of estimation procedures are as follow:

Pauly (1980)	0.40
Alagaraja (1984)	0.20 and 0.35
Hoenig (1983)	0.20
Rikhter and Efanov (1976)	0.77

5.3 Disappearance Rates and Fishing Mortality

The disappearance rate (Z') from the fishery comprises the total mortality (natural + fishing) and some unknown rate of decreasing availability of the fish to the fishery. If the unknown rate of availability is small or nonexistent, then the disappearance rate will be a reasonable estimate of total mortality. However, if a large portion of the disappearance rate is due to fish not being available to the fishery, then assuming $Z'=Z$ will overestimate the impact of fishing.

There was one improvement to the assessment for 2000. Formerly, disappearance rates were calculated separately for the commercial and recreational fishery. This assessment combines the commercial and recreational catch to produce an annual catch-at-age matrix. Disappearance rates are then calculated on the fishery as a whole and better reflect the cumulative impact of the fishery on the sheepshead stock. Past assessments relied on the assumption that commercial and recreational selectivities were similar. This year's assessment eliminates the need to make that assumption.

An annual catch-at-age matrix was developed by applying the growth equation presented in Section 5.1 to the years where length frequency data for the commercial and recreational fishery was available (1994 - 1998). Length frequency data were obtained from the Trip Interview Program (TIP) for the commercial fishery, and from the NMFS Marine Recreational Fishery Statistics Survey (MRFSS) for the recreational fishery. Fish with lengths greater than the asymptotic length were not used in developing catch-at-age and therefore not used in estimating disappearance rates. The elimination of these fish reduces the number of large fish that are typically older fish used in estimating disappearance and produces a more conservative estimate. The data from both of the surveys did not distinguish between sexes, therefore we assumed for this assessment that all fish sampled were female. To calculate disappearance rates, we regressed the natural log of the catch-at-age, beginning with the age at full recruitment to the fishery. This method assumes that recruitment

is constant and the fishery is in equilibrium. A range of natural mortality rates were used in the assessment. After reviewing estimates of M in Section 5.2, we chose not to assume either method of estimating M was better than another, but rather to present results for the range of estimates. The range of M was from 0.20 - 0.77. We chose to use an M of 0.2 as the lowest estimate of M since it was the lowest estimate derived from the methods examined. Resulting disappearance rates using an M of 0.2 indicated a SPR values well above 30%; therefore, assessing the impact of an upper range of M was of little value in evaluating the status of the stock. However, we did use an upper range of 0.3 to evaluate how a change in M impacted resulting yield and SPR. Disappearance rates were calculated from the combined commercial and recreational catch-at-age data by year for 1994 - 1998. The calculated disappearance rates ranged from 0.32 to 0.54 (Table 5.1 and Figures 5.1A-E).

Catch-at-age from the fishery for the years 1994-1998 was used to derive age-specific selectivities to be used in yield-per-recruit analysis. The method presented in Sparre and Venema (1992) was used to develop selectivities. This method uses a linearized catch curve to determine the selectivity of fish not yet fully recruited to the fishery. The ratio of the observed catches to the expected catches at each age is the probability of capture or selectivity of the fishery at age. This selection is then regressed in the equation:

$$\ln(1/S_t - 1) = T1 - T2 * t$$

where, S_t = the selectivity at age t , and $T1$ and $T2$ are constants corresponding to the intercept and slope of the regression. To develop theoretical or estimated selectivities at age the following equation is used.

$$S_t (\text{estimate}) = 1 / (1 + \exp(T1 - T2 * t))$$

Selectivities for ages up to full age-at-recruitment were used to describe the relative fishing mortality to that point; for age at full recruitment and older, selectivities are assumed to be 1, or 100% selected. Selectivities are as follows:

age 0 = 0
 age 1 = 0.0100
 age 2 = 0.0672
 age 3 = 0.2655
 age 4 = 0.7554
 ages 5 and older = 1.

5.4 Yield-per-Recruit

Yield-per-recruit and SPR analysis provide basic information on fish stock dynamics by estimating the impact of mortality on yield and the spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential.

The growth parameters described in Section 5.1, sexual maturity described in Section 5.2 and the age-specific selectivities described in Section 5.3 were incorporated into the yield-per-recruit and spawning potential analysis. Fecundity estimates were not available, therefore; mean weight at age was used in the estimation of spawning potential. Natural mortality rates of 0.2 and 0.3 were used in the analysis because they are on the lower end of the range of estimates and would provide the most conservative results. These rates are also used to describe the sensitivity of M on yield and spawning potential. The results are presented in Table 5.2, which contains estimates of F_{MAX} (fishing mortality rate that produces maximum yield), $F_{0.1}$ (fishing mortality rate representing 10% of the slope at the origin of a yield-per-recruit curve), $F_{20\%SPR}$ (fishing mortality that produces 20% SPR), $F_{30\%SPR}$ (fishing mortality that produces 30% SPR), and annual estimates of F from the disappearance rates calculated in Section 5.3.

5.5 Conservation Standards

Conservation standards are intended to protect the viability of a fish stock for future generations. These standards have historically been based on a number of biological measures of the dynamics of fish stocks, depending on the availability and adequacy of data. Conservation standards should be separated into two types: a conservation threshold which is entirely biologically based and, a conservation target which considers biological measures modified by relevant social, economic, and ecological factors. A conservation threshold is a biological baseline for the harvest of a fish stock and should not be exceeded. It is the highest level of fishing mortality that will ensure that recruitment overfishing will not occur. Beyond the conservation threshold, a conservation target may be set, providing for other management goals in the fishery. Such goals may include maximizing yield in weight or numbers of fish, economic benefits or profit, employment, or some other measurable goal. These targets should be set at a fishing mortality rate below that of the conservation threshold in order to ensure that the biological integrity of the stock is not damaged by fishing.

The spawning potential ratio (SPR) concept described by Goodyear (1989), is a species specific value expressed as the ratio of the spawning stock biomass (or egg production) per recruit (SSB/R) in a fished condition to the SSB/R in an unfished condition. The concept is based on the premise that below some level of SPR, recruitment would be expected to be reduced. Goodyear (1989), recommends that in the absence of sufficient data to provide a value specific to the stock in question an SPR of 20% be used as a threshold. Work on North Atlantic ground fisheries also resulted in the calculation of a threshold SPR of 20% (Gabriel et al. 1984, Gabriel 1985). An SPR of 20% has been recommended for Spanish and king mackerel in the Gulf of Mexico (National Oceanic and Atmospheric Administration/National Marine Fisheries Service 1995), while an SPR of 8-13% has been demonstrated to be sufficient for gulf menhaden (Vaughan 1987). In earlier analyses of Louisiana spotted seatrout fisheries (Louisiana Department of Wildlife and Fisheries 1991), an SPR threshold of 15% was recommended, based on several years of data. Mace and Sissenwine (1993) examined 90 stocks of 27 species, and reported that the average replacement SPR for all these stocks was 18.7%, while the most resilient quarter of the stocks required a maximum of only 8.6% SPR. These authors recommended an SPR of 30% be maintained when there is no other basis for

estimating the replacement level, as this level was sufficient in maintaining recruitment for 80% of the stocks they examined. However, they noted that 30% may be overly conservative for an "average" stock, and reiterated the need for stock-specific evaluations of standards to enhance both safety and benefits in the fishery.

Sufficient information is not available to directly estimate a conservation threshold for sheepshead in Louisiana. However, the conservation target of 30% SPR established by the 1995 Regular Session of the Louisiana Legislature for black drum, sheepshead, southern flounder, and striped mullet appears to be adequate to maintain the sheepshead stock and prevent recruitment overfishing.

The use of any measure of the health of a fish stock as a perfect index is arguable. It is logical to conclude that growth overfishing should occur at a much lower fishing rate than that which would threaten recruitment. However, Mace and Sissenwine (1993) provide information to suggest that some stocks may have reduced recruitment at levels of fishing that would not reduce yield-per-recruit. The preferable position for making recommendations on appropriate levels of fishing for a stock is to base those recommendations on actual measures of spawning stock size and recruitment for both the species and fishery in question. This requires a base of information resulting from monitoring of both the stock and the fishery over a variety of conditions. Without this information, conservation standards may either underestimate or overestimate the potential of a fishery. If the potential is underestimated, society loses the economic and social benefits of the harvest. If the potential is overestimated and the fishery is allowed to operate beyond sustainable levels, society loses the benefits of a sustainable fishery, and recovery will require some period of rebuilding, when effort must be reduced from the non-sustainable levels (Hilborn and Walters, 1993). Some researchers have speculated that overharvest of some stocks may lead to their replacement in the ecosystem by other, often less preferred, stocks. The frequency of such replacements is unknown, and the cause of shifts in species predominance in an ecosystem are difficult to ascertain, even after the fact. Such a shift has been reported in the Georges Bank area, where prolonged, intense harvest of cod and haddock has been implicated in gradual increases in skate and spiny dogfish populations (National Oceanic and Atmospheric Administration 1993).

5.6 Status of the Stock

Sheepshead were lightly exploited until the early to mid-1980s when commercial harvest began to increase (Figure 5.2). Commercial landings have gone from 0.2 million pounds in the early 1980s to 2.4 - 3.7 million pounds in the 1990s. Landings have declined in the last five years from a high of 3.7 million pounds in 1993 to 2.3 million pounds in 1998. Harvest from the recreational fishery has remained stable, between 0.4 and 1.5 million pounds, for the years examined (1981-1997), and were equal to those of the commercial fishery until 1987 when the commercial fishery began to expand (Figure 5.3). Mean catch-per-trip from the recreational fishery was calculated by selecting those trips that had sheepshead in their catch. The results are presented in Figure 5.4 along with 95% confidence limits around the mean. The catch-per-unit-effort (CPUE) indices fluctuated with no

indication of a long-term downward trend. CPUE was statistically lower in 1998 than 1992, 1993 and 1997. Catch-per-effort data from the Departments, fishery-independent trammel net (750' - 1 5/8" inner, 6" outer wall) and small mesh bag seine (50' -1/4" delta mesh) samples were calculated as follows:

$$\text{Mean CPUE} = (\exp (\sum \ln (\text{catch} + 1) / N)) - 1$$

where, catch is the total number caught in each set and, N is the number of samples taken annually. Trammel net data were used for the period 1986-1999, and seine data were used for the period 1992-1999. Seine and trammel net CPUE fluctuated throughout the time period with no indication of a long-term downward trend; however, mean CPUE in seines for 1996 through 1998 were the lowest of the years examined with 1999 rebounding to pre-1996 levels (Figure 5.5). Mean CPUE in trammel nets for 1998 and 1999 were similar being only lower than 1996 for the years examined (Figure 5.7).

Rules for the commercial harvest of sheepshead changed on August 15, 1995 when Act 1316 of the 1995 Regular Legislative Session, the Marine Resources Conservation Act of 1995, became effective. This act outlawed the use of "set" gill nets or trammel nets in saltwater areas of Louisiana, and restricted sheepshead harvest by the use of "strike" nets to the period between the third Monday in October and March 1 of the following year. A "Restricted Species Permit" was required in order to harvest sheepshead, and several criteria were established in order to qualify for that permit. After March 1, 1997, all harvest by gill or trammel nets was banned, and commercial harvesters must utilize other legal commercial gear to harvest sheepshead. This set of regulations had the effect of reducing the harvest of sheepshead by this segment of the commercial fishing industry.

It should be noted that the following results of YPR and SPR analysis do not reflect the impact of current regulations described above. With this type of general assessment, it will take several years before the impact of regulations will be observed in the disappearance rates from the fishery.

The results of YPR analysis indicate that if $M=0.2$ (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating at approximately $F_{0.1}$ and well below F_{MAX} , with yield of 56% to 82% of maximum, and SPR at 45% to 66%. An M of 0.3 (the highest value examined) would indicate a more lightly fished stock with yield being 11% to 53% of maximum and with SPR being 64% to 92% (Table 5.2).

5.7 Research and Data Needs

Estimates of natural mortality used in the present assessment show wide variation. This variation reduces the reliability of the present assessment in providing an accurate prediction of the potential yield of the stock, and also reduces the confidence level of the present estimate of SPR. A more precise estimate of natural mortality would assist in both of these problems.

DRAFT February 1, 2000

Annual sex specific age-length keys should continue to be developed to provide catch-at-age data necessary to conduct age-based population assessments. The department is in the process of collecting otoliths for development of annual age-length keys.

Sex specific fishery dependent length frequency data is essential in adequately partitioning catch from the fishery. There can be significant improvement in the accuracy of this assessment if sex is collect.

The relationship between wetlands losses or modifications and the continuation of fishery production within the state has been discussed by many authors. However, this relationship is likely to be different for the various fishery species. Understanding of this relationship for sheephead should be an ongoing priority.

In the presence of changing regulations, fishery-dependent information is not a reliable source of data necessary to assess the status of a fish stock. However, such data is necessary to measure the effects of fishing on that stock. Consistent fishery-dependent and fishery-independent data sources, in a comprehensive monitoring plan, are essential to understanding the status of fishery stocks, and to identifying causes of changes in stock abundance. Present programs should be assessed for adequacy with respect to their ability to evaluate stock status, and modified or enhanced to optimize their capabilities.

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Table 5.1 Regression Output from the Estimation of Disappearance Rates

1994		1995	
Regression Output:		Regression Output:	
Constant	14.88528	Constant	14.993777
Std Err of Y Est	0.275549	Std Err of Y Est	0.2790803
R Squared	0.9771154	R Squared	0.9775475
No. of Observations	11	No. of Observations	12
Degrees of Freedom	9	Degrees of Freedom	10
X Coefficient(s)	-0.515021	X Coefficient(s)	-0.486965
Std Err of Coef.	0.0262726	Std Err of Coef.	0.0233379
1996		1997	
Regression Output:		Regression Output:	
Constant	14.82945	Constant	15.676728
Std Err of Y Est	0.3646465	Std Err of Y Est	0.7286109
R Squared	0.9625572	R Squared	0.8728684
No. of Observations	12	No. of Observations	11
Degrees of Freedom	10	Degrees of Freedom	9
X Coefficient(s)	-0.488915	X Coefficient(s)	-0.546095
Std Err of Coef.	0.0304933	Std Err of Coef.	0.0694703
1998			
Regression Output:			
Constant	13.982093		
Std Err of Y Est	0.3473787		
R Squared	0.9029392		
No. of Observations	10		
Degrees of Freedom	8		
X Coefficient(s)	-0.329935		
Std Err of Coef.	0.0382451		

Table 5.2 - Results of Yield Per Recruit and SPR Analysis for Sheephead

M=0.2

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax	3.0017	527.3014	917	17.53%	100.00%	Benchmarks
F0.1	0.3039	421.8499	2,508	47.97%	80.00%	
F20%	2.2350	526.3946	1,046	20.00%	99.83%	
F30%	0.8751	506.1693	1,569	30.00%	95.99%	
1994	0.3150	426.1799	2,469	47.23%	80.82%	Estimates
1995	0.2870	414.7538	2,570	49.16%	78.66%	
1996	0.2889	415.6060	2,563	49.02%	78.82%	
1997	0.3461	437.0059	2,370	45.33%	82.88%	
1998	0.1299	297.3213	3,467	66.30%	56.39%	

M=0.3

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax	45.6119	396.8820	95	3.61%	100.00%	Benchmarks
F0.1	0.4820	277.1119	1,359	51.73%	69.82%	
F20%	5.3242	382.2587	525	20.00%	96.32%	
F30%	2.0993	359.4870	788	30.00%	90.58%	
1994	0.2150	199.7019	1,760	67.02%	50.32%	Estimates
1995	0.1870	185.3602	1,829	69.63%	46.70%	
1996	0.1889	186.4222	1,824	69.44%	46.97%	
1997	0.2461	213.5166	1,693	64.46%	53.80%	
1998	0.0299	46.7731	2,437	92.80%	11.79%	

Figure 5.1A - Disappearance Rate for Sheephead
1994

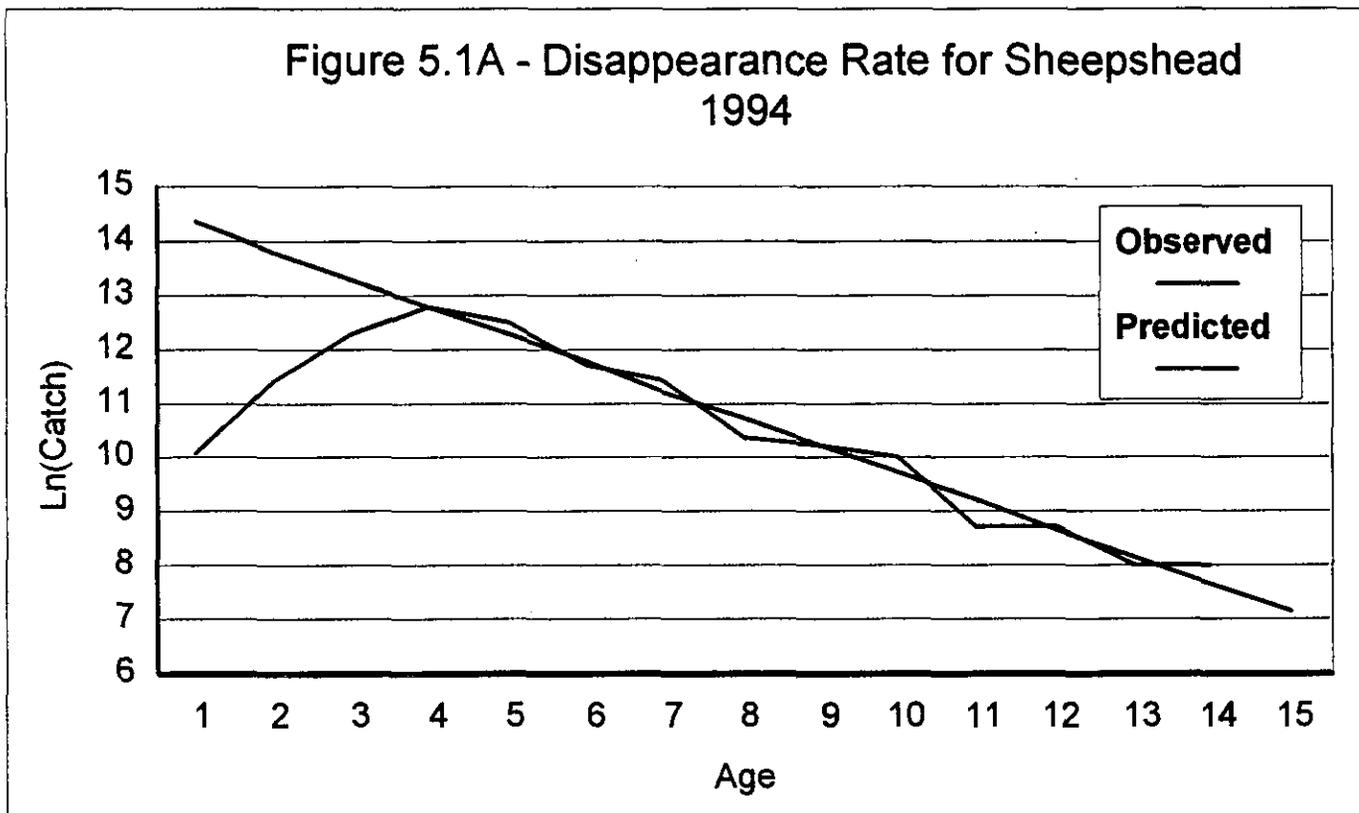
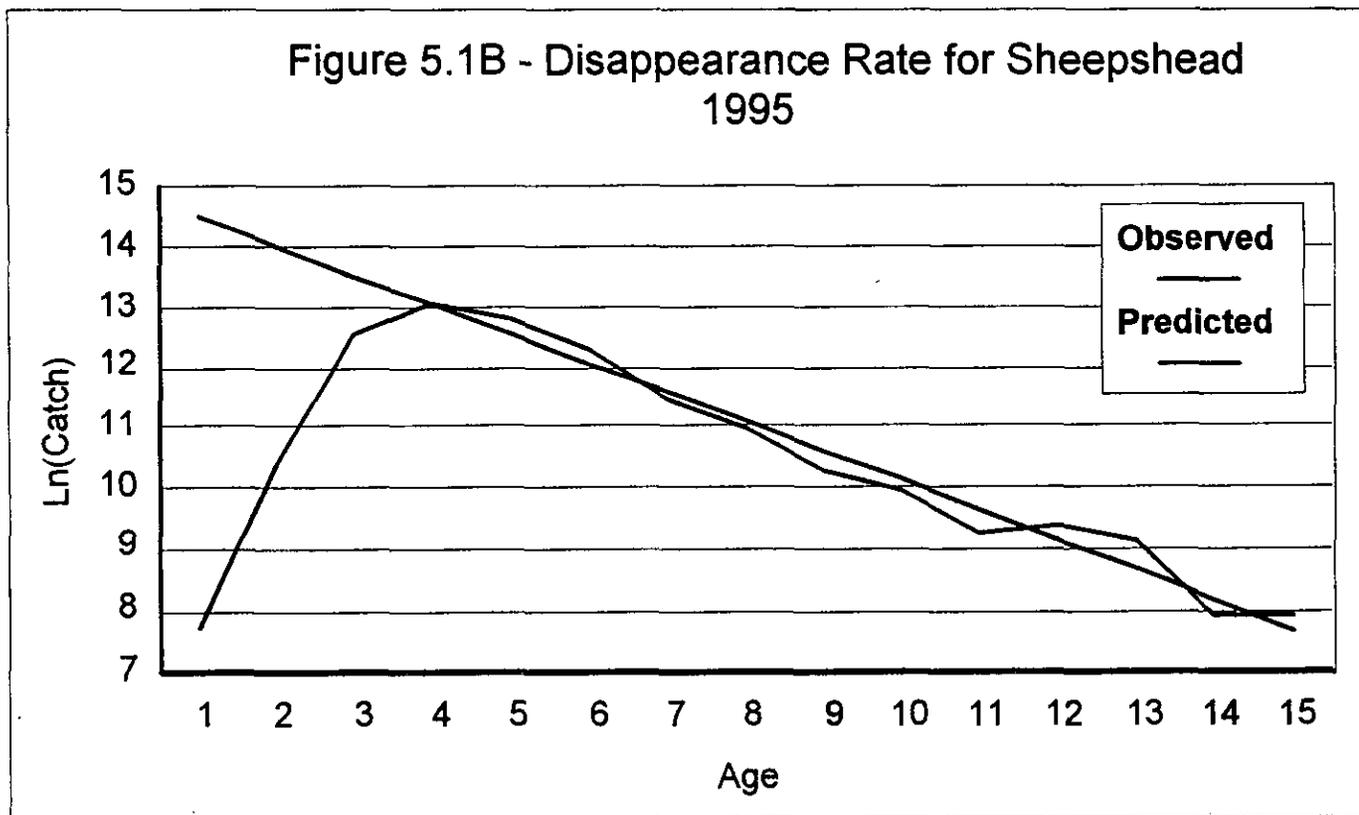
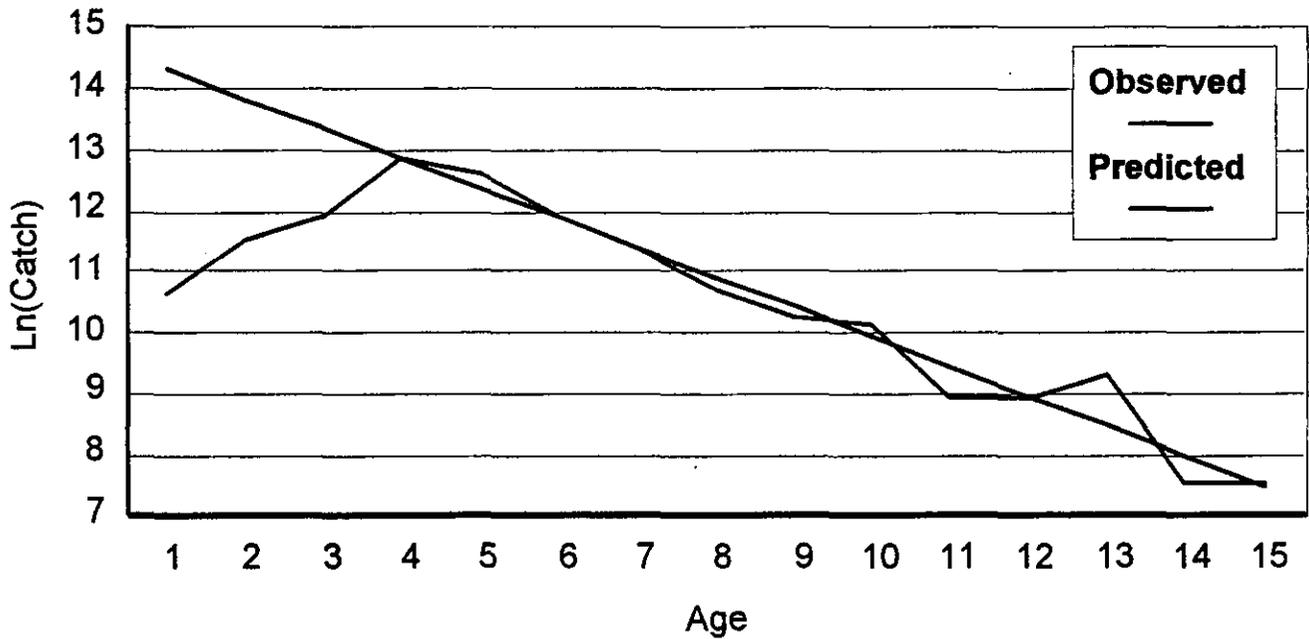


Figure 5.1B - Disappearance Rate for Sheephead
1995



**Figure 5.1C - Disappearance Rate for Sheephead
1996**



**Figure 5.1D - Disappearance Rate for Sheephead
1997**

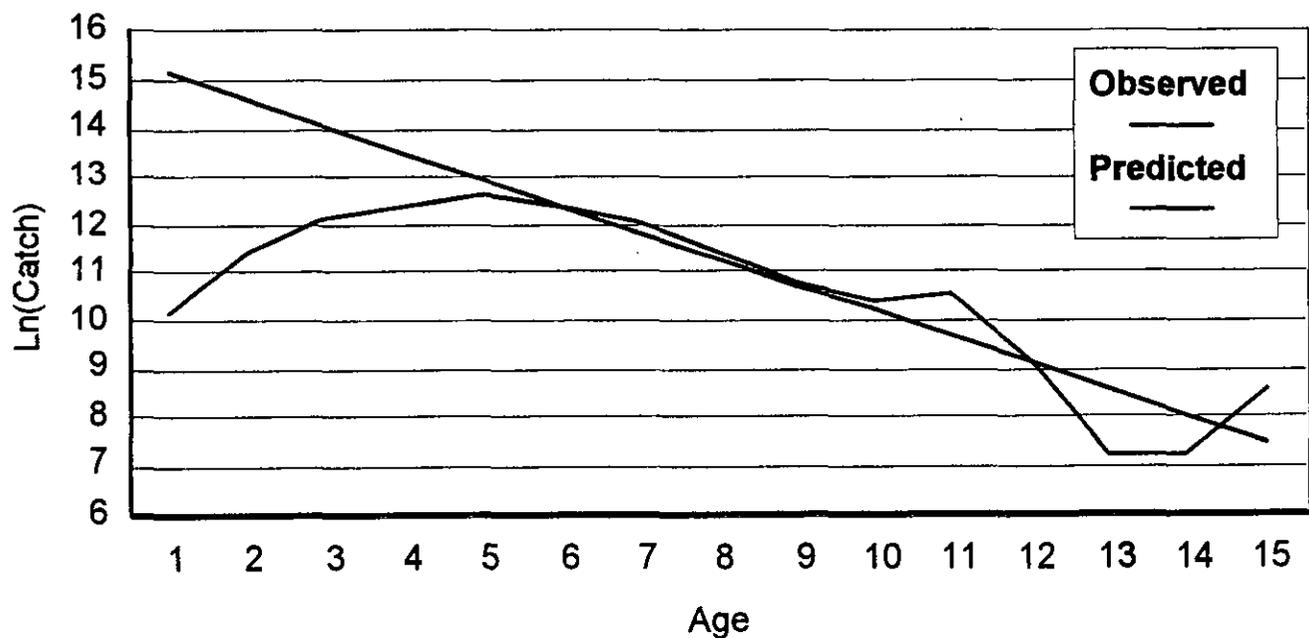


Figure 5.1E - Disappearance Rate for Sheephead
1998

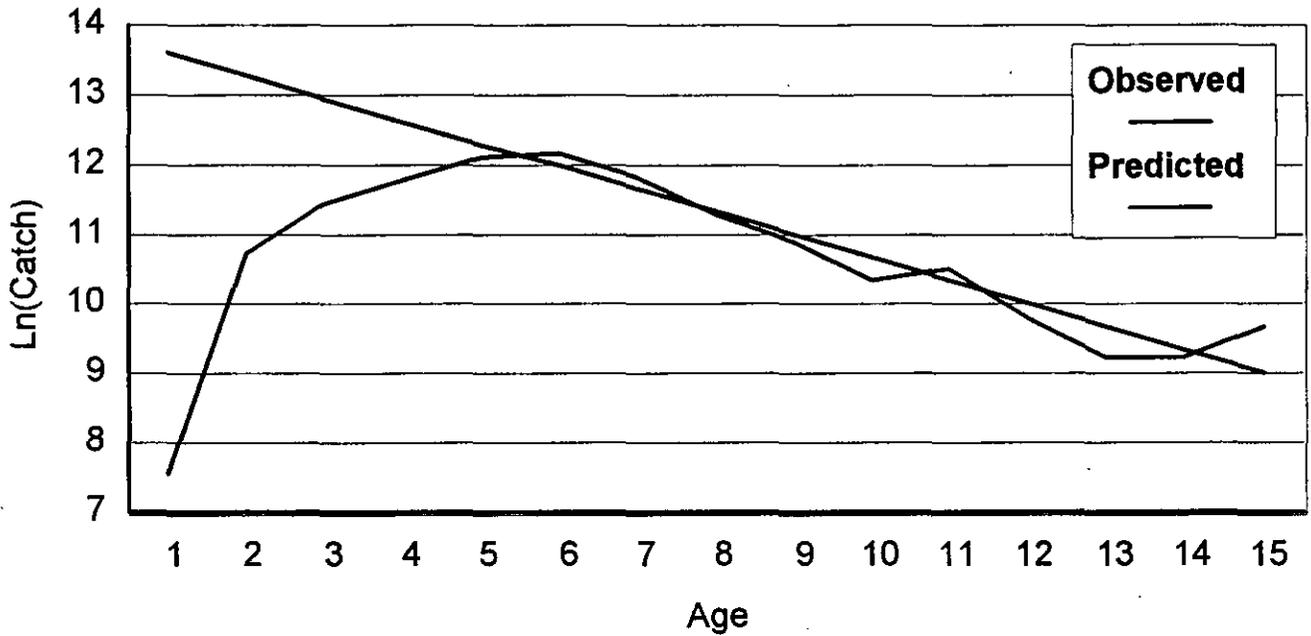


Figure 5.2 - Commercial Harvest of Sheephead
in Louisiana

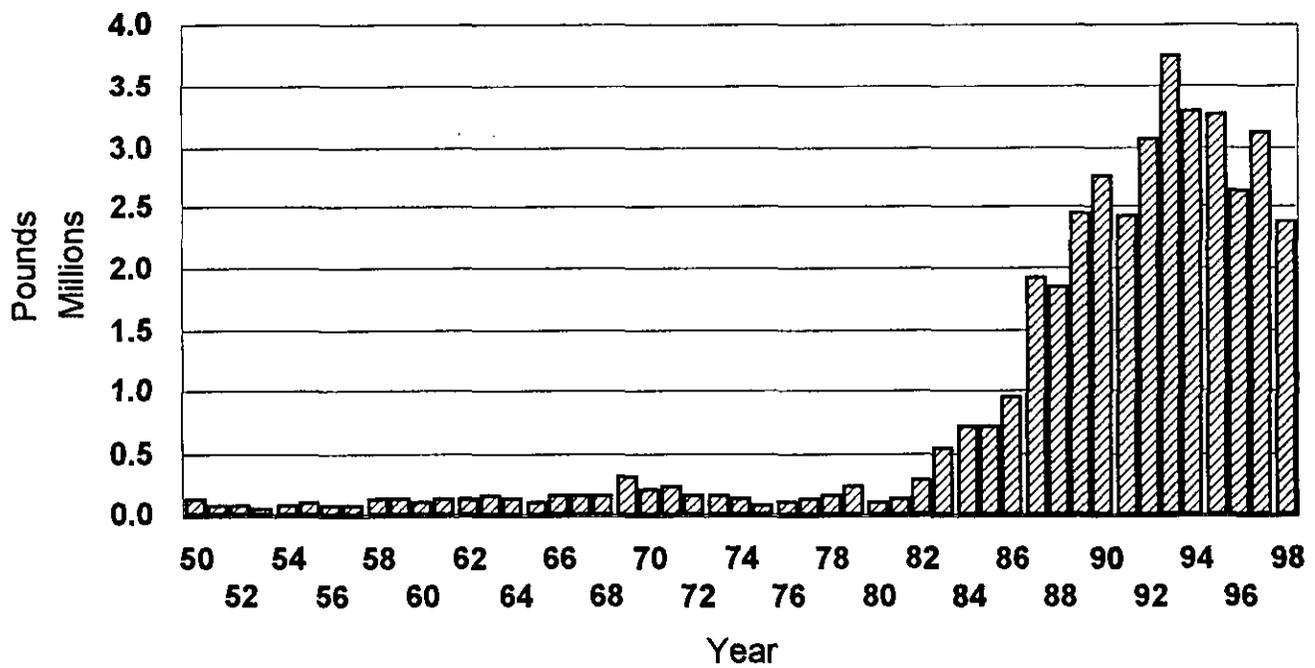


Figure 5.3 - Louisiana Commercial and Recreational Harvest of Sheephead

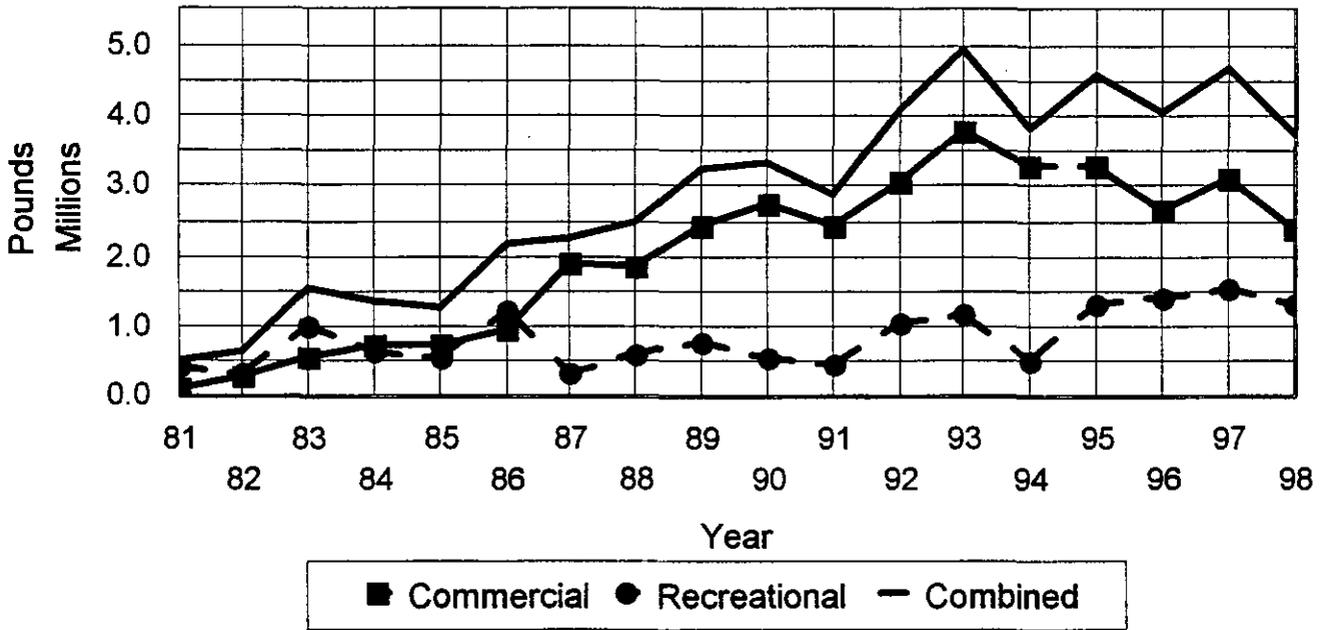


Figure 5.4 - Catch per Effort for Sheephead in Louisiana NMFS Marine Recreational Fishery Statistics Survey

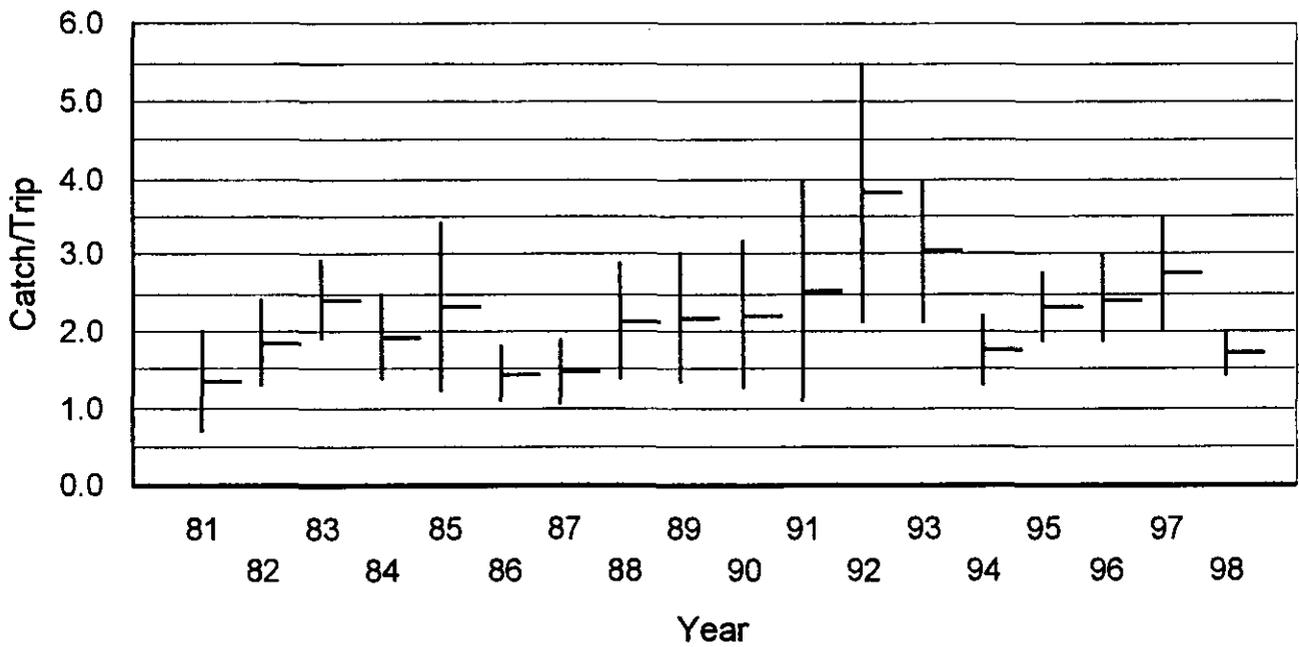


Figure 5.5 - Catch per Effort for Sheephead in Seines
Marine Fisheries Division, Monitoring Program

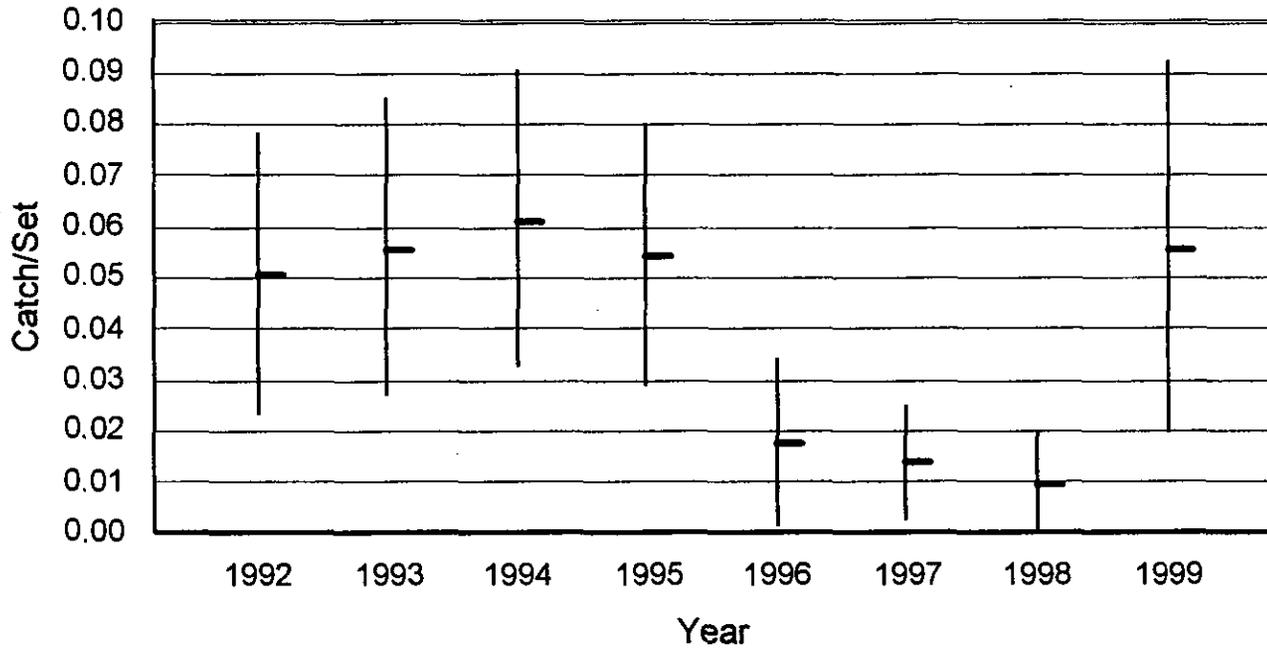
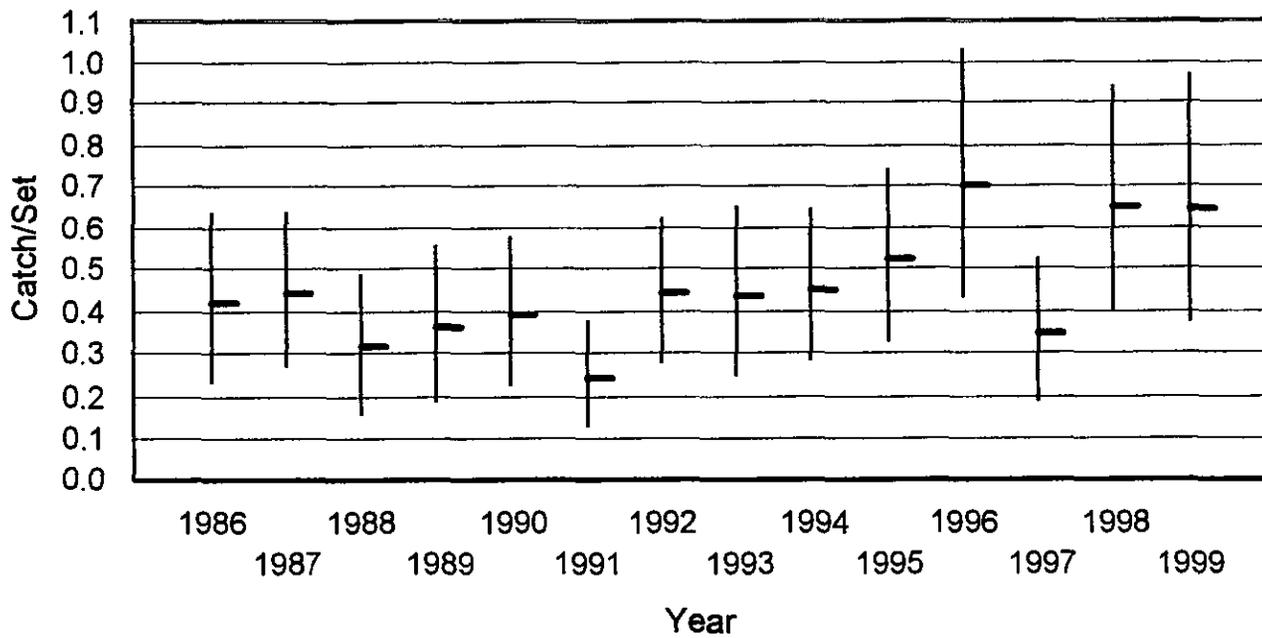


Figure 5.6 - Catch per Effort for Sheephead in Trammel Nets
Marine Fisheries Division, Monitoring Program



RESOLUTION

CREATION OF ADDITIONAL OYSTER SEED GROUNDS
adopted by the
Louisiana Wildlife and Fisheries Commission
February 3, 2000

WHEREAS, R.S. 56:434(A) states "The commission shall at its discretion from time to time designate and set aside such area from the waterbottoms of the state as it judges best adapted to the planting, propagation, growth, and policing of seed oysters. The area constitutes oyster seed grounds.", and

WHEREAS, oyster seed grounds, from which an oyster lessee may take small oysters for transport to his own leases, are an important component of Louisiana's oyster industry, and

WHEREAS, as much as 80% of Louisiana's oyster production between the Mississippi River and Atchafalaya River is dependent on seed oysters taken from the oyster seed grounds, and

WHEREAS, because of the small acreage of oyster seed grounds available west of the Mississippi River, oyster lessees must often travel to the oyster seed grounds east of the Mississippi River to obtain oyster seed, and

WHEREAS, changing coastal salinity regimes may necessitate the creation of additional oyster seed grounds to ensure a sufficient supply of seed in the future,

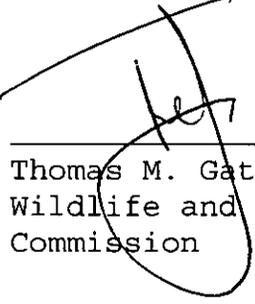
THEREFORE BE IT RESOLVED, that the Louisiana Wildlife and Fisheries Commission's notice of intent to create additional oyster seed grounds from portions of the state waterbottoms west of the Mississippi River is attached to and made a part of this resolution, and

BE IT FURTHER RESOLVED, that the Secretary is instructed to continue to accept applications for new leases within those areas presently available, but is not to issue leases within any locations which the Commission has defined in the attached Notice of Intent for possible inclusion into an oyster seed ground, and

BE IT FURTHER RESOLVED, that when the Final Rule is promulgated the Secretary will cancel all applications or portions of applications which include public oyster waters within the designated oyster seed grounds, and

BE IT FURTHER RESOLVED, that once the rule for the new oyster seed grounds is promulgated, all available state waterbottoms within the Lake Mechant area which were previously closed to leasing and which have not been designated oyster seed grounds, shall be available for leasing at a time and place to be announced at a future date, and

BE IT FURTHER RESOLVED, that the Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies in government.



Thomas M. Gattle, Jr., Chairman
Wildlife and Fisheries
Commission



James H. Jenkins, Jr., Secretary
Department of Wildlife and
Fisheries

NOTICE OF INTENT

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

The Wildlife and Fisheries Commission does hereby give notice of its intent to set aside additional areas in portions of Lake Mechant, Lake Tambour, Lake Chien, Lake Felicity, all in Terrebonne Parish, Deep Lake, Lafourche Parish, and Barataria Bay (next to Queen Bess Island), Jefferson Parish as public oyster seed grounds. This is being done under the authority of R.S. 56:434.

Title 76

WILDLIFE AND FISHERIES

Part VII. Fish and Other Aquatic Life

Chapter 5. Oyster

§517. Public Oyster Seed Grounds - Portions of Lake Mechant, Lake Tambour, Lake Chien, Lake Felicity, Deep Lake, and Barataria Bay

The following areas are designated as oyster seed grounds:

1. Lake Mechant, Terrebonne Parish: The state waterbottoms within a six (6) sided figure with the following corners:

29° 19' 45.36273" N	90° 58' 19.84034" W
29° 18' 52.50955" N	90° 57' 32.90680" W
29° 18' 41.04086" N	90° 55' 58.95532" W
29° 16' 47.29750" N	90° 56' 44.37133" W
29° 18' 33.55333" N	90° 57' 37.82946" W

29° 18' 46.69380" N 90° 59' 21.09926" W

2. Lake Tambour, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 30.73200" N 90° 31' 09.14598" W

29° 19' 51.16104" N 90° 29' 28.99726" W

29° 19' 59.29224" N 90° 29' 26.60078" W

29° 19' 50.06346" N 90° 30' 49.92953" W

3. Lake Chien, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 32.76107" N 90° 27' 00.06196" W

29° 19' 52.97766" N 90° 27' 17.37544" W

29° 19' 48.08926" N 90° 26' 08.51018" W

29° 20' 17.07711" N 90° 26' 01.32145" W

4. Lake Felicity, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 19' 04.72932" N 90° 26' 58.50922" W

29° 18' 01.44630" N 90° 27' 47.32882" W

29° 18' 24.61153" N 90° 24' 04.57895" W

29° 19' 11.54946" N 90° 25' 19.67927" W

5. Deep Lake, Lafourche Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 17' 59.74050" N	90° 21' 25.89465" W
29° 17' 18.88030" N	90° 21' 24.62348" W
29° 17' 17.26209" N	90° 21' 03.04101" W
29° 18' 17.57225" N	90° 21' 01.40994" W

6. Barataria Bay, Jefferson Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 13.14881" N	89° 56' 51.91540" W
29° 14' 47.14426" N	89° 56' 59.91355" W
29° 20' 12.06107" N	89° 56' 19.01249" W
29° 17' 46.05927" N	89° 56' 23.01176" W

AUTHORITY NOTE: Promulgated in accordance with R.S. 56:434.

HISTORICAL NOTE: Promulgated by the Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 26: .

The Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies of government.

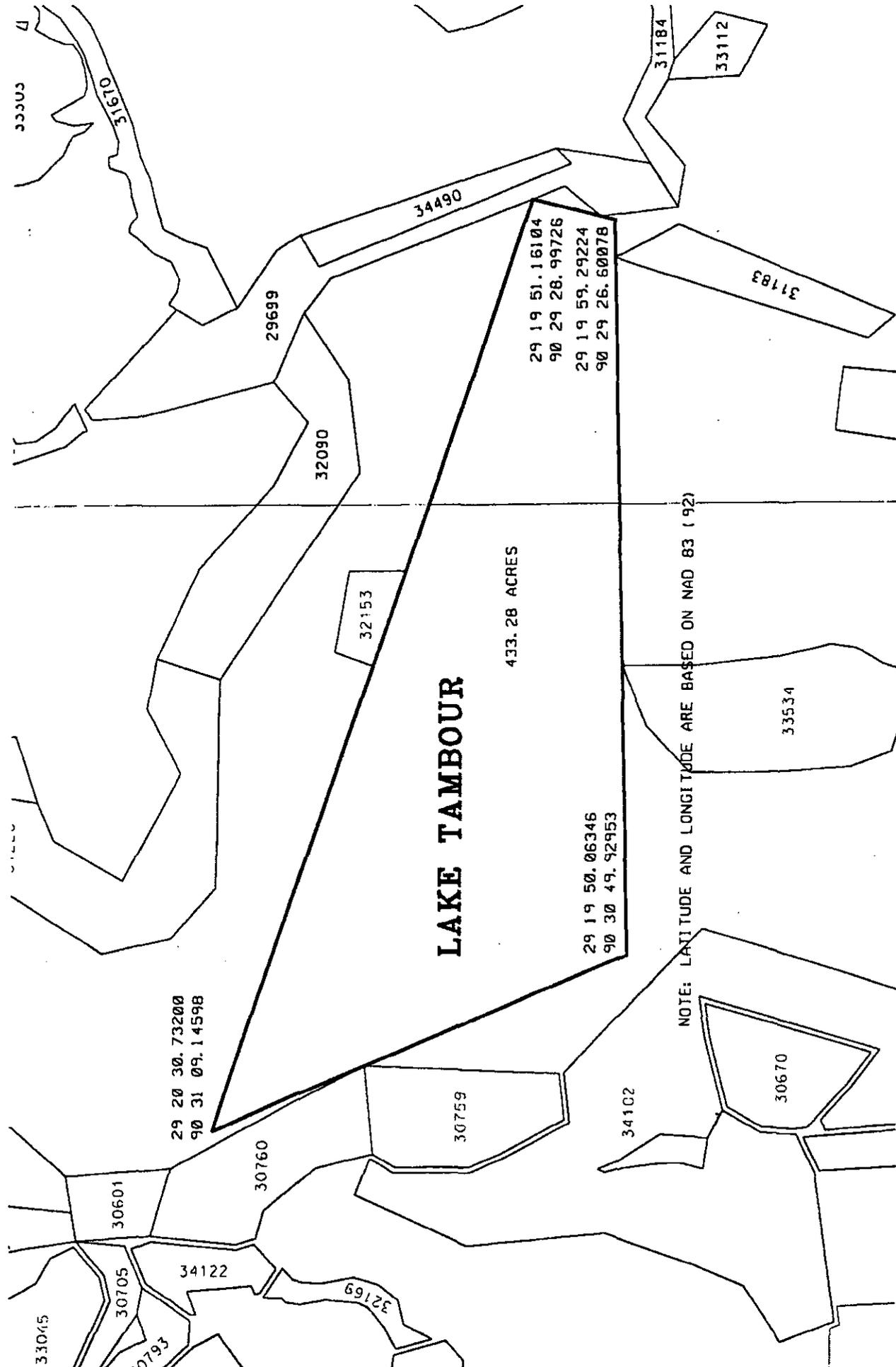
Interested persons may submit written comments relative to the proposed rule until 4:30 p.m., May 5, 2000 to Mr. Ron Dugas, Department of Wildlife and Fisheries, 1600 Canal St., Ste. 306, New

Orleans, Louisiana 70112.

In accordance with Act #1183 of 1999, the Department of Wildlife and Fisheries/Wildlife and Fisheries Commission hereby issues its Family Impact Statement in connection with the preceding Notice of Intent: This Notice of Intent will have no impact on the six criteria set out at R.S. 49:972(B).

Thomas M. Gattle, Jr.

Chairman



LAKE TAMBOUR

433.28 ACRES

NOTE: LATITUDE AND LONGITUDE ARE BASED ON NAD 83 (92)

29 20 30.73200
90 31 09.14598

29 19 51.16104
90 29 28.99726
29 19 59.29224
90 29 26.60078

29 19 50.06346
90 30 49.92953

30601

30760

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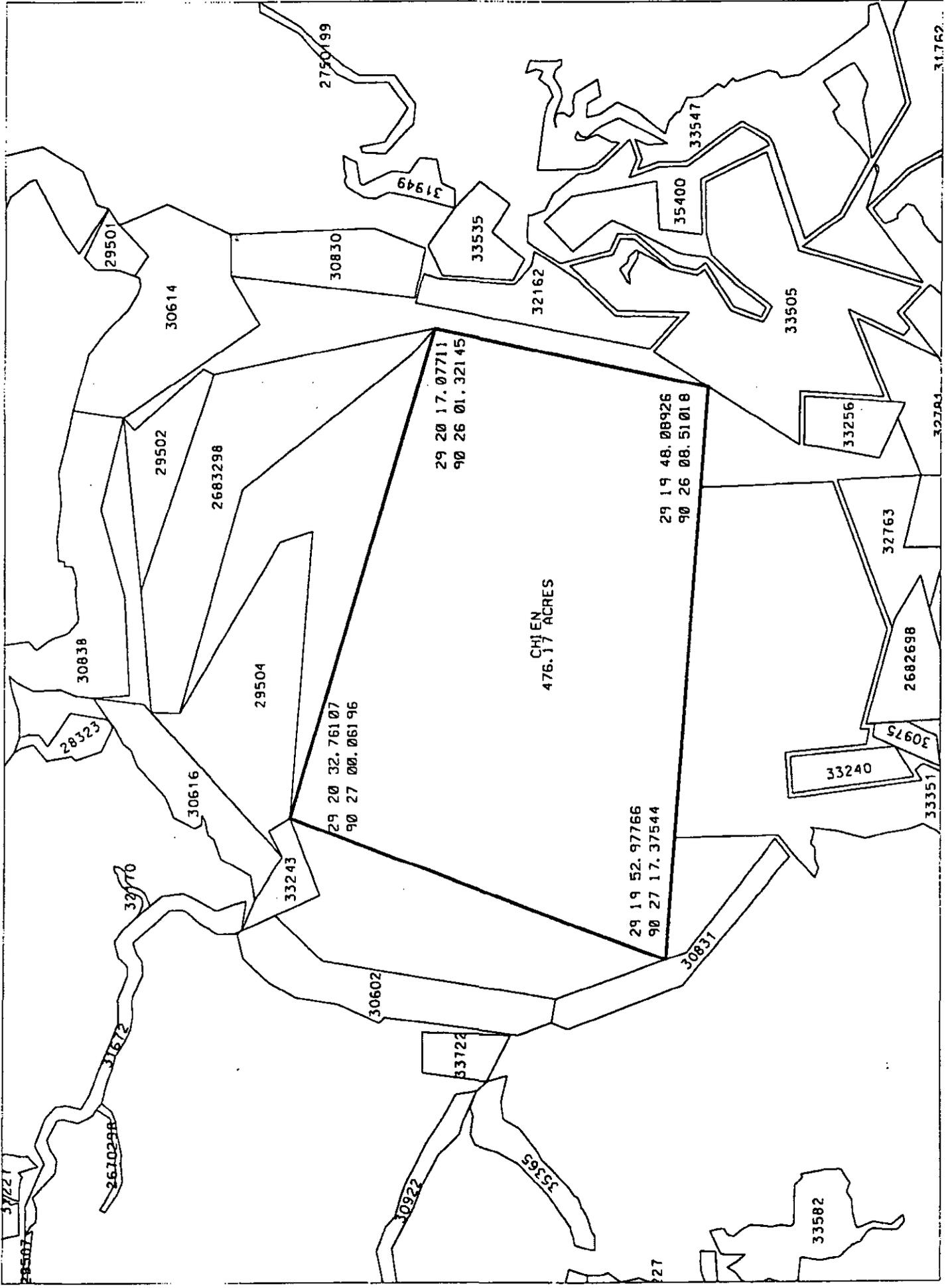
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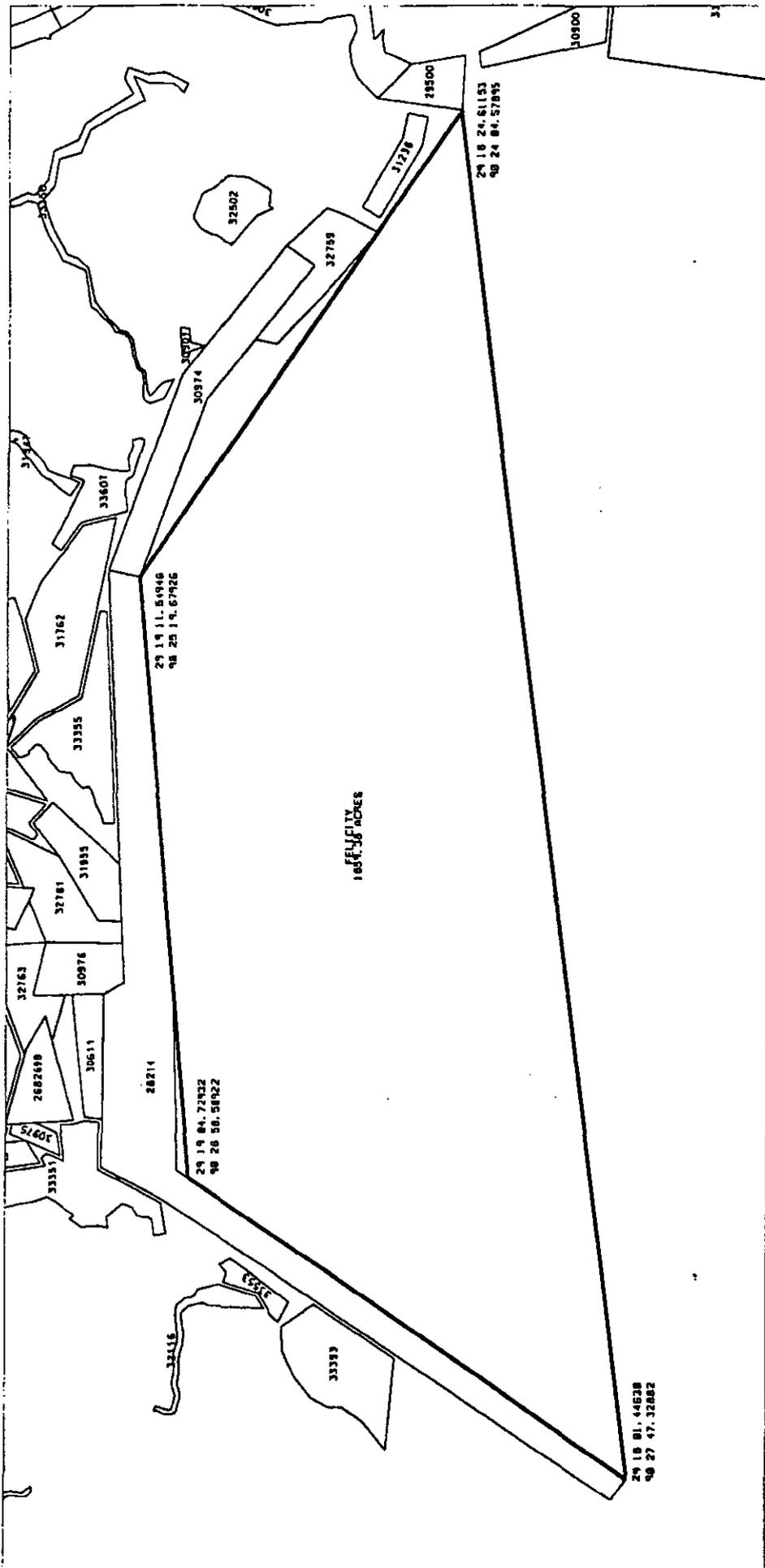
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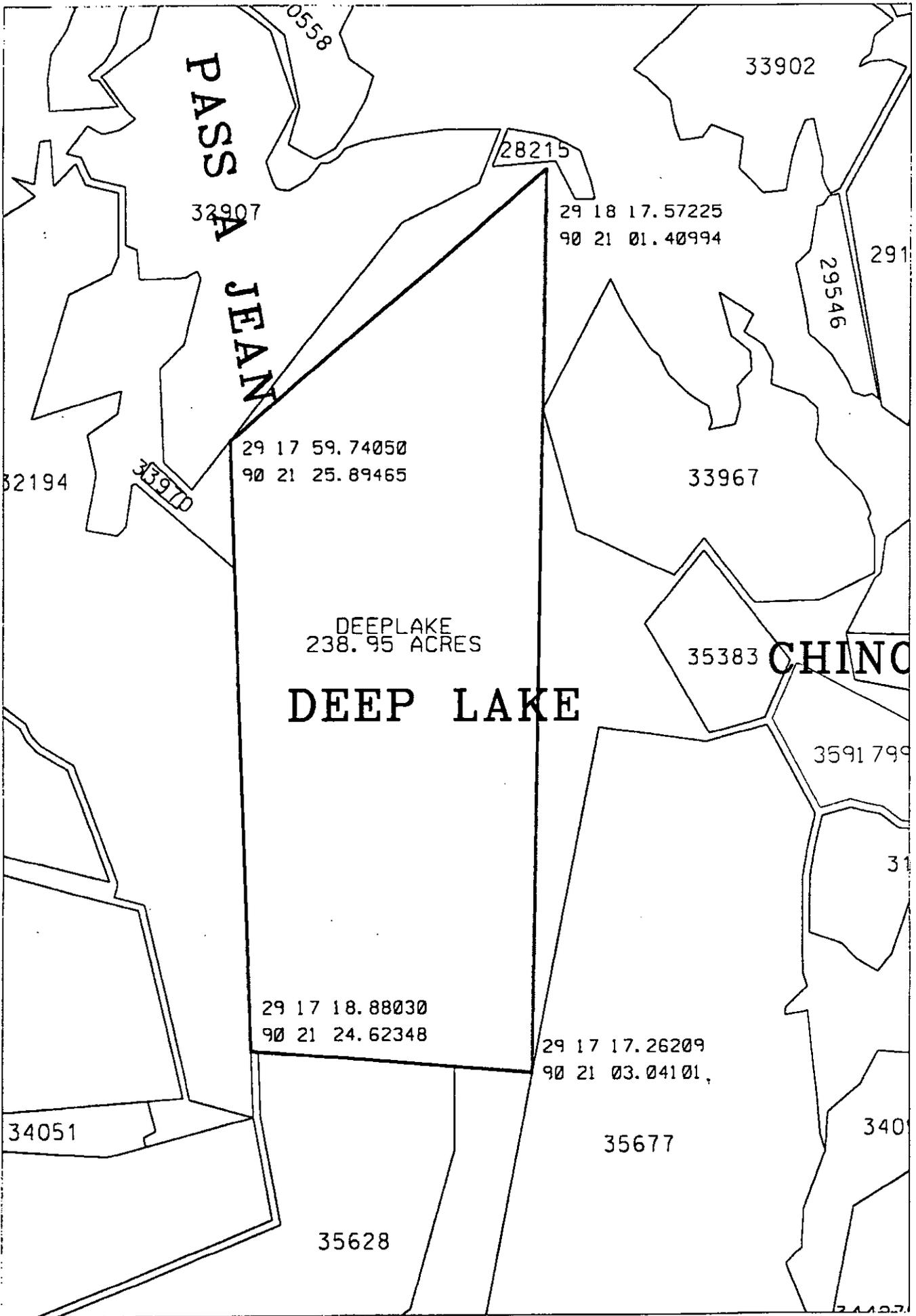
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PASS
A
JEAN

DEEPLAKE
238.95 ACRES

DEEP LAKE

CHINO

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28215

33902

29 18 17.57225
90 21 01.40994

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29 17 59.74050
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29 17 18.88030
90 21 24.62348

29 17 17.26209
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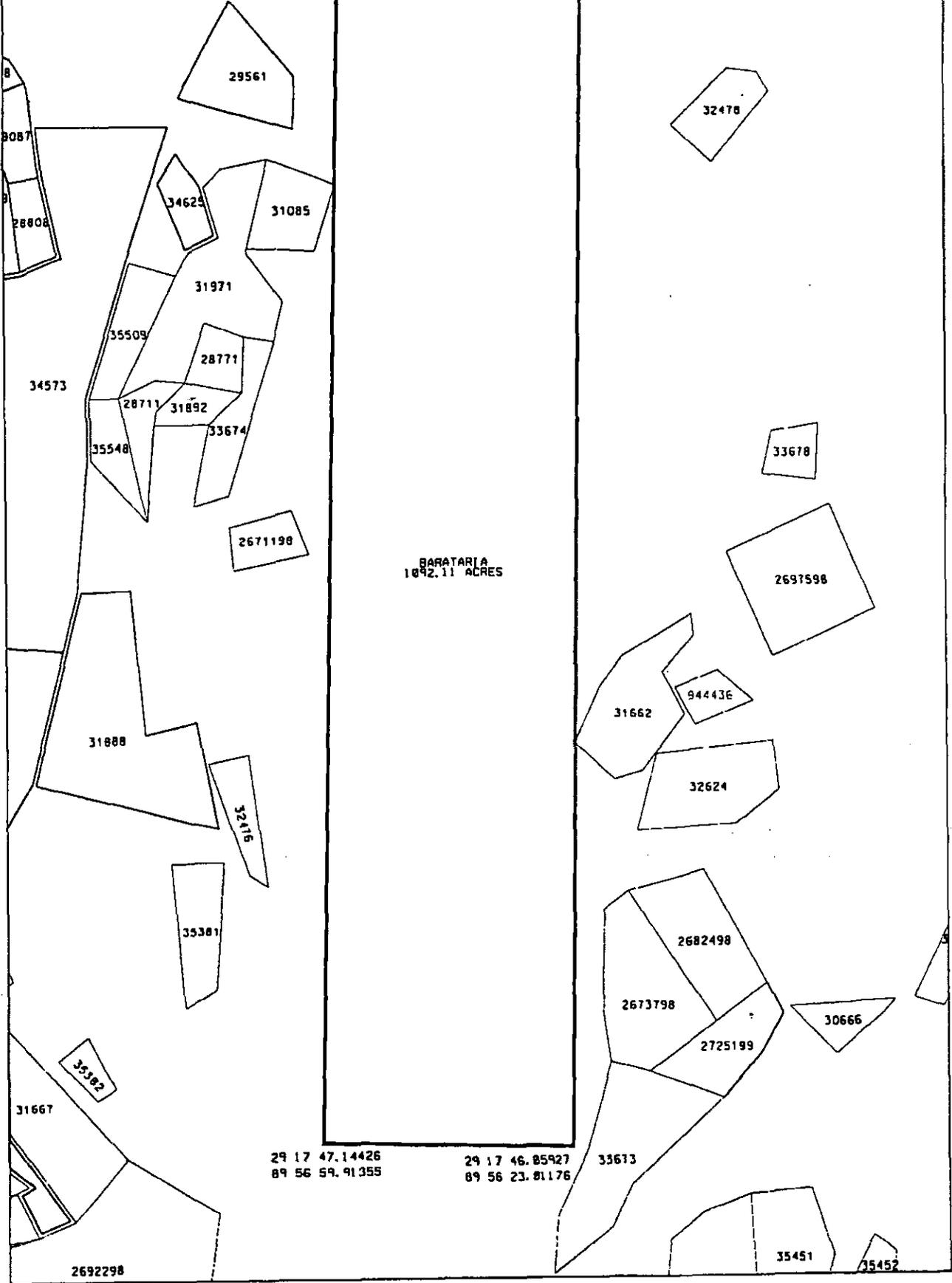
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29 28 13.14881
89 56 54.91540

29 28 12.06107
89 56 19.01249



BARATARIA
1042.11 ACRES

29 17 47.14426
89 56 59.91355

29 17 46.85927
89 56 23.81176

8
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February 3, 2000

WHEREAS, R.S. 56:434(A) states "The commission shall at its discretion from time to time designate and set aside such area from the waterbottoms of the state as it judges best adapted to the planting, propagation, growth, and policing of seed oysters. The area constitutes oyster seed grounds.", and

WHEREAS, oyster seed grounds, from which an oyster lessee may take small oysters for transport to his own leases, are an important component of Louisiana's oyster industry, and

WHEREAS, as much as 80% of Louisiana's oyster production between the Mississippi River and Atchafalaya River is dependent on seed oysters taken from the oyster seed grounds, and

WHEREAS, because of the small acreage of oyster seed grounds available west of the Mississippi River, oyster lessees must often travel to the oyster seed grounds east of the Mississippi River to obtain oyster seed, and

WHEREAS, changing coastal salinity regimes may necessitate the creation of additional oyster seed grounds to ensure a sufficient supply of seed in the future,

THEREFORE BE IT RESOLVED, that the Louisiana Wildlife and Fisheries Commission's notice of intent to create additional oyster seed grounds from portions of the state waterbottoms west of the Mississippi River is attached to and made a part of this resolution, and

BE IT FURTHER RESOLVED, that the Secretary is instructed to continue to accept applications for new leases within those areas presently available, but is not to issue leases within any locations which the Commission has defined in the attached Notice of Intent for possible inclusion into an oyster seed ground, and

BE IT FURTHER RESOLVED, that when the Final Rule is promulgated the Secretary will cancel all applications or portions of applications which include public oyster waters within the designated oyster seed grounds, and

BE IT FURTHER RESOLVED, that once the rule for the new oyster seed grounds is promulgated, all available state waterbottoms within the Lake Mechant area which were previously closed to leasing and which have not been designated oyster seed grounds, shall be available for leasing at a time and place to be announced at a future date, and

BE IT FURTHER RESOLVED, that the Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies in government.

Thomas M. Gattle, Jr., Chairman
Wildlife and Fisheries
Commission

James H. Jenkins, Jr., Secretary
Department of Wildlife and
Fisheries

NOTICE OF INTENT

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

The Wildlife and Fisheries Commission does hereby give notice of its intent to set aside additional areas in portions of Lake Mechant, Lake Tambour, Lake Chien, Lake Felicity, all in Terrebonne Parish, Deep Lake, Lafourche Parish, and Barataria Bay (next to Queen Bess Island), Jefferson Parish as public oyster seed grounds. This is being done under the authority of R.S. 56:434.

Title 76

WILDLIFE AND FISHERIES

Part VII. Fish and Other Aquatic Life

Chapter 5. Oyster

§517. Public Oyster Seed Grounds - Portions of Lake Mechant, Lake Tambour, Lake Chien, Lake Felicity, Deep Lake, and Barataria Bay

The following areas are designated as oyster seed grounds:

1. Lake Mechant, Terrebonne Parish: The state waterbottoms within a six (6) sided figure with the following corners:

29° 19' 45.36273" N	90° 58' 19.84034" W
29° 18' 52.50955" N	90° 57' 32.90680" W
29° 18' 41.04086" N	90° 55' 58.95532" W
29° 16' 47.29750" N	90° 56' 44.37133" W
29° 18' 33.55333" N	90° 57' 37.82946" W

29° 18' 46.69380" N 90° 59' 21.09926" W

2. Lake Tambour, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 30.73200" N 90° 31' 09.14598" W

29° 19' 51.16104" N 90° 29' 28.99726" W

29° 19' 59.29224" N 90° 29' 26.60078" W

29° 19' 50.06346" N 90° 30' 49.92953" W

3. Lake Chien, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 32.76107" N 90° 27' 00.06196" W

29° 19' 52.97766" N 90° 27' 17.37544" W

29° 19' 48.08926" N 90° 26' 08.51018" W

29° 20' 17.07711" N 90° 26' 01.32145" W

4. Lake Felicity, Terrebonne Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 19' 04.72932" N 90° 26' 58.50922" W

29° 18' 01.44630" N 90° 27' 47.32882" W

29° 18' 24.61153" N 90° 24' 04.57895" W

29° 19' 11.54946" N 90° 25' 19.67927" W

5. Deep Lake, Lafourche Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 17' 59.74050" N	90° 21' 25.89465" W
29° 17' 18.88030" N	90° 21' 24.62348" W
29° 17' 17.26209" N	90° 21' 03.04101" W
29° 18' 17.57225" N	90° 21' 01.40994" W

6. Barataria Bay, Jefferson Parish: The state waterbottoms within a four (4) sided figure with the following corners:

29° 20' 13.14881" N	89° 56' 51.91540" W
29° 14' 47.14426" N	89° 56' 59.91355" W
29° 20' 12.06107" N	89° 56' 19.01249" W
29° 17' 46.05927" N	89° 56' 23.01176" W

AUTHORITY NOTE: Promulgated in accordance with R.S. 56:434.

HISTORICAL NOTE: Promulgated by the Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 26: .

The Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies of government.

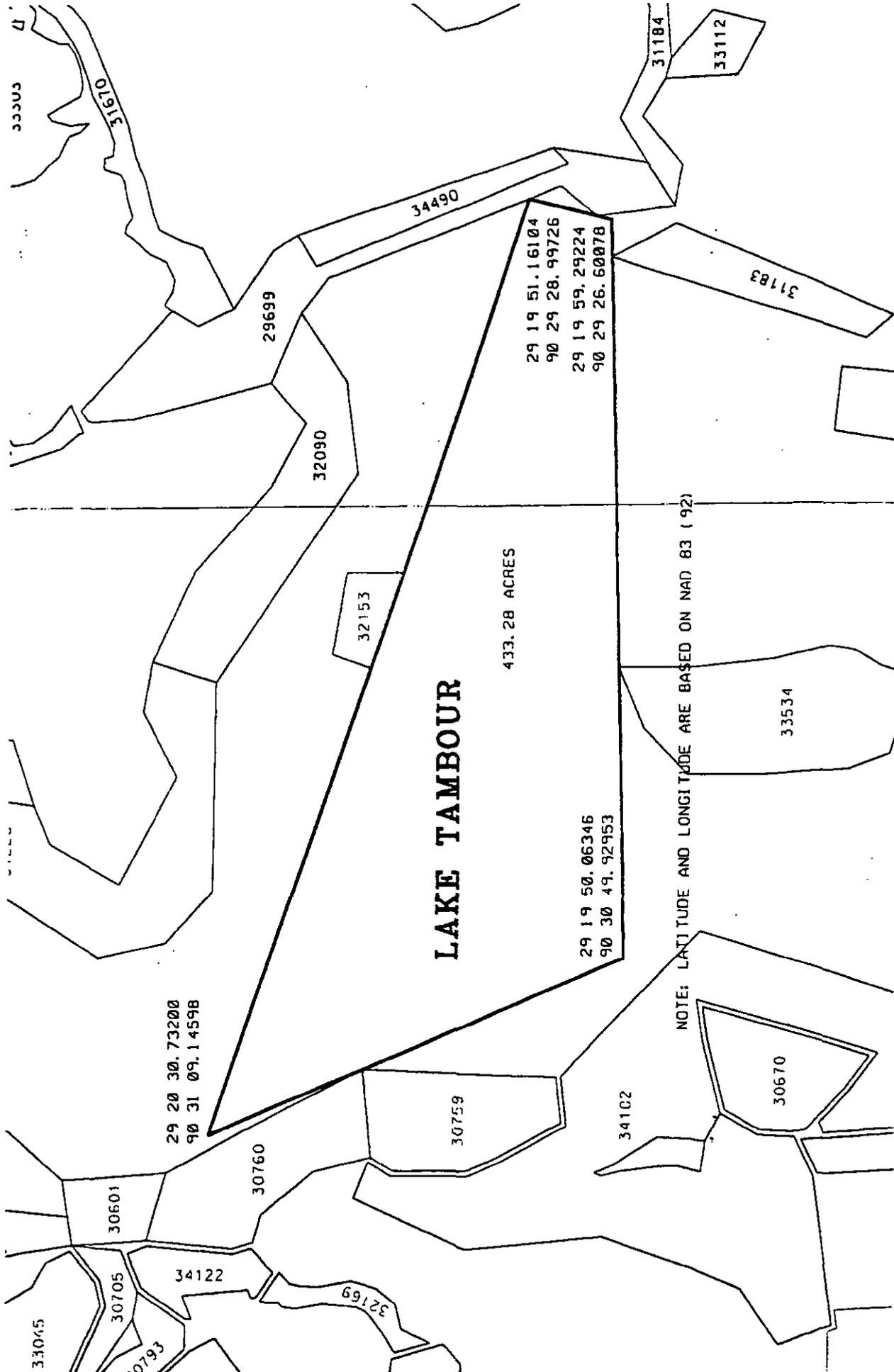
Interested persons may submit written comments relative to the proposed rule until 4:30 p.m., May 5, 2000 to Mr. Ron Dugas, Department of Wildlife and Fisheries, 1600 Canal St., Ste. 306, New

Orleans, Louisiana 70112.

In accordance with Act #1183 of 1999, the Department of Wildlife and Fisheries/Wildlife and Fisheries Commission hereby issues its Family Impact Statement in connection with the preceding Notice of Intent: This Notice of Intent will have no impact on the six criteria set out at R.S. 49:972(B).

Thomas M. Gattle, Jr.

Chairman



LAKE TAMBOUR

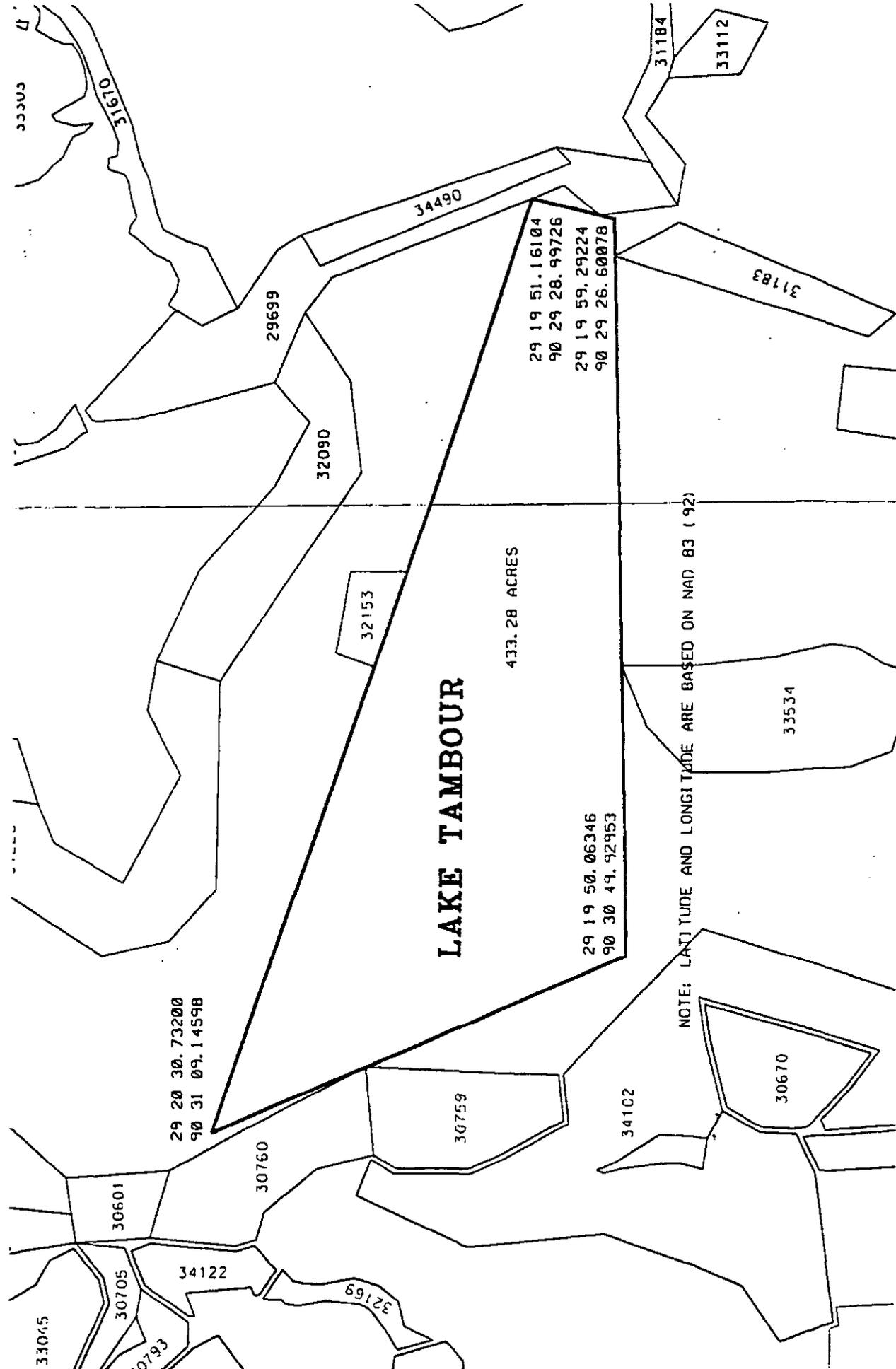
433.28 ACRES

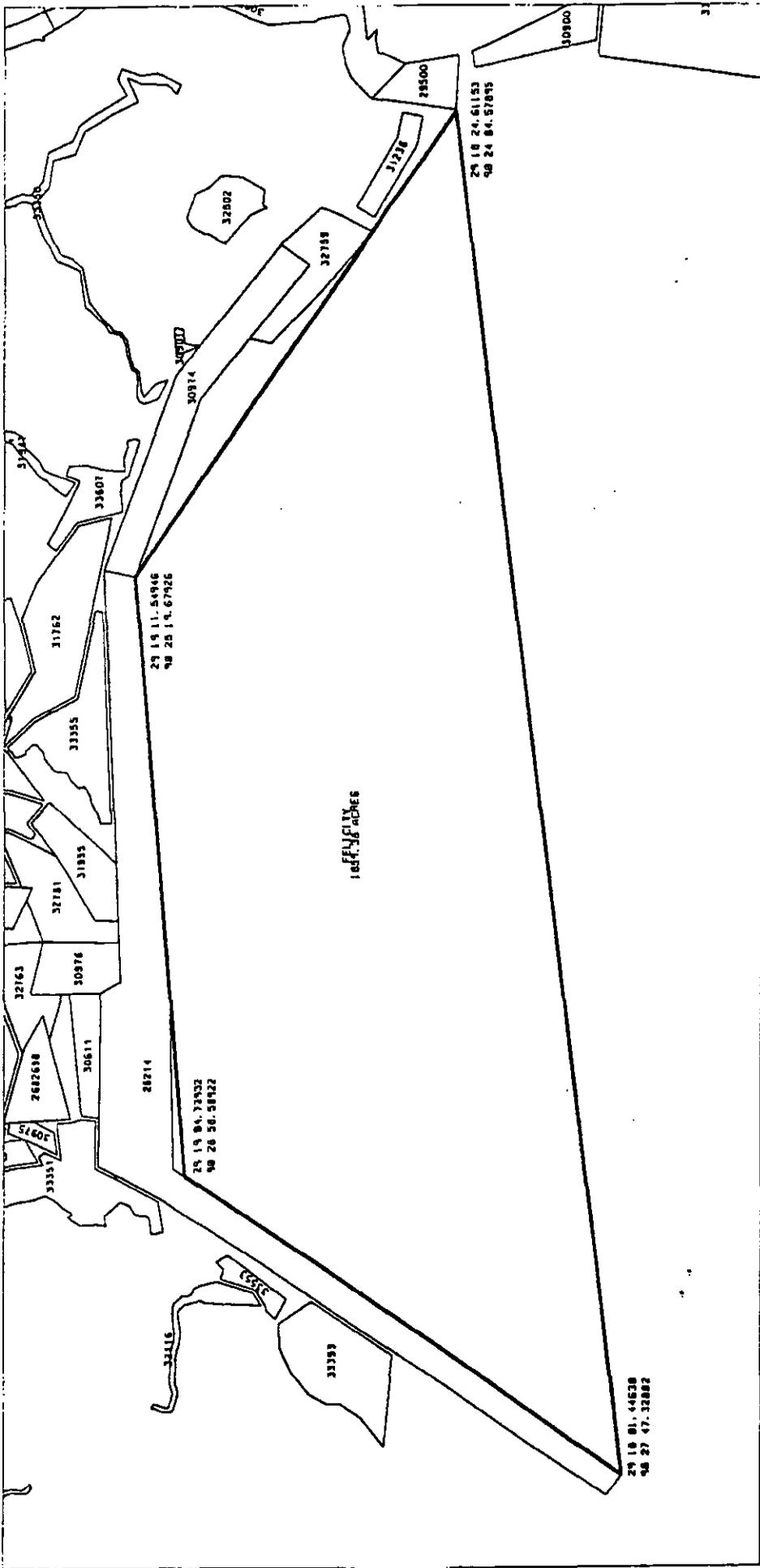
29 20 30.73200
90 31 09.14598

29 19 50.06346
90 30 49.92953

29 19 51.16104
90 29 28.99726
29 19 59.29224
90 29 26.60078

NOTE: LATITUDE AND LONGITUDE ARE BASED ON NAD 83 (92)





185,417 ACRES

29 19 11.54946
48 25 13.67925

29 19 06.73932
48 26 26.58922

29 19 01.44638
48 27 47.32882

29 18 24.61153
48 24 01.57875

28500

32788

32789

32802

32801

32807

32808

32809

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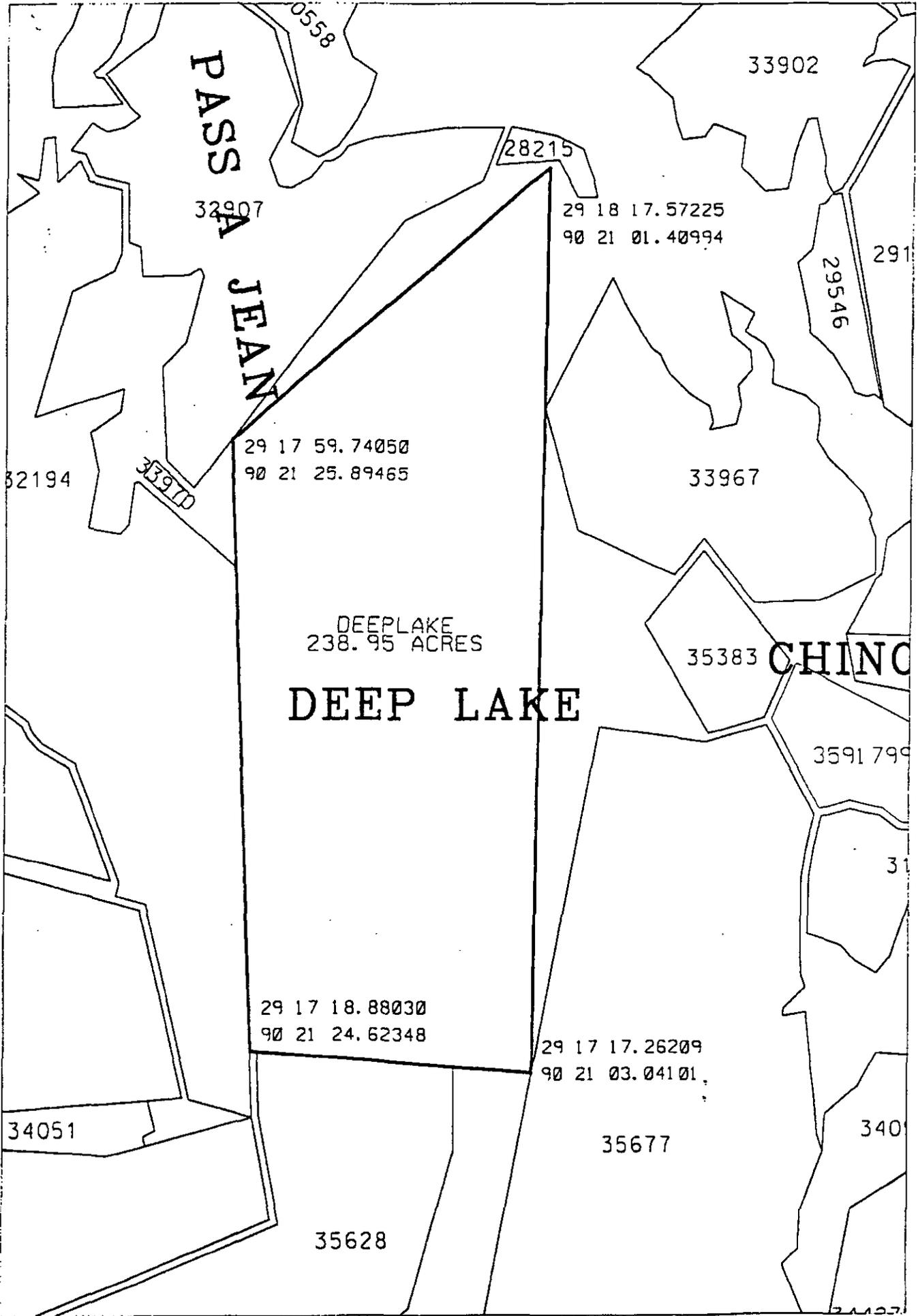
32825

32826

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32829



PASS A JEAN

33902

28215

32907

29 18 17.57225
90 21 01.40994

29546

291

33910

29 17 59.74050
90 21 25.89465

32194

33967

DEEPLAKE
238.95 ACRES

35383 CHINO

DEEP LAKE

3591 799

31

29 17 18.88030
90 21 24.62348

29 17 17.26209
90 21 03.04101

34051

35677

340

35628

34127

29 28 13.14881
89 56 54.91548

29 28 12.88187
89 56 19.81249

8087
28808

29561

32478

34623 31085

31971
35509
28771
28711 31892
33674
35548

34573

33678

2671198

BARATARIA
1892.11 ACRES

2697598

31888
32416
35381

31662 944436
32624

35382

31667

2682498
2673798
2725198

30666

29 17 47.14426
89 56 59.91355

29 17 46.85927
89 56 23.81176

33673

2692298

35451

35452

REPORT TO THE WILDLIFE AND FISHERIES COMMISSION
February 3, 2000
CIVIL RESTITUTION

CURRENT ASSESSMENT/COLLECTION STATUS:

<u>Value</u>	<u>No. Cases</u>	
\$2.5 million	4,000	Total restitution values in system (1993 to date)
\$.9 million	3,000	Total payments and other adjustments
\$1.6 million	1,000	Total assessments owed

AGING OF ASSESSMENTS OWED:

\$ 35,000	46	Current
\$ 525,000	134	Delinquent
\$1,040,000	900	Uncollectable

CASES TURNED OVER TO COLLECTION ATTORNEY (after revocation notice):

\$ 400,000	80
------------	----

- ❖ The \$1 million in “uncollectable” cases will be written off and deleted from reports; explain why uncollectable
- ❖ Explanation of revocation procedures: outstanding letter, revocation notice, notification of License and Enforcement, turn over to collection attorney
- ❖ Impact of automated licensing system: will begin entering revoked licenses shortly; denial next time attempt to buy license; biggest impact will be next year
- ❖ Efforts of collection attorney include: collection letters, judgment debtor procedures, writs, seizures, judicial proceedings, recordation of judgments in parishes
- ❖ Areas targeted for improving the cost effectiveness of the program: review of values, increasing hearing costs

MONTHLY CIVIL RESTITUTION REPORT

PERIOD	NO. CASES ASSESSED	AMOUNT ASSESSED	CREDIT FOR SALE GOODS	NO. CASES PAID	AMOUNT PAID	DISCOUNTS TAKEN	PERCENT DOLLARS PAID	PERCENT CASES PAID
FISCAL YEAR 1993-94								
July, 1993	25	\$21,039.00	(\$9,778.00)	29	\$4,855.00	\$2,545.00		
Aug., 1993	53	\$44,922.00	(\$1,137.00)	41	\$7,950.00	\$3,603.00		
Sept., 1993	42	\$137,635.00	(\$17,938.00)	35	\$6,783.00	\$3,048.00		
Oct., 1993	49	\$21,471.00	(\$11,282.00)	40	\$3,285.00	\$1,519.00		
Nov., 1993	57	\$31,207.00	(\$13,260.00)	32	\$3,053.00	\$2,845.00		
Dec., 1993	53	\$13,777.00		27	\$6,507.00	\$6,713.00		
Jan., 1994	38	\$18,918.00		32	\$4,423.00	\$2,831.00		
Feb., 1994	68	\$38,131.00	(\$8,238.00)	46	\$9,124.00	\$5,993.00		
Mar., 1994	38	\$22,739.00	(\$2,482.00)	51	\$10,854.00	\$6,796.00		
April, 1994	14	\$44,732.00	(\$1,404.00)	27	\$7,307.00	\$4,632.00		
May, 1994	10	\$4,504.00	(\$165.00)	7	\$5,447.00	\$3,808.00		
June, 1994	29	\$26,167.00	(\$2,986.00)	12	\$1,886.00	\$1,214.00		
Total FY 1994	476	\$425,242.00	(\$68,670.00)	379	\$71,474.00	\$45,547.00	27.5%	79.6%
FISCAL YEAR 1994-95								
July, 1994	17	\$2,127.00	(\$335.00)	23	\$2,101.00	\$1,437.00		
Aug., 1994	41	\$96,403.00	(\$3,035.00)	20	\$1,010.00	\$605.00		
Sept., 1994	34	\$14,614.00	(\$14,002.00)	26	\$2,596.00	\$2,342.00		
Oct., 1994	94	\$17,426.00	(\$8,677.00)	38	\$2,922.00	\$3,179.00		
Nov., 1994	43	\$103,592.00		45	\$3,992.00	\$2,803.00		
Dec., 1994	68	\$31,400.00		35	\$4,315.00	\$2,329.00		
Jan., 1995	55	\$27,601.00		52	\$7,493.00	\$4,921.00		
Feb., 1995	70	\$61,119.00		41	\$6,472.00	\$3,973.00		
Mar., 1995	31	\$25,072.00		44	\$8,315.00	\$4,737.00		
Apr., 1995	13	\$15,353.00		16	\$3,565.00	\$1,538.00		
May., 1995	23	\$11,632.00		16	\$4,315.00	\$654.00		
June 1995	45	\$31,008.00		18	\$2,630.00	\$1,025.00		
Total FY 1995	534	\$437,347.00	(\$26,049.00)	374	\$49,726.00	\$29,543.00	18.1%	70.0%
FICAL YEAR 1995-96								
July, 1995	0	\$0.00						
Aug., 1995	46	\$17,425.00		27	\$9,028.00	\$1,729.00		
Sept., 1995	1	\$125.00		21	\$3,093.00	\$2,049.00		
Oct., 1995	122	\$206,244.00		29	\$2,720.00	\$1,161.00		
Nov., 1995	55	\$23,124.00		62	\$10,151.00	\$6,383.00		
Dec., 1995	50	\$18,607.26		32	\$4,780.66	\$2,802.76		
Jan., 1996	49	\$13,814.88	(\$15,296.45)	36	\$5,296.51	\$3,472.89		
Feb., 1996	50	\$14,716.97		38	\$5,777.53	\$3,416.91		
Mar., 1996	33	\$24,936.91		36	\$6,035.12	\$3,421.75		
Apr., 1996	30	\$11,006.66		36	\$7,173.12	\$2,711.54		
May., 1996	23	\$7,989.34		24	\$3,941.69	\$2,020.29		
June 1996	50	\$22,151.31		16	\$2,790.02	\$1,182.23		
Total FY 1996	509	\$360,141.33	(\$15,296.45)	357	\$60,786.65	\$30,350.37	25.3%	70.1%
FISCAL YEAR 1996-97								
July, 1996	40	\$71,894.13		32	\$5,249.93	\$2,947.96		
Aug., 1996	32	\$5,362.64		32	\$6,254.59	\$3,783.69		
Sept., 1996	41	\$7,210.00		29	\$2,259.96	\$1,326.58		
Oct., 1996	29	\$11,092.53		25	\$3,697.89	\$2,261.98		
Nov., 1996	20	\$10,009.10		22	\$1,624.63	\$698.02		
Dec., 1996	13	\$238,466.04		22	\$5,877.18	\$2,121.53		
Jan., 1997	27	\$11,755.22		17	\$4,393.30	\$2,377.09		
Feb., 1997	47	\$18,520.87		42	\$8,579.84	\$5,552.63		
Mar., 1997	26	\$13,434.02		27	\$4,999.59	\$2,757.67		
Apr., 1997	10	\$2,908.87		15	\$2,322.88	\$1,298.66		
May., 1997	20	\$11,682.70		15	\$5,198.91	\$1,399.21		
June 1997	5	\$8,036.58		10	\$2,335.24	\$765.34		
Total FY 1997	310	\$410,372.70	\$0.00	288	\$52,793.94	\$27,290.36	19.5%	92.9%

FICAL YEAR 1997 - 98

July, 1997	10	\$2,811.71		8	\$1,584.67	\$823.11		
Aug., 1997	14	\$8,741.30		8	\$1,496.49	\$779.14		
Sept., 1997	29	\$19,926.37		12	\$2,051.78	\$1,278.04		
Oct., 1997	12	\$4,716.81		23	\$3,184.83	\$2,063.89		
Nov., 1997	23	\$54,965.34		10	\$2,424.86	\$1,218.28		
Dec., 1997	25	\$36,881.09		15	\$4,376.97	\$2,775.66		
Jan., 1998	42	\$30,025.81		17	\$5,300.40	\$3,533.66		
Feb., 1998	37	\$31,164.95		29	\$22,961.69	\$8,501.18		
Mar., 1998	9	\$13,273.45		32	\$9,406.56	\$4,371.53		
Apr., 1998	10	\$5,628.21		10	\$2,602.62	\$1,279.77		
May., 1998	0	\$225.00		8	\$2,885.02	\$950.46		
June 1998	5	\$2,414.03		6	\$1,041.54	\$98.00		
Total FY 1998	216	\$210,774.07	\$0.00	178	\$59,317.43	\$27,672.72	41.3%	82.4%

FICAL YEAR 1998 - 99

July, 1998	9	\$1,390.43		8	\$1,964.20	\$716.75		
Aug., 1998	10	\$2,240.70		10	\$1,048.28	\$372.47		
Sept., 1998	8	\$2,768.96		11	\$2,000.36	\$1,148.23		
Oct., 1998	22	\$28,704.85		14	\$1,860.17	\$807.48		
Nov., 1998	19	\$9,137.79		11	\$1,765.97	\$1,092.43		
Dec., 1998	23	\$11,959.10		27	\$4,441.02	\$2,040.71		
Jan., 1999	41	\$21,179.55		18	\$6,621.63	\$3,838.22		
Feb., 1999	45	\$26,236.24		41	\$12,119.09	\$6,923.61		
Mar., 1999	15	\$7,549.57		33	\$8,281.77	\$4,138.44		
Apr., 1999	9	\$8,013.54		14	\$3,035.82	\$1,388.41		
May., 1999	5	\$5,161.23		5	\$905.50	\$405.00		
June 1999	7	\$3,719.01		13	\$3,011.06	\$533.83		
Total FY 1999	213	\$128,060.97	\$0.00	205	\$47,054.87	\$23,405.58	55.0%	96.2%

FISCAL YEAR 1999-2000

July, 1999	5	\$1,556.38		9	\$2,287.53	\$1,198.81		
Aug., 1999	10	\$2,510.83		15	\$2,455.38	\$513.73		
Sept., 1999	6	\$2,032.19	\$5,324.80	28	\$3,563.06	\$475.93		
Oct., 1999	11	\$4,452.31	\$567.75	25	\$2,775.48	\$557.41		
Nov., 1999	14	\$8,634.64		26	\$3,250.96	\$1,322.96		
Dec., 1999	24	\$15,891.96		19	\$3,862.76	\$2,126.27		
Jan., 2000	49	\$27,872.14		28	\$7,952.94	\$3,814.02		
Feb., 2000								
Mar., 2000								
Apr., 2000								
May, 2000								
June, 2000								
Total FY 2000	119	\$62,950.45	\$5,892.55	150	\$26,148.11	\$10,009.13	57%	126%

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CIVIL RESTITUTION ACTIVITY REPORT
 CURRENT MONTH
 01/01/2000 TO 01/31/2000

	# CASES	AMOUNT
ORIG RESTITUTION VALUES ENTERED	49	\$27,872.14
HEARING COSTS ASSESSED	0	\$0.00
SALE OF CONFISCATED COMMODS	0	\$0.00
SALES EXCEEDING RESTITUTION	0	\$0.00
=====		
RESTITUTION ASSESSED	49	\$27,872.14
PAYMENTS	28	\$7,952.94-
DISCOUNTS FOR TIMELY PAYMENTS	17	\$3,814.02-
OVERPAYMENTS	1	\$0.01
REFUND OF OVERPAYMENT	0	\$0.00
APPLIED CONFISCATED COMMODS	0	\$0.00
APPLIED EXCEEDING BALANCE DUE	0	\$0.00
REFUND OF CONFISCATED COMMOD.	0	\$0.00
RETURNED CHECKS	0	\$0.00
MISC. ADJUSTMENTS		
DEBITS	0	\$0.00
CREDITS	0	\$0.00
REASSESSMENTS		
DEBITS	0	\$0.00
CREDITS	0	\$0.00
WRITE-OFFS	1	\$12,493.00-
ASSESSMENTS WITHDRAWN	0	\$0.00
ADJUDICATION ADJUSTMENTS	0	\$0.00
FOUND NOT RESPONSIBLE	0	\$0.00
CASES VOIDED BY ENFORCEMENT	0	\$0.00

FOOTNOTE:		
FORFEIT OF CONFISCATED COMMODS	0	\$0.00

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CIVIL RESTITUTION ACTIVITY REPORT
 FISCAL YEAR TO DATE
 07/01/1999 TO 01/31/2000

	# CASES	AMOUNT
ORIG RESTITUTION VALUES ENTERED	119	\$62,600.45
HEARING COSTS ASSESSED	9	\$350.00
SALE OF CONFISCATED COMMODS	0	\$0.00
SALES EXCEEDING RESTITUTION	0	\$0.00

RESTITUTION ASSESSED	119	\$62,950.45
PAYMENTS	116	\$26,148.11-
DISCOUNTS FOR TIMELY PAYMENTS	59	\$10,009.13-
OVERPAYMENTS	2	\$290.51
REFUND OF OVERPAYMENT	1	\$290.50
APPLIED CONFISCATED COMMODS	8	\$4,757.05-
APPLIED EXCEEDING BALANCE DUE	1	\$1,621.15
REFUND OF CONFISCATED COMMOD.	0	\$0.00
RETURNED CHECKS	0	\$0.00
MISC. ADJUSTMENTS		
DEBITS	0	\$0.00
CREDITS	0	\$0.00
REASSESSMENTS		
DEBITS	0	\$0.00
CREDITS	0	\$0.00
WRITE-OFFS	5	\$12,509.10-
ASSESSMENTS WITHDRAWN	0	\$0.00
ADJUDICATION ADJUSTMENTS	0	\$524.54-
FOUND NOT RESPONSIBLE	5	\$2,717.35-
CASES VOIDED BY ENFORCEMENT	0	\$0.00

 FOOTNOTE:

FORFEIT OF CONFISCATED COMMODS	1	\$0.00
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AGING OF SALE OF CONFISCATED COMMODITIES

VIOLATION DATE UNKNOWN	0	\$0.00
1 - 30 DAYS	0	\$0.00
31 - 60 DAYS	3	\$6,389.65
61 - 90 DAYS	7	\$2,454.85
91 - 120 DAYS	11	\$1,154.94
121 - 150 DAYS	10	\$8,853.09
151 - 180 DAYS	28	\$11,508.40
181 - 365 DAYS	81	\$48,589.59
OVER ONE YEAR	150	\$155,998.29
OVER TWO YEARS	109	\$66,509.41
OVER THREE YEARS	436	\$347,721.40
		=====
** TOTAL AGING	835	\$649,179.62

AGING OF OUTSTANDING CASES

CAN NOT BE INVOICED	9	\$3,272.76
CURRENT	37	\$21,053.12
1 - 30 DAYS	15	\$12,644.25
31 - 90 DAYS	4	\$2,073.90
91 - 180 DAYS	2	\$380.13
181 - 365 DAYS	27	\$19,542.64
CASES SENT FOR COLLECTION	86	\$480,659.10
OVER 1 YEAR PENDING	0	\$0.00
OVER 1 YEAR (OTHER)	900	\$1,040,629.70
		=====
** TOTAL AGING	1,080	\$1,580,255.60

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
CLASS I ACTIVITY REPORT
CURRENT MONTH
01/01/2000-01/31/2000

	# CASES	AMOUNT
FINES	484	\$24,250.00
HEARING COSTS		
DEBITS	99	\$2,475.00
CREDITS	0	\$0.00
		=====
TOTAL DUE		\$26,725.00

PAID IN FULL	297	\$17,485.00-
PARTIAL PAYMENTS	4	\$175.00-
OVERPAYMENTS	4	\$175.00
REFUNDS	3	\$150.00
RETURNED CHECKS	0	\$0.00
MISC CHANGES		
DEBITS	0	\$0.00
CREDITS	0	\$0.00
ADJUSTMENTS TO VIOLATION		
DEBITS	1	\$50.00
CREDITS	0	\$0.00
VOIDS	35	\$1,725.00-
NOT GUILTY	0	\$0.00

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CLASS I ACTIVITY REPORT
 FISCAL YEAR TO DATE
 07/01/1999-01/31/2000

	# CASES	AMOUNT
FINES	4,410	\$223,855.00
HEARING COSTS		
DEBITS	763	\$19,052.00
CREDITS	2	\$175.00-
		=====
TOTAL DUE		\$242,732.00

=====

PAID IN FULL	3,125	\$166,444.40-
PARTIAL PAYMENTS	68	\$3,265.00-
OVERPAYMENTS	29	\$1,364.00
REFUNDS	21	\$621.00
RETURNED CHECKS	3	\$150.00
MISC CHANGES		
DEBITS	3	\$40.00
CREDITS	2	\$1.60-
ADJUSTMENTS TO VIOLATION		
DEBITS	2	\$100.00
CREDITS	0	\$0.00
VOIDS	311	\$12,807.00-
NOT GUILTY	31	\$700.00-

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CLASS I ACTIVITY REPORT
 INCEPTION TO DATE
 01/31/2000

	# CASES	AMOUNT
FINES	77,990	\$3,964,852.07
HEARING COSTS		
DEBITS	16,965	\$424,378.80
CREDITS	2	\$4,900.00-
		=====
TOTAL DUE		\$4,384,330.87

=====

PAID IN FULL	43,543	\$2,261,252.27-
PARTIAL PAYMENTS	1,210	\$55,043.37-
OVERPAYMENTS	869	\$25,128.34
REFUNDS	162	\$7,900.31
RETURNED CHECKS	60	\$3,200.00
MISC CHANGES		
DEBITS	60	\$1,005.00
CREDITS	168	\$156.03-
ADJUSTMENTS TO VIOLATION		
DEBITS	118	\$7,000.00
CREDITS	14	\$800.00-
VOIDS	4,337	\$184,532.73-
NOT GUILTY	657	\$32,750.00-
		=====
TOTAL OUTSTANDING		\$1,894,030.12

AGING OF OUTSTANDING CASES FROM CITATION DATE

CURRENT	221	\$11,100.00
1 - 30 DAYS	194	\$9,700.00
31 - 60 DAYS	496	\$25,250.00
91 - 180 DAYS	865	\$44,603.00
181 - 365 DAYS	1,856	\$104,121.00
OVER 1 YEAR UNCOLLECTABLE	0	\$0.00
OVER 1 YEAR PENDING	0	\$0.00
OVER 1 YEAR (OTHER)	26,600	\$1,699,256.12
		=====
** TOTAL AGING	30,232	\$1,894,030.12

AGING OF OUTSTANDING CASES FROM HEARING DATE

PREHEARING	1,030	\$51,975.00
0 - 90 DAYS	2,739	\$138,623.00
91 - 180 DAYS	317	\$16,446.00
181 - 270 DAYS	1,071	\$62,205.00
271 - 365 DAYS	644	\$45,580.00
OVER 1 YEAR UNCOLLECTABLE	0	\$0.00
OVER 1 YEAR PENDING	0	\$0.00
OVER 1 YEAR (OTHER)	24,431	\$1,579,201.12
		=====
** TOTAL AGING	30,232	\$1,894,030.12

ENFORCEMENT CASE REPORT

JANUARY 2000

REGION I
18 positions

**PARISHES: BIENVILLE, BOSSIER,
CADDO, CLAIBORNE,
DESOTO, RED RIVER,
WEBSTER**

TOTAL CASES	72
TOTAL	DESCRIPTION OF CITATION
3	Boating
13	Angling W/O A License
5	Angling W/O A License – Non-Resident
7	Fishing W/O A Resident Cane Pole License
1	Take Game Fish Illegally (Snagging)
1	Take Over Limit Freshwater Game Fish
1	Hunting W/O A Resident License
1	Hunting W/O A Non-Resident License
2	Hunt W/Unplugged Gun
1	Hunt MGB W/O A State Stamp
2	Failure To Comply W/Hunter Safety Regulations
1	Hunt W/O A Resident Big Game License
2	Hunt Deer From A Public Road
2	Take Illegal Deer Open Season
1	Possession Over Limit Of Deer
1	Failure To Wear Hunter Orange

3	Violate MGB Federal Stamp Regulations (State Charge)
1	Hunt MGB W/Unplugged Gun
4	Hunt MGB Illegal Hours
1	Hunt MGB Illegal Hours
1	Using Lead Shot In Area Designated As Steel Shot Only
6	Possession Over Limit Ducks (Field Possession)
4	Not Abiding By Rules & Regs On WMA
1	Driving While Intoxicated
1	Littering
1	Other Than Wildlife & Fisheries
4	Operate ATV On Public Road
1	Discharge Firearm From A Public Road

WARNING CITATIONS:

TOTAL 33	DESCRIPTION OF CITATION
5	Angling W/O A License
2	Angling W/O A License – Non-Resident
2	Hunting W/O A Resident License
1	Hunt MGB W/O A State Stamp
1	Failure To Abide By Hunter Safety Regulations
4	Failure To Wear Hunter Orange

3	Failure To Abide By Rules & Regs On WMA
15	Boating Safety

CONFISCATIONS:

CONFISCATION DESCRIPTION	
16 ducks; 66 white bass; 1 ice chest; 2 Penn spinning reels; 2 Shakespeare rods; 3 shotguns; 7 lead shot shells; 1 snipe; 1 doe deer	

TOTAL OF EACH CATEGORY FOR REGION 1

TOTAL	DESCRIPTION
3	Boating
0	Commercial Fishing
16	Federal Migratory
1	Littering
11	Miscellaneous
27	Recreational Fishing
14	State Hunting/Trapping
33	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REGION 2:
19 positions

**PARISHES: E. CARROL, JACKSON,
LINCOLN, MOREHEAD,
QUACHITA, RICHLAND
UNION, W. CARROL**

TOTAL	DESCRIPTION OF CITATION
105	
13	Boating
3	Hunting W/O Resident Big Game License
1	Take Illegal Deer Open Season
1	Hunt DMAP W/O Permit
8	Hunt Deer From Public Road
2	Hunt From Moving Vehicle
5	Hunt Deer Illegal Hours
2	Hunt Wild Quadrupeds Illegal Hours
1	Hunt W/O Resident Muzzleloader License
1	Take Fish W/O Commercial License
1	Use Illegal Mesh Nets
6	Angle W/O A License
6	Hunt MGB Illegal hours
12	Hunt MGB W/O Federal Duck Stamp
15	Hunt MGB W/O State Duck Stamp
5	Hunt Ducks Using Lead Shot

1	Hunt MGB With Unplugged Gun
2	Operate ATV Illegally on Federal Refuge
7	Hunt MGB With Electronic Call
4	Hunt MGB With Illegal Firearm
1	Hunt MGB With Unsigned Duck Stamp
2	Not Abiding By Rules and Regulations on WMA
1	Littering
1	Operate ATV On Public Road
2	Illegal Possession Of Alcohol
1	Driving Left of Center
1	Contributing To The Delinquency Of A Minor

WARNING CITATIONS:

TOTAL 20	DESCRIPTION OF CITATION
1	Failure To Wear Hunter Orange
8	Not Abiding By Rules and Regulations on WMA
1	Hunt W /O Basic Hunting License
4	Angle W/O A License
1	Hunt MGB W/O HIP Stamp
1	Failure To Comply With PFD Requirements
1	Improper Boat Numbers

1	No Boat Registration In Possession
2	Operate Unregistered Boat

CONFISCATIONS:

CONFISCATION DESCRIPTION	
1- 2" gill Net, 2- 2 ½" trammel Nets, 8- ducks, 1-federal stamp, 1-rifle scope, 5-rifles, 19-geese, 2- electronic calls.	

TOTAL OF EACH CATEGORY FOR REGION -2

TOTAL	DESCRIPTION
13	Boating
2	Commercial Fishing
53	Federal Migratory
1	Littering
7	Miscellaneous
6	Recreational Fishing
23	State Hunting/Trapping
20	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
10	Public Assistance- Assisting Stranded Boaters and Motorists

REGION 3:
29 positions

**PARISHES: AVOUELLES, GRANT,
NATCHITOCHEs, RAPIDES
SABINE, VERNON, WINN**

TOTAL CASES	122
TOTAL	DESCRIPTION OF CITATION
8	Boating
16	Angling W/O A License
1	Use Gear W/O Recreational Gear License
1	Angle W/O Non-Resident License
1	Obtain License By Fraud
1	Illegal Shipping Of Commercial Fish (No ID)
1	Possess Undersize Commercial Fin Fish (Channel Catfish)
3	Take Illegal Deer Open Season
5	Hunt From Moving Vehicle
4	Hunt Or Take Deer From Public Road
6	Hunt W/O A Resident Basic License
5	Hunt W/O A Resident Big Game License
8	Hunt M.G.B. W/O A State Stamp
4	Fail To Wear Hunter's Orange
3	Hunt With Unplugged Gun
3	Hunt Stand Or Loiter From Public Road

8	Hunt M.G.B. W/O Federal Stamp
8	Use Lead Shot In Steel Shot Only Area
1	Discharge Firearm From Public Road
1	Hunt Raccoons Illegally
1	Possess Buckshot During Closed Gun Deer Season
1	Illegal Spotighting From Public Road
1	Hunt W/O Non-Resident License
2	Hunt M.G.B. W/Unplugged Shotgun
1	Littering
18	Not Abiding By Rules & Regulations On WMA
1	Hunt W/O Muzzle Loader License
2	Hunt M.G.B. Over Baited Area (Ducks)
5	Hunt M.G.B. Illegal Hours (Ducks)
2	Field Possession Over Limit Ducks

WARNING CITATIONS:

TOTAL 18	DESCRIPTION OF CITATION
1	Hunt W/O Non-Resident License
1	Hunt W/O Non-Resident Big Game License
2	Hunt W/O Resident Big Game License
1	Expired Boat Registration Certificate

1	Angle W/O License In Possession
1	Hunt M.G.B. W/O State Duck Stamp
1	No Running Lights
1	Fail To Wear Hunters Orange
8	Not Abiding By Rules & Regulations
1	Hunt W/O Muzzle Loader License

CONFISCATIONS:

CONFISCATION DESCRIPTION
3 shot gun, 1 doe deer, 5 buckshot hulls, 56 lead shot shells, 2 raccoons, 23 duck, 1 zip lock bag of corn, 3 buckshot, 1 spotlight, 1 buck deer, 1 resident fishing license, 405 channel catfish, 1 beer can.

TOTAL OF EACH CATEGORY FOR REGION 3

TOTAL	DESCRIPTION
8	Boating
2	Commercial Fishing
16	Federal Migratory
1	Littering
1	Miscellaneous
18	Recreational Fishing
76	State Hunting/Trapping
18	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REGION 4:

PARISHES: CALDWELL, CATAHOULA,
 CONCORDIA, FRANKLIN
 LASALLE, MADISON,
 TENSAS

24 positions

TOTAL CASES	159
TOTAL	DESCRIPTION OF CITATION
8	Boating
3	Hunting W/O Resident License
2	Hunting W/O Non-Resident License
24	Hunting From A Moving Vehicle
1	Hunting W/Unplugged Gun
9	Hunt Wild Quadrupeds Illegal Hours
7	Hunt From Public Road
2	Hunt From A Levee Road
1	Hunt MGB W/O State Stamp
2	Hunt W/O Resident Big Game License
1	Hunt W/O Non-Resident Big Game License
20	Hunt Or Take Deer Illegal Hours
13	Hunt Or Take Deer From Public Road
8	Hunt Or Take Illegal Deer Open Season
3	Buying Or Selling Deer or Meat

4	Possession Of Illegally Taken Deer In Open Season
4	Fail To Comply W/Hunters Orange Regulations
2	Hunt Raccoons Illegally
1	Violate MGB Federal Stamp Requirements
1	Hunt MGB With Unplugged Gun
1	Hunting MGB With Illegal Firearm
3	Using Lead Shot In Area Designated As Steel Shot Only
5	Hunting MGB W/Electronic Calling Device
3	Possess Over Limit Or Ducks (Field Possession)
23	Not Abiding By Rules & Regulations On WMA
4	Illegal Possession Of Drugs Or Marijuana
1	Littering
2	Other Than Wildlife & Fisheries Possession Of Controlled Substance (Crystal Meth)
1	Discharge Firearm From Public Road

WARNING CITATIONS:

TOTAL	DESCRIPTION OF CITATION
2	Failure To Comply W/Hunters Orange Regulations

CONFISCATIONS:

CONFISCATION DESCRIPTION
13 deer, 4 coons, 4 rabbits, 43 ducks, 3 shotguns, 13 rifles, 1 muzzleloader, 20 lead shot shells, 6 lights, 1 electronic call with tape, crystal meth & marijuana

TOTAL OF EACH CATEGORY FOR REGION 4

TOTAL	DESCRIPTION
8	Boating
0	Commercial Fishing
14	Federal Migratory
1	Littering
6	Miscellaneous
0	Recreational Fishing
130	State Hunting/Trapping
2	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
2	Public Assistance

REGION 5

BEAUREGARD, CALCASIEU
CAMERON, EVANGELINE
JEFF DAVIS, VERMILLION

33 positions

TOTAL CASES	156
TOTAL	DESCRIPTION OF CITATION
18	Boating
9	Angling W/O A License
1	Possess Over 10 Red Drum (Off Water)
1	Take Or Possess Undersized Red Drum
2	Take Or Possess Undersized Black Drum
1	Fail To Maintain Records
1	Commercial Truck W/O Display Of Owner Name And Address
4	Hunting W/O Resident License
13	Hunting From Moving Vehicle And/Or Aircraft
16	Hunt Wild Quadrupeds And/Or Wild Birds Illegal Hours
2	Hunt, Stand, Loiter From Public Road
2	Hunt Migratory Game Birds W/O State Stamp
3	Hunt Or Take Deer Illegal Hours
1	Hunt Or Take Deer From Public Road
3	Hunt Or Take Illegal Deer Open Season
3	Fail To Wear Hunters Orange

1	Violate Migratory Game Bird Federal Stamp Regulation
1	Hunting Ducks Or Geese W/O Federal Stamp
6	Hunting Migratory Game Birds With Unplugged Gun
25	Hunting Migratory Game Birds Illegal Hours
3	Hunting Migratory Game Birds Over Baited Area
4	Hunting Migratory Game Birds From A Vehicle
4	Possess Untagged Migratory Game Birds
3	Using Lead Shot In Area Designated As Steel Shot Only
6	Hunting Migratory Game Birds With Electronic Calling Device
1	Possess Over Limit Of Doves
3	Possess Over Limit Of Geese
4	Possess Over Limit Of Ducks
2	Hunt Migratory Game Birds W/O State Stamp
2	Hunt Migratory Game Birds W/O State Hunting License
7	Hunt Migratory Game Birds From Public Road
1	Illegal Possession Of Drugs Or Marijuana
1	Littering
1	Flight From An Officer
1	Reckless Operation Of A Vehicle

WARNING CITATIONS:

TOTAL	DESCRIPTION OF CITATION
9	Boating

CONFISCATIONS:

CONFISCATION DESCRIPTION
84 ducks; 7 teal; 105 geese; 2 snipe; 15 red drum; 3 rifles; 3 spotlights; 35 shells; 1 battery; 3 rabbits; 1 receipt; 1 electronic caller; 14 doves; 4 black drum; 1 red drum; 1 bag containing marijuana; 1 cigarette paper.

TOTAL OF EACH CATEGORY FOR REGION 5

TOTAL	DESCRIPTION
18	Boating
2	Commercial Fishing
57	Federal Migratory
1	Littering
3	Miscellaneous
13	Recreational Fishing
62	State Hunting/Trapping
9	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REGION 6:
25 positions

**PARISHES: IBERIA, IBERVILLE,
LAFAYETTE, PT.COUPÉE
ST.LANDRY, W.B.ROUGE**

TOTAL CASES	175
TOTAL	DESCRIPTION OF CITATION
28	Boating
11	Angling W/O A License
1	Fail To Comply With Hunter Safety Regulations
8	Hunting W/O Resident License
1	Possess Less Than 10% Untagged Oysters
5	Hunt W/O Resident Big Game License
4	Fail To Wear Hunters Orange
1	Transport W/O Required License
17	Hunt Wild Quadrupeds Illegal Hours
15	Hunt From Moving Vehicle
5	Hunt From Public Road
4	Possess Untagged MGB
2	Not Abiding By Rules/Regulations On State Land
3	Use Of Dogs For Hunting Must Be Accompanied
1	Driving On Levees
3	Fish W/O Resident Pole License

1	Sell/Buy Fish W/O Wholesale Dealers License
6	Take Illegal Size Black Bass
6	Hunt/Take Deer Illegal Hours
11	Hunt MGB Illegal Hours
1	Possess Overlimit Ducks
2	Hunt/Take Illegal Deer Open Season
1	Hunt MGB With Unplugged Gun
3	Hunt/Take Deer From Public Road
3	Hunt/Take Deer With Illegal Weapon
1	Possession Of Firearm Of Convicted Felon
14	Hunt Raccoons Illegally
2	Hunt/Discharge Firearm From Levee Road
2	Take Non-Game Quadrupeds Illegally
1	Transport W/O Required License
1	Hunt MGB W/O State Stamp
1	Possess Untagged Deer
2	Fail To Maintain Sex
1	Take Bobcats Illegally
3	Field Possession Of Deer Meat W/O Tag
1	Not Abiding By Rules/Regulations On WMA

2	Possess Untagged MGB
1	Hunt Ducks/Geese W/O Federal Stamp

WARNING CITATIONS:

TOTAL 7	DESCRIPTION OF CITATION
4	Boating
1	Hunt W/O Resident License
1	Failure To Comply With Hunter Safety Regulations
1	Angling W/O License In Possession

CONFISCATIONS:

CONFISCATION DESCRIPTION
4 headlights, 1 spotlight, 2 shotguns, 1 sack of oysters, 6 black bass, 4 rifles, 1 knife, 3 30-30 shells, 2 vehicle, 7 woodducks, 13 rabbits, 1 woodcock, 4 raccoons, 4 nutria, 2 outboard motors, 1 plastic bag containing deer heart, kidney and liver, 3 buckshot, 1 mallard.

TOTAL OF EACH CATEGORY FOR REGION 6

TOTAL	DESCRIPTION
28	Boating
4	Commercial Fishing
20	Federal Migratory
0	Littering
7	Miscellaneous
20	Recreational Fishing
96	State Hunting/Trapping
7	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REGION 7:
29 positions

**PARISHES: ASCENSION, E.B. ROUGE,
E. FELICIANA, LIVINGSTON,
ST. HELENA, ST. TAMMANY,
TANGIPAOHA, WASHINGTON,
W. FELICIANA**

TOTAL CASES	71
TOTAL	DESCRIPTION OF CITATION
7	Boating
5	Angling W/O A License
5	Hunt W/O A Basic Hunting License
7	Hunt From A Moving Vehicle
1	Hunting With Unplugged Gun
1	Hunt Wild Quadrupeds/Illegal Hours
3	Hunt Deer From A Public Road
5	Hunt W/O Big Game License
7	Hunt Deer Illegal Hours
1	Hunt MGB Illegal Hours
1	Using Lead Shot For MGB
2	Scenic River Violations
5	Not Abiding By Rules And Regs. On WMA
2	Hunt From Public Road
3	Failure To Comply With Hunter Safety Regs.
2	Illegal Spotlighting From A Public Road

2	Take Illegal Deer Open Season
3	Selling Wild Quadrapeds
2	Hunt Quadrapeds From A Public Road
3	Failure To Wear Hunters Orange
1	Trespass On Property After Being Forbidden
3	Selling Deer Meat

WARNING CITATIONS:

TOTAL	DESCRIPTION OF CITATION
1	Violate Rules And Regs. On WMA

CONFISCATIONS:

CONFISCATION DESCRIPTION
3 deer, 5 spotlights, 4 rifles and 3 shotguns.

TOTAL OF EACH CATEGORY FOR REGION 7

TOTAL	DESCRIPTION
7	Boating
0	Commercial Fishing
1	Federal Migratory
0	Littering
9	Miscellaneous
6	Recreational Fishing
49	State Hunting/Trapping
1	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
3	Public Assistance 2-SUBJECT LOST ON WMA, 1-TOWED BOAT

REGION 8
15 positions

**PLAQUEMINES, ST. BERNARD,
ST. CHARLES, ORLEANS
JEFFERSON**

TOTAL CASES	143
TOTAL	DESCRIPTION OF CITATION
13	Boating
18	Angling W/O A License
6	Angling W/O A Non-Resident License
5	Angling W/O A Saltwater License
11	Take/Possess Over The Limit Of Red drum
2	Possess Over 10 Red Drum (Off Water)
5	Take/Possess Undersized Red Drum
1	Take/Sell Commercial Fish W/O A Commercial License
1	Take Commercial Fish W/O Commercial Gear License
1	Sell / Buy Fish W/O Wholesale/Retail Dealer's License
1	Sell/ Buy Fish W/O A Retail Seafood Dealer's License
2	Fail To Maintain Records
1	Transport W/O Required License
1	Fail To Comply With Commission Rules And Regulations Concerning Traversing Permit
2	Take/Possess Undersize Commercial Finfish (Catfish)
2	Failure To Fill Out Oyster Tags Correctly

3	Failure To Tag Sacked Or Containerized Oysters
2	Buying Or Selling For Resale Untagged Oysters
2	Violation Of Sanitary Code –Chapter 9(Fail To Refrigerate Properly)
3	Adulterated Foods
2	Fail To Abide By Commission Rules And Regulations(Hunt In Closed Area)
1	Hunt W/O Resident Big Game License
3	Hunt/ Take Deer Illegal Hours
2	Possess Fur Bearing Animals W/O A License
4	Hunt Ducks W/O A Federal Stamp
3	Hunt MGB With Unplugged Gun
2	Hunt MGB Over Baited Area
1	Rallying MGB
3	Transport Completely Dressed MGB
1	Wanton Waste Of MGB
7	Using Lead Shot In Area Designated As Steel Shot Only
1	Possess Over The Limit Of Coots
3	Possess Over The Limit Of Ducks
1	Take Robins-No Season
3	Hunt MGB W/O State Duck Stamp
3	Hunt MGB W/O State Hunting License

13	Not Abiding By Rules And Regulations On WMA
1	Illegal Possession Of Marijuana
1	Littering
2	Reckless Operation Of A Motor Vehicle
2	Passing Stopped School Bus
1	Violate General Speed Law
1	Resist An Officer
1	Simple Escape

WARNING CITATIONS:

TOTAL 26	DESCRIPTION OF CITATION
1	Angling W/O A License
1	Take/Possess Undersized Black Drum
2	Failure To Display Valid Certificate Decal
13	Not Abiding By Rules And Regs. On WMA
1	Illegal Possession Of Marijuana
1	Littering
2	Reckless Operation Of A Motor Vehicle
2	Passing Stopped School Bus
1	Violate General Speed
1	Resisting An Officer
1	Simple Escape

CONFISCATIONS:

CONFISCATION DESCRIPTION
<p>Seafood and game donated: deer—2: ducks---38:coots---48:spotted sea trout---15:white trout---15:bonita---2:king mackerel---2:flounder---31:black drum---13:red drum---100:croaker---150 pounds: seafood returned to water:red drum---8:black drum---12:sheepshead---20:spotted sea trout---2: seafood sold: black drum---1977 pounds sold for \$1,257.50 —sheepshead---27 pounds sold for \$9.45. seafood destroyed: oysters---18 sacks:shucked oysters---9 quarts: black drum---15: red drum---5: Hardware confiscated: shotguns---3: boats---1: motor---1. Gill nets---900 feet. Unattended gill net---1500 feet:lead shot shotgun shells---64:ice chests---2</p>

TOTAL OF EACH CATEGORY FOR REGION 8

TOTAL	DESCRIPTION
13	Boating
22	Commercial Fishing
32	Federal Migratory
1	Littering
7	Miscellaneous
47	Recreational Fishing
8	State Hunting/Trapping
26	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REGION 9:

25 positions

**PARISHES: ASSUMPTION, ST. JAMES
ST. JOHN, ST. MARY
TERREBONNE, LAFOURCHE
JEFFERSON-GRAND ISLE
LOWER ST. MARTIN**

TOTAL CASES	185
TOTAL	DESCRIPTION OF CITATION
36	Boating
27	Angling W/O A License
3	Angling W/O A License Non-Resident
7	Angling W/O Saltwater License
2	Angling W/O Saltwater License Non-Resident
2	Take Over Limit Of Undersized Freshwater Gamefish (Black Bass)
5	Take Undersized Red Drum
6	Take Undersized Black Drum Recreation
2	Fail To Have Commercial License In Possession
2	Take Commercial Fish W/O Commercial Gear License (Gillnet)
2	Take Commercial Fish W/O Vessel License
1	Destroy Legal Crab Trap
1	Remove Contents Legal Crab Trap
2	Failure To Have Written Permission
3	Unlawfully Take Oysters Off A Private Lease

5	Hunting W/O Resident License
1	Failure To Abide By Commission Rules
2	Hunting From Moving Vehicle
1	Hunting W/Unplugged Gun
4	Hunt MGB W/O State Stamp
2	Hunt Deer From Public Road
3	Take Illegal Deer Open Season
2	Possession Of Illegally Taken Deer O/S
2	Field Possession Of Deer Meat W/O Tag
2	Fail To Maintain Sex Identification
3	Fail To Wear Hunters Orange
1	Hunt D-MAP Lands W/O Admit From Owners
2	Hunting Ducks W/O Federal Stamp
9	Hunting MGB Illegal Hours
10	Hunting MGB Over Baited Area
2	Hunting MGB From Moving Motorboat
12	Rallying MGB
5	Using Lead Shot In Steel Shot Area
1	Hunt MGB With Unplugged Gun
3	Violate MGB Federal Stamp Requirement

3	Possess Completely Dressed MGB
1	Field Possession Of Freshly Killed MGB Closed Season
1	Taking Other Non-Game Birds
2	Hunt MGB W/O State Stamp
2	Hunt W/O License
1	Flight From Officer
1	Reckless Operation Motor Vehicle
1	Speeding Motor Vehicle

WARNING CITATIONS:

TOTAL 22	DESCRIPTION OF CITATION
2	Angling W/O License
11	Angling W/O Saltwater License
8	Boating
1	Fail To Wear Hunters Orange

CONFISCATIONS:

CONFISCATION DESCRIPTION
12 red drum, 98 black drum, 23 black bass, 2 gray ducks, 11 teal, 1 shoveler, 8 mallards, 1 widgeon, 1 wood duck, 5 dressed migratory game birds, 275 lbs. crabs, 12 dozen uncultured oysters, 5 champagnes oysters, 1 bait sample, 13 coots, 3 ringnecks, 2 gadwalls, 1 hooded merganser, 3 deer, 1 yellow bellied sapsucker, 600 ft gillnet, 5 shotguns, 1 flashlight, various lead shot, 3 D-Map tags.

TOTAL OF EACH CATEGORY FOR REGION 9

TOTAL	DESCRIPTION
36	Boating
13	Commercial Fishing
31	Federal Migratory
0	Littering
3	Miscellaneous
52	Recreational Fishing
50	State Hunting/Trapping
22	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
3	Public Assistance

OYSTER STRIKE FORCE
3 positions

STATEWIDE

TOTAL CASES	22
TOTAL	DESCRIPTION OF CITATION
0	Boating
4	Angling W/O A License
4	Fishing W/O A Saltwater License
1	Take Undersize Red Drum
4	Take Over The Daily Limit Of Red Drum
3	Take Oysters From Private Lease
2	Take Oysters From Unapproved Area
4	Take Over The Daily Limit Of Black Drum

WARNING CITATIONS:

TOTAL 0	DESCRIPTION OF CITATION
0	
CONFISCATION DESCRIPTION	
25 red drum, 30 black drum, 61 sacks of oysters.	

TOTAL OF EACH CATEGORY FOR OYSTER STRIKE FORCE

TOTAL	DESCRIPTION
0	Boating
5	Commercial Fishing
0	Federal Migratory
0	Littering
0	Miscellaneous
17	Recreational Fishing
0	State Hunting/Trapping
0	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

SEAFOOD INVESTIGATIVE UNIT
6 positions

STATEWIDE

TOTAL CASES	23
TOTAL	DESCRIPTION OF CITATION
1	Take/Sell Commercial Fish/Bait Species without a Commercial License
1	Sell/Buy Fish without a Wholesale/Retail Dealer's License
2	Sell/Buy Fish without a Retail Dealer's License
1	Fail to Maintain Records
1	Transport without Required License
4	Use saltwater Net Illegally(at night, without license/permit)
1	Fail to Report Commercial Fisheries Data
1	Improper/No Fire Extinguisher
1	Conspiracy(State-Violate Mullet Regulations)
1	Violation of Mullet Regulations
3	Take Mullet Commercially without a Permit
6	Take Commercial Mullet Closed Season/Illegal Hours

WARNING CITATIONS:

TOTAL 0	DESCRIPTION OF CITATION
0	

CONFISCATIONS:

CONFISCATION DESCRIPTION
Business records and receipts.

TOTAL OF EACH CATEGORY FOR SEAFOOD INVESTIGATIVE UNIT

TOTAL	DESCRIPTION
1	Boating
22	Commercial Fishing
0	Federal Migratory
0	Littering
0	Miscellaneous
0	Recreational Fishing
0	State Hunting/Trapping
0	WMA Rules and Regulations
0	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE.

TOTAL	DESCRIPTION
0	Public Assistance

SPECIAL STRIKE FORCE
9 positions

STATEWIDE

TOTAL CASES	15
TOTAL	DESCRIPTION OF CITATION
5	Boating
2	Angling W/O A License
1	Hunting W/O A Resident License
1	Use Saltwater Net Illegally
1	Fail To Abide By Commission Rules
3	Hunt MGB Over Baited Area
1	Use Lead Shot In Area Designated As Steel
1	Take Or Possess Other Non-Game Birds

WARNING CITATIONS:

TOTAL 5	DESCRIPTION OF CITATION
1	Angle W/O A License
1	Fail To Comply With P.F. D. Requirements
2	Improper Or No Fire Extinguisher
1	Improper Boat Numbers

CONFISCATIONS:

CONFISCATION DESCRIPTION
16 ducks, 6 rabbits, and 6 leadshot shotgun shells.

TOTAL OF EACH CATEGORY FOR SEAFOOD STRIKE FORCE

TOTAL	DESCRIPTION
5	Boating
1	Commercial Fishing
5	Federal Migratory
0	Littering
0	Miscellaneous
2	Recreational Fishing
2	State Hunting/Trapping
5	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

S.W.E.P.
8 positions

STATEWIDE

TOTAL CASES	16
TOTAL	DESCRIPTION OF CITATION
3	Boating
1	Angling W/O A License
1	Angling W/O Saltwater License
1	Angling W/O License Non-Resident
1	Angling W/O Saltwater License Non-Resident
1	Hunting W/O License
7	Possession Of Untagged MGB
1	Hunting MGB With Unplugged Gun

WARNING CITATIONS:

TOTAL 0	DESCRIPTION OF CITATION
0	

CONFISCATIONS:

CONFISCATION DESCRIPTION
44 ducks, 4 black drum, and 1 spotted sea trout.

TOTAL OF EACH CATEGORY FOR S.W.E.P.

TOTAL	DESCRIPTION
3	Boating
0	Commercial Fishing
8	Federal Migratory
0	Littering
0	Miscellaneous
5	Recreational Fishing
0	State Hunting/Trapping
0	Warning Citations

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

BOATS CHECKED=83**RUNNING HOURS=25**

TOTAL CASES

-1407

NOTE: WRITTEN WARNINGS = 143

ENFORCEMENT AVIATION REPORT
JANUARY, 2000

185-Amph. - 61092
Hrs. - 42.2

185-Float - 9667Q
Hrs. - 43.7

210 - 9467Y
Hrs. - 19.8

Enforcement Hours - 64.9

Other Divisions - 40.8

Total Plane Use - 105.7

Cases Made In Conjunction With Aircraft Use Resulted In Citations Issued For:

1-Failure to have PFD on Person Under Thirteen.

1-Failure to Comply with PFD Requirement.

2-Rallying Migratory Gamebirds.

3-Hunt Migratory Gamebirds over Baited Area.

1-Field Possession of Deer Meat Without Tag.

1-Possession Untagged Migratory Gamebird.

9-Total

Confiscations: 8 Coots, 15 Ducks, 2 Gill Nets

HABITAT ENHANCEMENT

JACKSON-BIENVILLE WILDLIFE HABITAT PROGRAM

*Habitat Enhancement Provided through a cooperative effort
involving the following Sponsors*

Willamette Industries, Inc.



Monsanto



HABITAT AMERICA

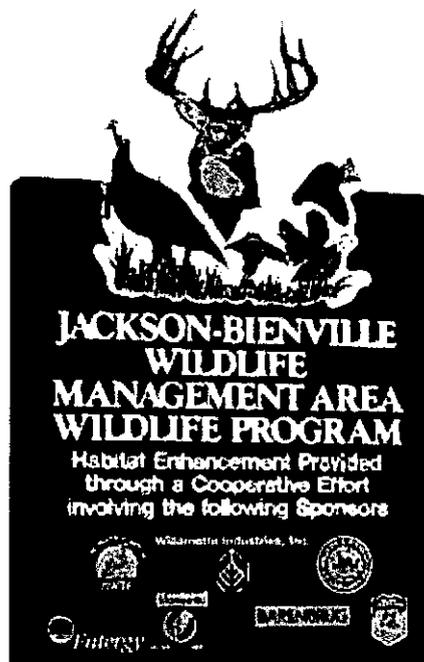


BARENBRUG



Wildlife
MANAGEMENT AREA





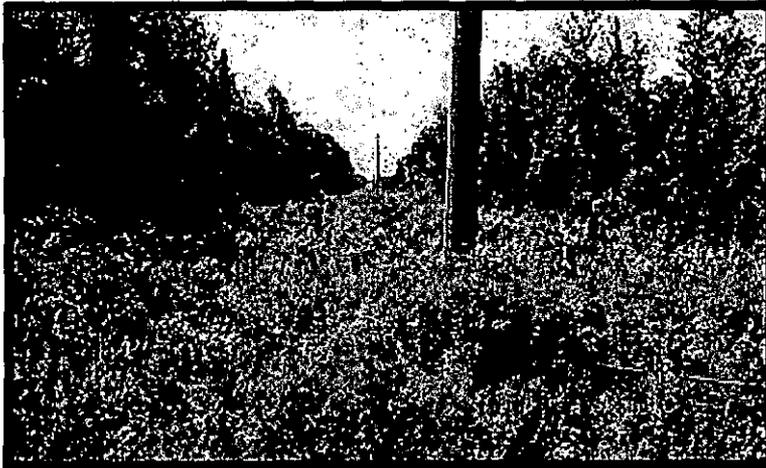
Jackson-Bienville Wildlife Habitat Program

Fosters the proper management of wildlife resources by:

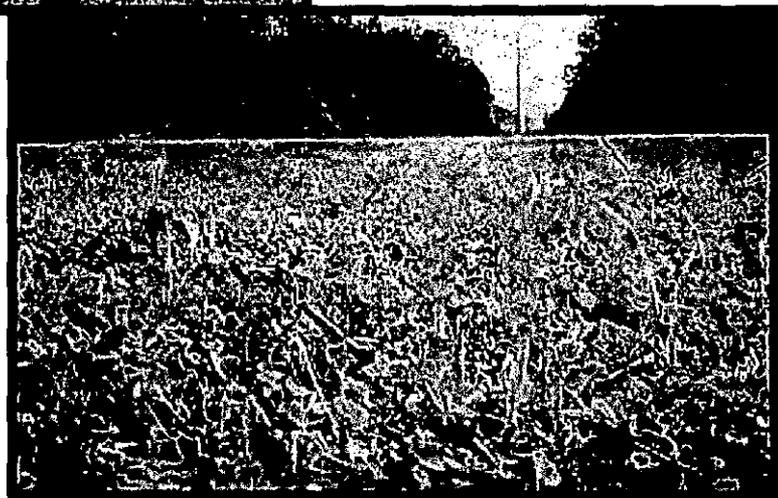
- √ Bringing the Department's professional wildlife managers together with private industries' natural resource managers, local and national sportsman groups and local businesses and individuals
- √ Aids in the exchange of new ideas both in wildlife management and technology
- √ Allows for input from local user groups
- √ Allows for long range habitat planning
- √ Allows for the sharing of resources and personnel
- √ Aids in field testing new techniques and tools
- √ Generates a source of funding outside of the Department

History

During 1997 Louisiana Department of Wildlife & Fisheries (LDWF) Wildlife Division personnel met with representatives from Willamette Industries, Inc., Entergy, and Monsanto Corporation to discuss developing approximately 21 acres of Entergy right-of-way that crosses Jackson-Bienville WMA. The then three year old right-of-way had become overgrown with woody vegetation. This group of professionals developed plans to use LDWF Wildlife Division personnel, Louisiana Turkey Stamp funds, National Turkey Federation funds, Willamette personnel, and personnel, funds, equipment and supplies from Entergy and Monsanto to develop the acreage into usable wildlife habitat. Plans to develop the area over a three year period were changed once the project began due to the dedication and enthusiasm of the cooperators. What was to take three years was completed in less than two. The success of this first project and the interest generated locally in this one small project sparked the creation of the Jackson-Bienville Wildlife Habitat Program.



BEFORE - This is what the Entergy powerline looked like before the restoration project was begun.



AFTER - Same area along powerline after the area was bush hogged, scraped with a dozer, disced and planted.

(Glynn Harris & Luke Lewis photos)

Jackson-Bienville Wildlife Habitat Program Goal

. to contribute to the continued management and development of wildlife habitat on Jackson-Bienville WMA and provide for a quality outdoor experience for consumptive and non-consumptive users

Administration and Supervision

The Jackson-Bienville Wildlife Habitat Program is supervised by the LDWF Region I Wildlife Division Supervisor, Willamette Industries' wildlife biologist and Entergy's right-of-way procurement supervisor. Funds donated to the J-B Wildlife Habitat Program are handled through the National Wild Turkey Federation. Projects and expenditures must be approved by all representatives. Donations and expenditures are updated quarterly and accounted for in a Wildlife Project Check Register. Since its creation the J-B Wildlife Habitat Program has generated more than \$30,000 for use in the field wildlife habitat work on J-B WMA.

Jackson-Bienville Wildlife Habitat Program Projects

Trial plantings of Tripoli clover. Tripoli clover from Barenbrug Seed Company has shown promise as a late winter through summer legume for use in turkey and deer supplemental food plantings.



Experimental use of the herbicide "Accord" from Monsanto. Accord was used to control brush on right-of-ways to improve wildlife habitat while reducing personnel time required to maintain the right-of-ways.



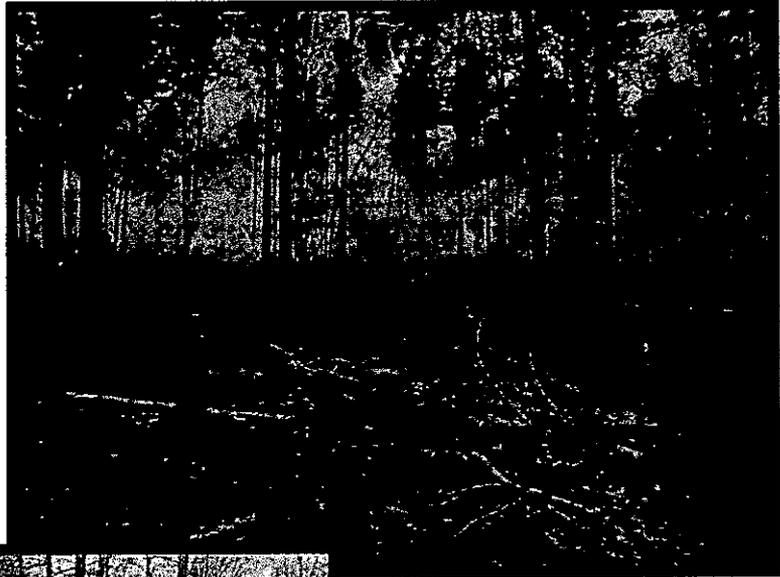
American Cyanamid provided the herbicide "Arsenal" which was used in red-cockaded woodpecker colonies to control woody understory vegetation. Reduction of understory improved the area for the red-cockaded woodpeckers as well as bobwhite quail and eastern wild turkeys.

Arsenal is also being used in 14 to 20 year old pine plantations to remove woody understory vegetation and improve eastern wild turkey habitat.



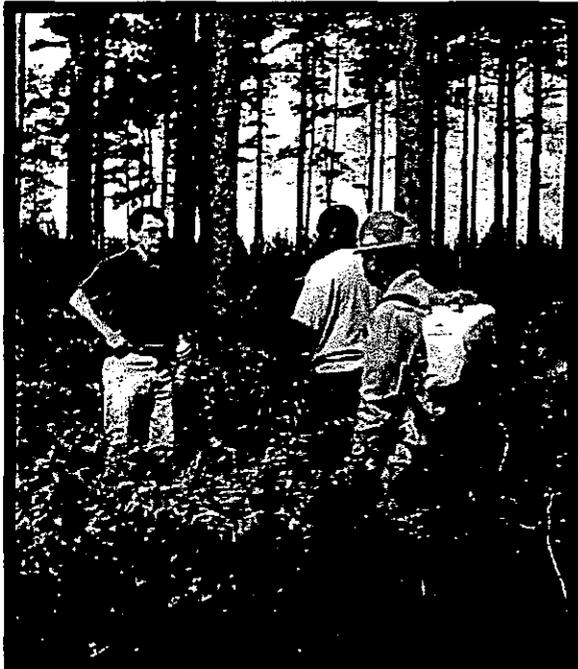
Seventeen 1/4 to 1/3 acre supplemental food strips were planted in the red-cockaded woodpecker colonies to improve brood and nesting habitat for bobwhite quail.

Two thousand two hundred acres are prescribed burned annually as weather conditions permit.



Three parking areas were overlaid with crushed rock to improve user access and convenience.





Filming for Discovery Channel for international television distribution.



HABITAT ENHANCEMENT

JACKSON-BIENVILLE WILDLIFE HABITAT PROGRAM

*Habitat Enhancement Provided through a cooperative effort
involving the following Sponsors*

Willamette Industries, Inc.



Monsanto



HABITAT AMERICA

CYANAMID



BARENBRUG

Entergy



Two cooperator signs have been erected on U. S. Highway 167 and LA Highway 147. Two hundred fifty "Habitat Enhancement" signs have been placed where habitat work has taken place.



JACKSON-BIENVILLE WILDLIFE
Project Check Register

JACKSON-BIENVILLE WMA COOPERATOR PROJECT - 1999

Date	Vendor	Description	Beginning Balance	Willamette	Entry	LDW&F	LA Chapter of NWTF	Quail Unlimited	Monsanto	Barenbrug	American Cyanamid	TOTAL AMOUNT
		<i>In-House Service:</i>				\$0.00						
		<i>Contributions:</i>				*						
01/26/99	Dollar Embroidery	J/B Habitat Project caps		\$216.78								
03/01/99	Kaufman-Seeds, Inc.	Clover, cowpeas & soybeans		\$373.68								
03/16/99	Douglas Burt Sign Works	Downpayment on partners sign			\$200.00		\$200.00	\$200.00				
05/20/99	O'Neal's Farm & Garden	11.65 Tons 17-17 for spring food plots			\$817.83		\$817.83	\$817.83				
05/20/99	O'Neal's Farm & Garden	20.00 Tons 13-13-13 for spring food plots			\$37.80		\$37.80	\$37.80				
06/04/99	Douglas Burt Sign Works	Q.U. sign & restraint						\$690.00				
06/04/99	Wal Mart	Stop watch - quail routes						\$7.82				
06/07/99	Brown Contractors	20 hrs. - food plots & woods roads						\$1,000.00				
06/08/99	Bo Epperson	Supplies for wooden fence - Hwy 167			\$521.08							
06/08/99	Newcomer-Young	For Al Wilson's video work on Project		\$264.00								
06/17/99	Brown Contractors	D-3 dozer work (Food plots & lines)			\$1,903.33			\$475.00				
06/22/99	Montana Welding	Labor for building wooden fence - Hwy 167					\$288.43					
07/06/99	Columbia Equipment Co.	Tractor disk parts										
06/25/99	Construction Safety Products	Tree protector stakes		\$173.34								
06/19/99	Brown Contractors	Dozer work on r-o-w, creek crossings & levelled levee for planting		\$1,850.00								
09/03/99	Brown Contractors	9 hrs. backhoe & operator pushing trees off pipeline			\$405.00							
09/03/99	Brown Contractors	9 1/2 hrs. dozer & operator on highline (Lamkin Road)			\$475.00							
09/04/99	Ragan & Massey, Inc.	Tripoli clover & matua prairie grass		\$1,423.40								
09/10/99	Montana Welding	Welding tractor part		\$37.18								
08/26/99	Brown Contractors	Dozer work on Calhoun Road		\$1,350.00								
08/05/99	John Lampkin	1 1/2 hrs bush-hogging on Hwy 167			\$40.00							
08/11/99	Montana Welding	20 Bluebird boxes			\$500.00							
09/20/99	John Lampkin	1 Hour bushhogging			\$25.00							
09/21/99	O'Neal's Farm & Garden	4.8 tons 8-24-24 fertilizer		\$1,023.71								
09/15/99	Brown Contractors	7 hrs dozer work on Highline Road		\$360.00								
09/04/99	Ragan & Massey, Inc.	Donation of chickory, clover & Matua seed								\$729.56		
09/24/99	O'Neal's Farm & Garden	Custom blend of wildlife mix		\$438.73								
10/13/99	O'Neal's Farm & Garden	4.29 tons 8-24-24 fertilizer			\$977.61							
11/11/99	O'Neal's Farm & Garden	Crimson Clover, Inoculant, & Gulf Rye Grass			\$321.63							

TOTALS:												
			\$7,284.04	\$4,926.04	\$0.00	\$2,843.30	\$3,228.45	\$200.00	\$729.56	\$0.00	\$19,010.39	
											Checking Account Balance	\$16,705.23

* LDWF fiscal year 1999/2000 contributions estimated at \$20,000 materials and supplies, plus salaries.

WILDLIFE PROJECT CHECK REGISTER - 1999

Number	Date	Vendor	Description of transaction	Payment/Debit	Deposit/Credit	Balance
	01/01/1998	BEGINNING BALANCE				\$202.02
	01/31/1999		Service Charge	\$8.00		\$194.02
	02/03/1999		Deposit (Entergy Corporation)		\$1,500.00	\$1,694.02
	02/01/1999		Service Fee Reversal		\$24.00	\$1,718.02
	02/28/1999		Service Charge			\$1,710.02
	03/08/1999		Deposit (LA Chapter of NWTFF)	\$8.00		\$3,710.02
119	03/16/1999	Douglas Burt Sign Works	Downpayment on partners sign	\$800.00	\$2,000.00	\$2,910.02
	03/31/1999		Service Charge	\$8.00		\$2,902.02
	04/07/1999		Deposit (LA Chapter of NWTFF)		\$3,000.00	\$5,902.02
	04/07/1999		Deposit (Entergy)		\$10,000.00	\$15,902.02
120	05/20/1999	O'Neal's Farm & Garden	11.65 Tons 17-17-17 for spring food plots	\$2,453.49		\$13,448.53
121	05/20/1999	O'Neal's Farm & Garden	20.00 Tons 13-13-13 for spring food plots	\$113.40		\$13,335.13
122	06/04/1999	Douglas Burt Sign Works	Q. U. sign & restraint	\$690.00		\$12,645.13
123	06/04/1999	Wal Mart	Stop watch - quail routes	\$7.82		\$12,637.31
124	06/07/1999	Brown Contractors	20 hrs. - food plots & woods roads	\$1,000.00		\$11,637.31
125	06/08/1999	Bo Epperson	Supplies for wooden fence (Hwy 167)	\$521.08		\$11,116.23
126	06/17/1999	Brown Contractors	D-3 Dozer work (Food plots & lines)	\$475.00		\$10,641.23
127	06/22/1999	Montana Welding	Labor for building wooden fence (Hwy 167)	\$1,903.33		\$8,737.90
128	07/06/1999	Columbia Equipment Co.	Tractor disk parts	\$288.43		\$8,449.47
129	08/05/1999	John Lampkin	1 1/2 hrs bush-hogging on Hwy 167	\$40.00		\$8,409.47
130	08/11/1999	Montana Welding	20 Bluebird boxes	\$500.00		\$7,909.47
	08/17/1999		Deposit (American Cyanamid)		\$5,000.00	\$12,909.47
131	09/03/1999	Brown Contractors	9 hrs backhoe & operator pushing trees off pipeline	\$405.00		\$12,504.47
132	09/03/1999	Brown Contractors	9 1/2 hrs. dozer & operator on highline (Lamkin Road)	\$475.00		\$12,029.47
133	09/20/1999	John Lampkin	1 Hour bushhogging	\$25.00		\$12,004.47
	10/06/1999		Deposit (Quail Unlimited)		\$6,000.00	\$18,004.47
134	10/15/1999	O'Neals Farm & Garden	4.29 tons 8-24-24 fertilizer	\$977.61		\$17,026.86
135	11/11/1999	O'Neals Farm & Garden	Crimson Clover, Inoculant, & Gulf Rye Grass	\$321.63		\$16,705.23

2000

June

2000

Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

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SCHEDULE FOR FINAL RULES TO BE PUBLISHED IN STATE REGISTER

MARCH-00 RULE - Crab Trap Marking

APRIL-00 RULE - Reef Fish-Daily Take, Possession & Size
Limits Set by Commission

MAY-00 RULE - Crawfishing on Agricultural Lands Within
Sherburne WMA

RULE - Recreational Electronic Licensing

Neil Smith, III, M.D.
A Professional Medical Corporation
2223 Quail Run, Suite D-1
Baton Rouge, Louisiana 70808

Telephone (225) 766-9404
766-9410

Neurology

January 19, 2000

Mr. James Jenkins, Jr.
LA Dept. Wildlife and Fisheries
P.O.Box 98000
Baton Rouge, LA 70808

 RECEIVED
JAN 27 2000
OFFICE OF THE SECRETARY

Dear Mr. Jenkins:

I am writing regarding hunting deer with dogs. I hunt in area 6 and I'm a still hunter. I own a hunting club of about 100 members who are all still hunters, bow hunters, black power hunters, and so on. My company, Bomer Blanks Lumber Company Inc., owns 4,600 acres of land in the Atchafalaya Basin and this is where we hunt. My neighbor leases their land to a group of hunters who use deer dogs. They have about 20,000 acres. Nearly every weekend this year during dog season they came to our fence line, turned dogs loose and that's the end of our still hunting. I do not think this is fair, we are happy being left alone to persue deer in the manner described above, i.e., still hunting. Once a dog passes through we don't see anymore deer; we can fold up our tent and go home. I take deer hunting seriously, I hunt nearly every day as do many members of the club, yet the weekends have been very poorly productive for us because of other people's dogs. I think that deer hunting with dogs is probably a dying sport, and it certainly needs to be curtailed in area 6. I can't see 2 weeks of still hunting and 45 days of dog hunting, it just doesn't make any sense to me, except for the fact that some politically connected people are interested in hunting with dogs. I have contacted others states such as Washington State, where if you see a dog running a deer you are supposed to shoot the dog, or Iowa, where deer hunting with dogs has been banned, and most of the Mid-West doesn't allow hunting of deer with dogs. I am not a selfish person and I understand other people's wishes may not coincide with mine. I feel that half and half would be, at least, more fair. The other point; however, is that this is my land, I pay taxes on it and dogs are running on it. The right to run deer dogs should end at my fence. If you have live stock, or if you are a human being, you can not trespass on my land, yet a deer dog has open range and, in fact, people can come, without permission, on my land looking for deer dog, according to state law. I feel this is wrong, and I think that if you want to hunt deer with dogs you probably should use beagles which don't range as far as a walker hound. The other point is that shooting a deer in front of dogs means you have a running shot usually, which is more likely to cripple a deer and I'm amazed that PETA, the friends of Wildlife or some other tree hugging organization hasn't jumped on this problem to try to prevent the hunting of deer with dogs. I appreciate any help you can give.



Louisiana Department of Wildlife and Fisheries
NEWS RELEASE

James H. Jenkins Jr.
Secretary



CONTACT
225/765-2923

00-22

1/31/00

HUNTING REGULATIONS COMMITTEE TO MEET

The Hunting Regulations Committee of the Louisiana Wildlife and Fisheries Commission will meet on Thursday, February 3, 2000, in the Fourth Floor Conference Room of the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA. The meeting, scheduled to begin at 9 am, is to discuss Area 2 deer season.

- 30 -

EDITORS: For more information contact Marianne Burke at 225/765-2917
(burke_mm@wlf.state.la.us).

January 31, 2000

APPROVED: _____

A handwritten signature in black ink, appearing to be "M. J. ...", written over a horizontal line.

HUNTING REGULATIONS COMMITTEE TO MEET

The Hunting Regulations Committee of the Louisiana Wildlife and Fisheries Commission will meet on Thursday, February 3, 2000, in the Fourth Floor Conference Room of the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA. The meeting, scheduled to begin at 9:00 AM, is to discuss Area 2 deer season.

State of Louisiana



James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

January 31, 2000

MEMORANDUM

TO: Hunting Regulations Committee Members (Commissioners
Gattle, Busbice, Carver & Stone)

FROM: Susan Hawkins *Susan Hawkins*

SUBJECT: Committee Meeting

Chairman Tom Gattle has called a meeting of the Hunting Regulations Committee for Thursday, February 3, 2000 at 9:00 AM in the Fourth Floor Conference Room. The meeting is to discuss Area 2 deer season.

Please let us know if you will be unable to attend. Thank you.

sch

cc: Commissioner Tom Kelly
Commissioner Warren Delacroix
Commissioner Norman McCall
James Jenkins, Jr.
Phil Bowman
Tommy Prickett

*gave message to
him 1/31/2000-
1:33 PM*

Automatic Log

<u>Identification</u>	<u>Result</u>	<u>Pages</u>	<u>Type</u>	<u>Date</u>	<u>Time</u>	<u>Duration</u>	<u>Diagnostic</u>
Stone	No answer	00/02	Sent	Jan-31	11:13A	00:00:00	002060000000
Gattle	OK	02/02	Sent	Jan-31	11:13A	00:00:39	002566030022
Busbice	OK	02/02	Sent	Jan-31	11:06A	00:00:39	002566030022
Delacroix	OK	02/02	Sent	Jan-31	11:15A	00:00:51	002565030022
Carver	OK	02/02	Sent	Jan-31	11:07A	00:00:40	002466030022
McCall	OK	02/02	Sent	Jan-31	11:08A	00:00:39	002566030022
Kelly	OK	02/02	Sent	Jan-31	11:09A	00:01:20	002164230020

C O V E R



FAX

To: Tom Gattle, 318-559-1524
Bill Busbice, 318-837-1423
Glynn Carver, 318-256-0323
Norman McCall, 318-775-7025
Tom Kelly, 318-276-7867
Warren Delacroix, 504-241-5260
Jerry Stone, 928-1474

Subject: Committee Meeting

Date: January 31, 2000

Pages: 2, including this cover sheet.

COMMENTS:

Attached memorandum is self-explanatory. Thanks.

From the desk of...

Susan Hawkins

La. Dept. Of Wildlife & Fisheries
P. O. Box 98000
Baton Rouge, LA 70898-9000

225-765-2806
Fax: 225-765-0948

Louisiana Department of Wildlife and Fisheries

NEWS RELEASE

James H. Jenkins Jr.
Secretary



CONTACT
225/765-2923

2000-12

1/26/00

WILDLIFE & FISHERIES COMMISSION TO MEET FEB. 3

The Louisiana Wildlife and Fisheries Commission will hold its next regular meeting on Thursday, Feb. 3, 2000, at 10 a.m. The meeting is open to the public and will take place in the Louisiana Room of the Louisiana Department of Wildlife and Fisheries building, located at 2000 Quail Dr. in Baton Rouge.

The agenda follows:

1. Roll call
2. Approval of minutes of Jan. 6, 2000
3. Consideration of offshore shrimp closure
4. Presentation of stock assessments for striped mullet, southern flounder, black drum and sheepshead
5. Notice of intent - Designation of additional public oyster seed grounds
6. Recap of civil restitution
7. Enforcement & aviation reports for January
8. Division report
 - a. Jackson - Bienville habitat project
9. Set June 2000 meeting date
10. Public comments
11. Adjournment

-30-

EDITORS: For more information, contact Marianne Burke at 225/765-2917
(burke_mm@wlf.state.la.us).

January 25, 2000

NEWS RELEASE

APPROVED: _____



AGENDA FOR COMMISSION MEETING

The next regular public board meeting has been scheduled by the Commission for 10:00 A.M. on Thursday, February 3, 2000, at the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA.

1. Roll Call
2. Approval of Minutes of January 6, 2000
3. Consideration of Offshore Shrimp Closure
4. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead
5. Notice of Intent - Designation of Additional Public Oyster Seed Grounds
6. Recap of Civil Restitution
7. Enforcement & Aviation Reports/January
8. Division Report
 - a. Jackson-Bienville Habitat Project
9. Set June 2000 Meeting Date
10. Public Comments
11. Adjournment

State of Louisiana



James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800
January 25, 2000

M.J. "Mike" Foster, Jr.
Governor

MEMORANDUM

TO: Chairman and Members of Commission

FROM: James H. Jenkins, Jr., Secretary

SUBJECT: February Commission Meeting Agenda

The next regular Commission meeting will be held at 10:00 A.M. on Thursday, February 3, 2000, in the Louisiana Room at the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA.

The following items will be discussed:

1. Roll Call
2. Approval of Minutes of January 6, 2000

OFFICE OF WILDLIFE

OFFICE OF FISHERIES

3. Consideration of Offshore Shrimp Closure
4. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead
5. Notice of Intent - Designation of Additional Public Oyster Seed Grounds

Page 2
Commission Meeting
January 25, 2000

OFFICE OF MANAGEMENT & FINANCE

6. Recap of Civil Restitution

WINTON VIDRINE

7. Enforcement & Aviation Reports/January

DIVISION REPORTS

8. a. Jackson-Bienville Habitat Project
9. Set June 2000 Meeting Date
10. Public Comments

JHJ:sch

cc: Jim Patton
Phil Bowman
John Roussel
Craig Lamendola
Don Puckett
Dennis Kropog
Catherine Blades
Division Chiefs

C O V E R

S H E E T



FAX

To: Tom Gattle
Fax #: 318-559-1524
Subject: Agenda
Date: January 21, 2000
Pages: 3, including this cover sheet.

COMMENTS:

Please call me after you review the attached agenda for the February 3 meeting.

From the desk of...

Susan Hawkins

La. Dept. Of Wildlife & Fisheries
P. O. Box 98000
Baton Rouge, LA 70898-9000

225-765-2806
Fax: 225-765-0948

, 2000

MEMORANDUM

TO: Chairman and Members of Commission
FROM: James H. Jenkins, Jr., Secretary
SUBJECT: February Commission Meeting Agenda

The next regular Commission meeting will be held at 10:00 A.M. on Thursday, February 3, 2000, in the Louisiana Room at the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA.

The following items will be discussed:

1. Roll Call
2. Approval of Minutes of January 6, 2000

OFFICE OF WILDLIFE

OFFICE OF FISHERIES

3. Consideration of Offshore Shrimp Closure
4. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead
5. Notice of Intent - Designation of Additional Public Oyster Seed Grounds

Page 2
Commission Meeting
, 2000

OFFICE OF MANAGEMENT & FINANCE

6. Recap of Civil Restitution

WINTON VIDRINE

7. Enforcement & Aviation Reports/January

DIVISION REPORTS

8. a. Jackson-Bienville Habitat Project
9. Set June 2000 Meeting Date
10. Public Comments

JHJ:sch

cc: Jim Patton
Phil Bowman
John Roussel
Craig Lamendola
Don Puckett
Dennis Kropog
Catherine Blades
Division Chiefs

Hawkins, Susan

From: Boudreaux, Claude
Sent: Thursday, January 20, 2000 2:54 PM
To: Hawkins, Susan
Subject: FW: addition to February Commission Agenda

-----Original Message-----

From: Schexnayder, Mark
Sent: Wednesday, January 19, 2000 3:58 PM
To: Boudreaux, Claude
Cc: Foote, Karen; Roussel, John E
Subject: addition to February Commission Agenda

Please add this to the item to the February Commission Calendar, sorry for the delay., The Resolutions and Declarations being routed now.

Consideration of Offshore Shrimp Closure - Mark Schexnayder

Wildlife Division

Division Report -
Jackson - Bienville
Habitat Project -

Steve Hebert

1/19/2000

erman, would like to have Civil Restitution on the agenda
will be held on February 3, in the Louisiana Room
will probably be titled "Recap of Civil Restitution".

Hawkins, Susan

From: Foote, Karen

Sent: Friday, January 14, 2000 4:18 PM

To: Hawkins, Susan

Cc: Roussel, John E; Boudreaux, Claude; Dugas, Ronald; Schexnayder, Mark;
Impastato, Raymond

Subject: February Commission item

John has approved the following Commission items at this point:

Joe Shepard will present the stock assessments for striped mullet, southern flounder, black drum and sheepshead. The Commission will consider them for submission to the Legislature by the March 1 statutory deadline.

Notice of Intent- Designation of Additional Public Oyster Seed Grounds- Ron Dugas

Hawkins, Susan

From: Foote, Karen
Sent: Friday, January 14, 2000 3:29 PM
To: Roussel, John E
Cc: Boudreaux, Claude; Hawkins, Susan; Greeson, Cathy; Dugas, Ronald; Schexnayder, Mark; Shepard, Joey
Subject: February Commission items- Marine Fisheries

John- For you review and approval:

Agenda Items:

Joe Shepard will present the stock assessments for striped mullet, southern flounder, black drum and sheepshead. The Commission will consider them for submission to the Legislature by the March 1 statutory deadline.

Notice of Intent- Designation of Additional Public Oyster Seed Grounds- Ron Dugas

Possible oyster season extension and change in sack limit- Oyster Task Force representative

We are also considering an offshore shrimping closure in a defined area, but this has not been finalized.

State of Louisiana



To Susan H.

James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800
January 5, 2000

M.J. "Mike" Foster, Jr.
Governor

MEMORANDUM

TO: Undersecretary, Assistant Secretary-Office of Wildlife,
Assistant Secretary-Office of Fisheries and Confidential
Assistant

FROM: James H. *Jenkins*, Secretary

SUBJECT: Commission Meeting Agenda - February 3, 2000

Please write on the bottom of this memo and return to Susan Hawkins by Tuesday, January 18th any agenda items your office may have for the Thursday, February 3rd Commission Meeting to be held in Baton Rouge, Louisiana, at the Wildlife and Fisheries Building, 2000 Quail Drive. This meeting will begin at 10:00 a.m. on February 3rd. If you do not have anything for the agenda, please return memo and indicate so on the bottom of this memo. We cannot add anything to the agenda that requires commission action after we have published the agenda in the state journal.

Resolutions and Notices of Intent should be included with the list of items to be placed on the agenda. Thank you for your cooperation!

JHJ/sch

cc: Commissioners
Don Puckett
Winton Vidrine
Tommy Prickett
Bennie Fontenot
Karen Foote
Wynnette Kees
Lyle Soniat
Brandt Savoie
Catherine Blades

*Notices of Intent
to change alligator
Regulations*

*Per and
(moved to March
Meeting - 11/18/2000)*

State of Louisiana



James H. Jenkins, Jr.
Secretary

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Brandt Savoie
Catherine Blades

We have Inf. report only "
Winton

State of Louisiana



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January 5, 2000

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Lyle Soniat
Brandt Savoie
Catherine Blades

*Susan: 1/5/00
I have no agenda items
for the February meeting -*

*Bennie
Inland Fisheries Division*

Craig

State of Louisiana



James H. Jenkins, Jr.
Secretary

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Post Office Box 98000
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January 5, 2000

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*Nothing
TX
CRAIG*

State of Louisiana



James H. Jenkins, Jr.
Secretary

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January 5, 2000

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NOTHING FOR THE AGENDA

State of Louisiana



James H. Jenkins, Jr.
Secretary

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Post Office Box 98000
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January 5, 2000

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