

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

MINUTES

FEBRUARY 6, 2003

TERRY D. DENMON
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 6, 2003

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MINUTES OF THE MEETING

OF

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

Thursday, February 6, 2003

Chairman Terry Denmon presiding.

Bill Busbice
Lee Felterman
Tom Kelly
Henry Mouton
Wayne Sagerera
Jerry Stone

Secretary James H. Jenkins, Jr. was also present.

Chairman Denmon called for a motion for approval of the **January 9, 2003 Commission Minutes**. A motion for approval was made by Commissioner Kelly and seconded by Commissioner Felterman. The motion passed with no opposition.

Wildlife Division Report on Waterfowl began with Mr. Phil Bowman stating that the waterfowl season was not what was expected when the dates were set. He then stated Mr. Robert Helm has looked at weather, waterfowl population numbers, harvest numbers and other factors that probably influenced the population in Louisiana. He then asked Mr. Helm to present his information. Mr. Helm mentioned that Mr. Mike Olinde and Mr. Scott Durham were helpful in getting the information together. The slide presentation included information on continental breeding population estimates from 1976-2002. The peak of the breeding population occurred in 1999 at about 40 million birds and since then there has been a dramatic decline. Pond numbers were down last year and thus production was off. The fall flight this year was mainly adult birds which made it difficult to hunt. Next, Mr. Helm explained that habitat projects may be affecting waterfowl. These projects included the Wetland Reserve Program (WRP) which is a USDA program and work on public/private lands across the state. One positive result from these programs is birds will be returning to the breeding grounds in better condition. Then he discussed if duck distribution was changing or were other states holding birds that traditionally came south. Contacted states were Minnesota, South Dakota, Iowa,

Missouri and Arkansas and numbers recorded were for the mid-winter surveys from the years 1992-2003. Next discussed was weather and how big of an issue it was. Mr. Helm felt the weather was a key factor this year. The first slide shown was weather for the month of October 2002 which was very cold in the Dakota's. In November 2002, things warmed up. In December 2002, the northern states had some of the warmest weather on record and this continued on into January 2003. What is needed for an excellent waterfowl season is severe weather in the mid-latitude states in late November and into December. The weather pattern from October 2001 through January 2002 was very similar to that which occurred this past year. Duck hunting regulations from 1976-2002 were discussed. Since 1997, Adaptive Harvest Management was implemented which resulted in regulations being within the liberal package. Mr. Helm felt we will not continue to have the liberal package due to the number of mallards in prairie Canada and also the number of ponds in that region. Then looking at the number of duck hunters and harvest for 1976-2001, Mr. Helm noted those numbers peaked in late-1970's and early 1980's at almost 130,000. Then they declined with the restrictive regulations in the 1980's and then increased again in the mid-1990's with the liberalizing of regulations. In recent years the number of hunters have leveled off at 100,000. Harvest numbers followed the trend in number of hunters very closely until 1995 when there was a steep increase in harvest when regulations changed. The harvest peaked in 1999 with 2.6 million birds and has since declined. Louisiana's average days per adult hunter from 1976-2001 showed an average of 20 ducks per hunter during the 1990's and in 2001, that average declined. For information only, Mr. Helm showed that Louisiana consistently leads the nation in waterfowl harvest well above the states of California, Arkansas and Texas. Within the Mississippi Flyway, when Louisiana has a bad season, it tends to be the same in the northern states of the Flyway as well. For the past season, weather was the real issue in Louisiana with the tropical storms, heavy rainfall in October and not having the severe cold weather until the third week of January. The waterfowl numbers were down in Louisiana as expected. The dabbling duck estimates for the last 2 years were well below average. Mallard numbers also were well below average for the last 2 years compared with the late 1990's. A graph on numbers of ducks on the Louisiana refuges in January 2003 was shown. Louisiana's hunting as a whole was extremely poor this past year. Southwest Louisiana for the first split was reasonably good in some areas whereas the second split was very poor. The first split was better than the second in southeast Louisiana. Central and northeast Louisiana benefitted from the early movement of birds during the

first split, but the second split was relatively poor. Overall, Mr. Helm anticipated a 25 percent reduction in the number of ducks taken as a whole. Chairman Denmon thanked Mr. Helm for his excellent report. Then he asked if there was any mechanism to deliver the report to the public where they can get answers to questions they may have on duck numbers. Mr. Helm noted survey results are posted on the Department's website as soon as they are available and he added that a season end report will also be posted. Then Mr. Helm stated there are things that are difficult to explain this year. A Wingbee meeting to examine wings was being conducted to determine production of immature to adult ratios and this would prove to be a key piece of information to hunters as well. Commissioner Stone asked about widgeon numbers? Mr. Helm felt those numbers were below their long term average. He added he talked with hunters in the Venice area and they were wrapped up with widgeons. Commissioner Mouton asked about regulations for pintails in Canada versus those in Louisiana. Mr. Helm thought the limit on ducks in Canada was 8 with 2 pintails allowed.

Commissioner Mouton began the next item, the **Delta Waterfowl Proposal** by stating he met with Delta Waterfowl and their members on what they have been doing. He then asked that a short video be shown at this point. Commissioner Mouton asked if anyone from Delta Waterfowl was at the meeting.

Mr. Parker Lacoïn, a member of Delta Waterfowl for 15 years, stated he was impressed with the team of scientists that makes up the backbone of Delta Waterfowl. He stated he was a representative of the organization that felt deserved the attention of the State and its dollars. Delta Waterfowl feels the science in the proposal is compelling and hopefully will give them a chance to make more ducks for hunters to shoot. Commissioner Busbice asked what was Delta Waterfowl's annual budget? Mr. Lacoïn stated it was approximately \$3 million.

Commissioner Mouton stated law requires 10 percent of hunting license sales shall be dedicated for the preservation of breeding grounds for migratory waterfowl. The proposal is to give one-third of the monies collected to Delta Waterfowl for a 5 year period. The other two-thirds would continue to go to Ducks Unlimited. He then asked for public comments on the proposal.

Mr. Richard Yancey began stating he has worked professionally in wildlife management for 54 years. During his early career as a waterfowl biologist, Mr. Yancey worked in Canada banding ducks and

running waterfowl surveys. This came as a directive from the Commission Chairman and Department head to find out how money that was being given to Ducks Unlimited was being spent. The vastness of the Canadian territory was what impressed him when aerial flights were conducted. The proposal from Delta Waterfowl in predator control will involve an area about one-third the size of East Baton Rouge Parish. Quite a number of years back, the Department had a group of men that worked predator control in Louisiana, but it was determined that it did not benefit wildlife in Louisiana. While he was in Canada, he met with the Canadian Unit of Ducks Unlimited and looked at their management and habitat restoration program. Mr. Yancey felt if people knew the successes of Ducks Unlimited with their program, they would not want to use some of those dollars for predator control on a very tiny area of the breeding grounds. Even while attending the Mississippi Flyway Council Meetings, no one ever asked that a predator control program be financed. Mr. Yancey stated taking money from license sales to kill three species in a limited area and not giving it to help with a habitat improvement and restoration program is a bad decision. Several proposals by Delta Waterfowl over the last 40 years was then explained. He then recommended the Commission not make an allocation to Delta Waterfowl for predator control but to fully fund the Ducks Unlimited habitat restoration programs. In the 1980's, the International Association of Fish and Wildlife Agencies developed the North American Waterfowl Management Plan of which Mr. Yancey was a member. They looked at every factor in waterfowl populations and it was determined predator control was a limiting factor. Concluding, he stated he disagreed with the video.

Mr. Mickey MacMillan, a Ducks Unlimited volunteer, stated the money given to Ducks Unlimited is matched by DU and leveraged, so by the time it reaches Canada, it amounts to between \$400,000 to \$500,000. He added that Mr. Yancey did a good job in covering the things he had on his list. One question he had was on the trapping, would it be within the season framework or outside, would it be done by trappers, would the hides be bought by people, would it be done by poison or leghold traps.

Dr. Frank Rohwer, a LSU faculty member that works on waterfowl, stated he was the Scientific Director for Delta Waterfowl and noted he had a lot of familiarity with the research. He did not disagree with Mr. Yancey that habitat was important but he has seen a lot of habitat that does not produce ducks. He also has seen a lot of waterfowl areas that are abysmal. Dr. Rohwer stated this is a small but good program and it would not make a

measurable difference on the duck flight in Louisiana. He added that Delta Waterfowl was not trying to compete with Ducks Unlimited and become a management agency, but was more of a research agency. What they are trying to do is put enough sites on the ground so people can see that predator management can produce a lot of ducks. To answer Mr. MacMillan's question, Delta does not buy hides, and professional trappers are hired to work only during the breeding season.

Commissioner Mouton stated he has received a lot of phone calls on the size of the area for predator control. He noted that when Ducks Unlimited began, they started with a small area and it had to grow. He knew that this program would make a small impact now, but if they have the ability to get more money, more areas will be trapped.

Mr. Joe Herring stated he backed-up what was said by Mr. Yancey. He then reminded the Commission that Mr. Yancey was one of the top 10 waterfowl biologists in the Nation. He asked what attention will predator control bring to the animal right's programs? He suggested looking at those different organizations before a decision was made.

Mr. Darwin Miller, a Ducks Unlimited volunteer, stated his only concern was not knowing what the value of the license money will be to him as a hunter and to Louisiana. He added that this proposal would have to be done year after year and would not have a long term benefit as opposed to enhancing habitat. Mr. Miller also commented that the money could be turned into a larger amount that could be utilized over a longer period of time.

Commissioner Stone stated this money would be invested in a pilot project to study and find out if there is an impact on ducks from predators, how much impact and is it possible to obtain other funds. He then added that the funds to Ducks Unlimited would not be shut off.

Chairman Denmon read the Therefore Be It Resolved portion of the Resolution. Commissioner Mouton made a motion to approve the Resolution and it was seconded by Commissioner Busbice. The motion passed with no opposition.

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

RESOLUTION

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

2003 DELTA WATERFOWL FOUNDATION
AND DUCKS UNLIMITED FUNDING

WHEREAS, R.S. 56:104.A.(1)(b) provides that ten percent (10%) of the fees collected from the sale of hunting licenses shall be dedicated by the Commission to the development and preservation of breeding grounds for migratory waterfowl, and

WHEREAS, over the past 14 years the Department has been acting under an agreement letter between the Department and Ducks Unlimited, Inc. whereby these funds have been dedicated to the development and preservation of breeding grounds for migratory waterfowl, and

WHEREAS, as the breeding grounds for migratory waterfowl have been altered by changing land use patterns over the years resulting in a change in the predator assemblages on these areas, and

WHEREAS, Delta Waterfowl Foundation has conducted research that demonstrates that duck nest success can be significantly increased by managing predators on the breeding grounds, and

WHEREAS, while improving waterfowl breeding habitat remains the long term goal of the Commission, the research conducted by Delta Waterfowl Foundation has provided another tool for improving the conditions of the breeding grounds, now

THEREFORE BE IT RESOLVED, the Louisiana Wildlife and Fisheries Commission hereby directs the Department of Wildlife and Fisheries to enter into a cooperative endeavor agreement with Delta Waterfowl Foundation whereby one third (33.3%) of the funds collected by the Department from the sale of hunting licenses pursuant to R.S. 56:104.A.(1)(b) shall be allocated to fund a predator management program on the waterfowl breeding grounds, and

BE IT FURTHER RESOLVED, the Louisiana Wildlife and Fisheries Commission hereby directs the Department to enter into a cooperative endeavor agreement with Ducks Unlimited, Inc. whereby two thirds (66.7%) of the funds collected by the Department from the sale of hunting licenses pursuant to R.S. 56:104.A.(1)(b) shall be allocated to fund habitat programs on the waterfowl breeding grounds, and

BE IT FURTHER RESOLVED, that the Commission hereby directs the Secretary to take all necessary steps in furtherance of the above directives, and

BE IT FURTHER RESOLVED, that this resolution shall remain in effect until January 2008.

Terry D. Denmon, Chairman
Wildlife and Fisheries
Commission

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

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

Region I - Minden - 77 citations and 6 warnings.

Region II - Monroe - 73 citations and 4 warnings.

Region III - Alexandria - 113 citations and 2 warnings.

Region IV - Ferriday - 90 citations and 1 warning.

Region V - Lake Charles - 100 citations and 1 warning.

Region VI - Opelousas - 135 citations and 12 warnings.

Region VII - Baton Rouge - 111 citations and 7 warnings.

Region VIII - New Orleans - 194 citations and 3 warnings.

Region IX - Schriever - 155 citations and 17 warnings.

Oyster Strike Force - 62 citations.

Seafood Investigation Unit - 42 citations.

SWEP - 50 citations.

Refuge Patrol - 28 citations and 3 warnings.

The grand total of citations issued statewide for the month of January was 1,048. Also there were 52 warning citations issued statewide.

The aviation report for January 2003 showed enforcement pilots flew three airplanes a total of 52.4 hours for enforcement and 28.2 hours for other divisions.

Major LaCaze then provided a copy of a report from Region VI on the 6 point rule in the parishes of Pointe Coupee, Iberville and West Baton Rouge. There were 6 cases made for taking illegal deer. The biggest problem for enforcement was trying to determine where a deer was harvested. A lot of the calls received in the Opelousas office were from hunters not in favor of the new regulation and from those that were not aware of the penalty for taking an illegal deer.

Approval of Atchafalaya Delta WMA Lease Renewal was handled by Mr. Phil Bowman. He stated the Resolution would approve, ratify and confirm a lease for Atchafalaya Delta WMA and would authorize the Chairman and Secretary to sign and execute another 25 year lease. Atchafalaya Delta WMA is a 125,000 acre WMA that is extremely important for waterfowl and other migratory birds. The WMA also provides a tremendous amount of recreation for the people of Louisiana. Mr. Bowman read the Therefore Be It Resolved portion of the Resolution. Hearing no comments, Commissioner Kelly made a motion to approve the Resolution. Commissioner Sagrera seconded the motion and it passed with no opposition.

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

RESOLUTION

ATCHAFALAYA DELTA WILDLIFE MANAGEMENT AREA
adopted by the
Louisiana Wildlife and Fisheries Commission

February 6, 2003

WHEREAS, Atchafalaya Bay is a major wintering and staging area for waterfowl and other neo-tropical migrants, and annually attracts hundreds of thousands of ducks and geese, and is also an important fisheries estuary and nursery waters for a wide variety of fish and other aquatic organisms, and

WHEREAS, Atchafalaya Bay is owned by the state, in trust for the benefit of the citizens of the State, and is a prime waterfowl hunting and fishing area for many of Louisiana's hunters and fishermen, and

WHEREAS, Atchafalaya Bay is comprised of more than 125,000 acres, the vast majority of which, about 90%, is water bottom, with the rest, or more than 12,000 acres, being land formed by accretion, and

WHEREAS, since 1977, the entirety of Atchafalaya Bay, both the water bottom and the accreted land, has been actively managed by the Department of Wildlife and Fisheries and the Wildlife and Fisheries Commission as the Atchafalaya Delta Wildlife Management Area, and

WHEREAS, in order to ensure that these properties remain perpetually dedicated for the purpose of maintaining such properties as a wildlife management area, the Wildlife and Fisheries Commission, at its December 6, 2001 meeting passed a resolution confirming that all state owned lands, including water bottoms, located within Atchafalaya Bay, as more particularly described on Exhibit A to that Resolution, were included within a wildlife management area named the Atchafalaya Delta Wildlife Management Area.

WHEREAS, the Wildlife and Fisheries Commission, at its December 6, 2001 meeting authorized and empowered the Secretary of the Department of Wildlife and Fisheries, on behalf of the Commission, to take all actions necessary in furtherance of confirming the establishment the Atchafalaya Delta Wildlife Management Area. Based on this authority, the Secretary and the Chairman of the Commission executed a lease document by and between the Governor of Louisiana, the Commissioner of Administration, the State Land Office, the Department of Natural Resources, the Wildlife and Fisheries Commission,

and the Department of Wildlife and Fisheries, which lease document further confirms that the above described area does constitute a wildlife management area. This lease document is attached hereto and made a part hereof.

THEREFORE BE IT RESOLVED, that the Wildlife and Fisheries Commission does hereby approve, ratify, and confirm the above described lease document and the provisions contained therein and the authority of the Secretary of the Department of Wildlife and Fisheries and the Chairman of the Commission to sign the lease document on behalf of the Commission.

Terry D. Denmon, Chairman
Wildlife and Fisheries
Commission

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

Mr. Marty Bourgeois presented the item, **Consideration of Offshore Territorial Sea Shrimp Closure**. He stated the Resolution and Declaration of Emergency would close a portion of Louisiana's offshore territorial waters from the eastern shore of Freshwater Bayou to Caillou Boca to shrimping on Monday, February 10. Also the Department requested the Commission reopen the waters from the Atchafalaya River Ship Channel to the U.S. Coast Navigational Light at Caillou Boca on April 14. The Declaration of Emergency would authorize Secretary Jenkins to close the remaining waters to shrimping if data indicates a need and to reopen when the need was no longer necessary. During this time of year, there are considerable numbers of overwintering white shrimp and by protecting these shrimp, it will allow them the chance to reenter the bays and grow into larger count shrimp. Commissioner Felterman stated he has received calls from shrimpers in the Dulac area stating they are still catching good sized shrimp. He asked if there is data to back up the proposed? Mr. Bourgeois stated the samples are showing very small white shrimp with some as small as 300-400 count. He added that information on harvest from the trip tickets would not be available until next month. Commissioner Kelly asked if the season was closed and then it was determined there was a harvestable crop that would not hurt the spring season, would the Secretary be able to reopen the season? Mr. Bourgeois answered yes. Chairman Denmon asked if he would have authority to reopen a portion of the waters? Again Mr. Bourgeois answered yes. He then read the Therefore Be It Resolved portion of the Resolution. The Chairman then asked for public comments.

Mr. Emile Hotard, a fisherman from Dulac, stated he never has a problem with trying to save young shrimp. The problem with the closure, according to Mr. Hotard, is that it was too late. He added that since the last week, the shrimp have been nice sized. During the month of March, he felt there would be good shrimp available and these would help them until the May season opens. Once the seasons are closed, Mr. Hotard felt it would be difficult to reopen again.

Chairman Denmon asked Mr. Bourgeois if there was a mechanism to monitor shrimp? Mr. Bourgeois stated the offshore waters are sampled bi-monthly and this would increase in March. With reference to the April 14 date, data from the previous 6 years showed this is the date white shrimp are usually larger than 100 count. Chairman Denmon asked if the data would be available in a timely fashion that would allow the Secretary to reopen the shrimp season? Mr. Bourgeois again answered yes.

Mr. Hotard asked if there was a problem west of the River, he would like to see shrimp season remain open from Caillou Boca to Atchafalaya. Again he stated the season should have been closed 1-1/2 months ago.

Commissioner Kelly made a motion to adopt the Resolution with the stipulation of making a special effort to monitor the shrimp season so it could be reopened timely if biological data indicates. Commissioner Stone seconded the motion. Commissioner Felterman suggested Mr. Hotard bring data to Mr. Bourgeois when available to show shrimp size. The motion passed with no opposition.

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

RESOLUTION

2003 Closure of State Outside Waters to Shrimping
adopted by the
Louisiana Wildlife and Fisheries Commission
February 6, 2003

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Louisiana Wildlife and Fisheries 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 saltwater 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 state outside waters, water temperatures remain below 15 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 state outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters,

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of state outside waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W, at 6 a.m. on Monday, February 10, 2003.

BE IT FURTHER RESOLVED, that that portion of state outside 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 U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W shall reopen to shrimping at 6 a.m. on Monday, April 14, 2003.

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 remaining state outside 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 special seasons for the harvest of white shrimp in any portion of the State's inside waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing state outside waters is attached to and made a part of this resolution.

Terry D. Denmon, 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 state outside waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that portion of state outside waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W. This closure is effective at 6 a.m., Monday, February 10, 2003. The Commission also hereby orders that that portion of state outside waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W 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 14, 2003.

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 state outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters. This action is being taken to protect these small white shrimp and provide them the opportunity to grow to a larger and 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 remaining state outside 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 special seasons for the harvest of white shrimp in any portion of state inside waters where such a season would not detrimentally impact small brown shrimp.

Terry D. Denmon
Chairman

Presentation of Stock Assessments for Black Drum, Striped Mullet, Southern Flounder and Sheepshead began with Mr. Joey Shepard stating in 1995 the Louisiana Legislature passed Act 1316, the Marine Resource Conservation Act. The Act requires the Commission provide an annual peer reviewed report to the Legislature by March 1. This report should contain spawning potential, biological condition and profile on mullet, black drum, sheepshead and flounder. The Act also set the spawning potential management target at 30 percent. There were no substantive changes in the method used from last year and there was no new data for the biological profiles. Results for black drum showed 44 percent SPR in the worst case scenario; striped mullet showed 30-37 percent SPR; southern flounder was at 28-30 percent and sheepshead was 44-81 percent. The one peer review comment received was also provided to the Commission. Mr. Shepard then asked the Commission to make a motion to accept the Department's reports and have the Department Secretary submit the reports to the Legislature before March 1. Commissioner Busbice made a motion to accept the reports as presented and to ask the Secretary to forward the reports to the Legislature. Commissioner Sagraera seconded the motion and it passed with no opposition.

The Commissioners agreed to hold the **June 2003 Meeting** on Thursday, June 5, 2003 beginning at 10:00 a.m. at the Baton Rouge Headquarters.

Chairman Denmon then asked for **Public Comments**. Mr. Henry Goudeau stated he was a member of one of the hunting clubs that borders Area 6. He stated he has problems with the new 6 point rule established last year. One such problem was the people in the area are afraid to speak out against the one major landowner and the biologist is pushing the issue with that landowner. It was stated 86 percent of the landowners were in favor of the new rule, but the hunters were not asked their opinion of the rule. Once inside the levees where he hunts, Mr. Goudeau stated the habitats change due to flooding. He felt the rule was not fair to new youth just starting to hunt. He then asked the Commission to change the boundary or create a new area in order to make it better for the new and the old hunters.

Mr. Phil Bowman stated a final report on the impacts of Tropical Storm Isidore and Hurricane Lili to Department properties was included in the packets. Staff has been working with FEMA and the Office of Wildlife has been notified they will receive \$1.4 million to repair damage done. Also Mr. Bowman mentioned the Office of Wildlife would present the Notice of Intent for the 2003-04 resident hunting seasons at the next meeting. Chairman Denmon asked how long will damage from the storms to the waterfowl habitat take to recover? Mr. Bowman stated recovery should occur when the waters warm in the spring. Commissioner Stone asked if all of the areas that were covered like carpet regrow? Mr. Bowman stated some may regrow with emergent growth while others may have submergent aquatic vegetation which could be beneficial to waterfowl and other birds.

An Unidentified Speaker that is a waterfowl hunter stated he did not hear anything from the meeting that would make him think waterfowl hunting would be better next year. He stated he hunts in rice fields and he saw ducks only twice when cold fronts moved through the state. The organizations in the states are getting bigger each year but the hunting in Louisiana keeps getting worse. Also the speaker noted geese numbers are getting less and less each year.

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



James P. Jenkins, Jr.
Secretary

JHJ:sch

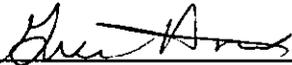
LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

RECEIPT

DATE: 2-28-03

RECEIPT OF: 1) Reports on Striped Mullet, Black Drum, Sheepshead and Southern Flounder.

SENATE PRESIDENT (State Capitol/Senate Sub-Basement)

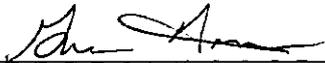
RECEIVED BY: 

FOR SENATOR JOHN HAINKEL, SENATE PRESIDENT

HOUSE SPEAKER (State Capitol/1st Floor)

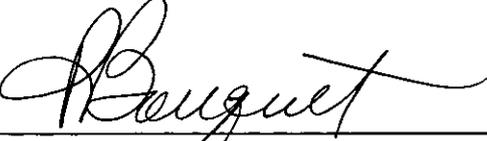
RECEIVED BY: 
FOR REPRESENTATIVE CHARLES DEWITT, HOUSE SPEAKER

SENATE NATURAL RESOURCES COMMITTEE (State Capitol/Senate Sub-Basement)

RECEIVED BY: 

FOR SENATOR CRAIG ROMERO, CHAIRMAN, SENATE NATURAL RESOURCES COMMITTEE

HOUSE NATURAL RESOURCES COMMITTEE (State Capitol/10th Floor)

RECEIVED BY: 

FOR REPRESENTATIVE WILFRED PIERRE, CHAIRMAN, HOUSE NATURAL RESOURCES COMMITTEE

State of Louisiana



James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
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February 28, 2003

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

Honorable John J. Hainkel, Jr.
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Honorable Craig Romero, Chairman
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House Committee on Natural Resources
Post Office Box 94062
Baton Rouge, LA 70804-9062

Gentlemen:

In compliance with R.S. 56:325.4(D)1 and R.S. 56:333(G)1, enclosed are the annual reports on striped mullet, black drum, sheepshead and southern flounder which include stock assessments and spawning potential ratios. Bioprofiles were not included since there were no substantive changes from last year. Also included are comments received from peer review. These reports were adopted by the Louisiana Wildlife and Fisheries Commission at its February 6, 2003 meeting.

Sincerely,

James H. Jenkins, Jr.
Secretary

/rbp

Enclosures

2/17/03
MB

MINUTES OF THE MEETING

OF

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

Thursday, February 6, 2003

Chairman Terry Denmon presiding.

Bill Busbice
Lee Felterman
Tom Kelly
Henry Mouton
Wayne Sagrera
Jerry Stone

Secretary James H. Jenkins, Jr. was also present.

Chairman Denmon called for a motion for approval of the **January 9, 2003 Commission Minutes**. A motion for approval was made by Commissioner Kelly and seconded by Commissioner Felterman. The motion passed with no opposition.

Wildlife Division Report on Waterfowl began with Mr. Phil Bowman stating that the waterfowl season was not what was expected when the dates were set. He then stated Mr. Robert Helm has looked at weather, waterfowl population numbers, harvest numbers and other factors that probably influenced the population in Louisiana. He then asked Mr. Helm to present his information. Mr. Helm mentioned that Mr. Mike Olinde and Mr. Scott Durham were helpful in getting the information together. The slide presentation included information on continental breeding population estimates from 1976-2002. The peak of the breeding population occurred in 1999 at about 40 million birds and since then there has been a dramatic decline. Pond numbers were down last year and thus production was off. The fall flight this year was mainly adult birds which made it difficult to hunt. Next, Mr. Helm explained that habitat projects may be affecting waterfowl. These projects included the Wetland Reserve Program (WRP) which is a USDA program and work on public/private lands across the state. One positive result from these programs is birds will be returning to the breeding grounds in better condition. Then he discussed if duck distribution was changing or were other states holding birds that traditionally came south. Contacted states were Minnesota, South Dakota, Iowa,

Missouri and Arkansas and numbers recorded were for the mid-winter surveys from the years 1992-2003. Next discussed was weather and how big of an issue it was. Mr. Helm felt the weather was a key factor this year. The first slide shown was weather for the month of October 2002 which was very cold in the Dakota's. In November 2002, things warmed up. In December 2002, the northern states had some of the warmest weather on record and this continued on into January 2003. What is needed for an excellent waterfowl season is severe weather in the mid-latitude states in late November and into December. The weather pattern from October 2001 through January 2002 was very similar to that which occurred this past year. Duck hunting regulations from 1976-2002 were discussed. Since 1997, Adaptive Harvest Management was implemented which resulted in regulations being within the liberal package. Mr. Helm felt we will not continue to have the liberal package due to the number of mallards in prairie Canada and also the number of ponds in that region. Then looking at the number of duck hunters and harvest for 1976-2001, Mr. Helm noted those numbers peaked in late-1970's and early 1980's at almost 130,000. Then they declined with the restrictive regulations in the 1980's and then increased again in the mid-1990's with the liberalizing of regulations. In recent years the number of hunters have leveled off at 100,000. Harvest numbers followed the trend in number of hunters very closely until 1995 when there was a steep increase in harvest when regulations changed. The harvest peaked in 1999 with 2.6 million birds and has since declined. Louisiana's average days per adult hunter from 1976-2001 showed an average of 20 ducks per hunter during the 1990's and in 2001, that average declined. For information only, Mr. Helm showed that Louisiana consistently leads the nation in waterfowl harvest well above the states of California, Arkansas and Texas. Within the Mississippi Flyway, when Louisiana has a bad season, it tends to be the same in the northern states of the Flyway as well. For the past season, weather was the real issue in Louisiana with the tropical storms, heavy rainfall in October and not having the severe cold weather until the third week of January. The waterfowl numbers were down in Louisiana as expected. The dabbling duck estimates for the last 2 years were well below average. Mallard numbers also were well below average for the last 2 years compared with the late 1990's. A graph on numbers of ducks on the Louisiana refuges in January 2003 was shown. Louisiana's hunting as a whole was extremely poor this past year. Southwest Louisiana for the first split was reasonably good in some areas whereas the second split was very poor. The first split was better than the second in southeast Louisiana. Central and northeast Louisiana benefitted from the early movement of birds during the

first split, but the second split was relatively poor. Overall, Mr. Helm anticipated a 25 percent reduction in the number of ducks taken as a whole. Chairman Denmon thanked Mr. Helm for his excellent report. Then he asked if there was any mechanism to deliver the report to the public where they can get answers to questions they may have on duck numbers. Mr. Helm noted survey results are posted on the Department's website as soon as they are available and he added that a season end report will also be posted. Then Mr. Helm stated there are things that are difficult to explain this year. A Wingbee meeting to examine wings was being conducted to determine production of immature to adult ratios and this would prove to be a key piece of information to hunters as well. Commissioner Stone asked about widgeon numbers? Mr. Helm felt those numbers were below their long term average. He added he talked with hunters in the Venice area and they were wrapped up with widgeons. Commissioner Mouton asked about regulations for pintails in Canada versus those in Louisiana. Mr. Helm thought the limit on ducks in Canada was 8 with 2 pintails allowed.

Commissioner Mouton began the next item, the **Delta Waterfowl Proposal** by stating he met with Delta Waterfowl and their members on what they have been doing. He then asked that a short video be shown at this point. Commissioner Mouton asked if anyone from Delta Waterfowl was at the meeting.

Mr. Parker Lacoïn, a member of Delta Waterfowl for 15 years, stated he was impressed with the team of scientists that makes up the backbone of Delta Waterfowl. He stated he was a representative of the organization that felt deserved the attention of the State and its dollars. Delta Waterfowl feels the science in the proposal is compelling and hopefully will give them a chance to make more ducks for hunters to shoot. Commissioner Busbice asked what was Delta Waterfowl's annual budget? Mr. Lacoïn stated it was approximately \$3 million.

Commissioner Mouton stated law requires 10 percent of hunting license sales shall be dedicated for the preservation of breeding grounds for migratory waterfowl. The proposal is to give one-third of the monies collected to Delta Waterfowl for a 5 year period. The other two-thirds would continue to go to Ducks Unlimited. He then asked for public comments on the proposal.

Mr. Richard Yancey began stating he has worked professionally in wildlife management for 54 years. During his early career as a waterfowl biologist, Mr. Yancey worked in Canada banding ducks and

running waterfowl surveys. This came as a directive from the Commission Chairman and Department head to find out how money that was being given to Ducks Unlimited was being spent. The vastness of the Canadian territory was what impressed him when aerial flights were conducted. The proposal from Delta Waterfowl in predator control will involve an area about one-third the size of East Baton Rouge Parish. Quite a number of years back, the Department had a group of men that worked predator control in Louisiana, but it was determined that it did not benefit wildlife in Louisiana. While he was in Canada, he met with the Canadian Unit of Ducks Unlimited and looked at their management and habitat restoration program. Mr. Yancey felt if people knew the successes of Ducks Unlimited with their program, they would not want to use some of those dollars for predator control on a very tiny area of the breeding grounds. Even while attending the Mississippi Flyway Council Meetings, no one ever asked that a predator control program be financed. Mr. Yancey stated taking money from license sales to kill three species in a limited area and not giving it to help with a habitat improvement and restoration program is a bad decision. Several proposals by Delta Waterfowl over the last 40 years was then explained. He then recommended the Commission not make an allocation to Delta Waterfowl for predator control but to fully fund the Ducks Unlimited habitat restoration programs. In the 1980's, the International Association of Fish and Wildlife Agencies developed the North American Waterfowl Management Plan of which Mr. Yancey was a member. They looked at every factor in waterfowl populations and it was determined predator control was a limiting factor. Concluding, he stated he disagreed with the video.

Mr. Mickey MacMillan, a Ducks Unlimited volunteer, stated the money given to Ducks Unlimited is matched by DU and leveraged, so by the time it reaches Canada, it amounts to between \$400,000 to \$500,000. He added that Mr. Yancey did a good job in covering the things he had on his list. One question he had was on the trapping, would it be within the season framework or outside, would it be done by trappers, would the hides be bought by people, would it be done by poison or leghold traps.

Dr. Frank Rohwer, a LSU faculty member that works on waterfowl, stated he was the Scientific Director for Delta Waterfowl and noted he had a lot of familiarity with the research. He did not disagree with Mr. Yancey that habitat was important but he has seen a lot of habitat that does not produce ducks. He also has seen a lot of waterfowl areas that are abysmal. Dr. Rohwer stated this is a small but good program and it would not make a

measurable difference on the duck flight in Louisiana. He added that Delta Waterfowl was not trying to compete with Ducks Unlimited and become a management agency, but was more of a research agency. What they are trying to do is put enough sites on the ground so people can see that predator management can produce a lot of ducks. To answer Mr. MacMillan's question, Delta does not buy hides, and professional trappers are hired to work only during the breeding season.

Commissioner Mouton stated he has received a lot of phone calls on the size of the area for predator control. He noted that when Ducks Unlimited began, they started with a small area and it had to grow. He knew that this program would make a small impact now, but if they have the ability to get more money, more areas will be trapped.

Mr. Joe Herring stated he backed-up what was said by Mr. Yancey. He then reminded the Commission that Mr. Yancey was one of the top 10 waterfowl biologists in the Nation. He asked what attention will predator control bring to the animal right's programs? He suggested looking at those different organizations before a decision was made.

Mr. Darwin Miller, a Ducks Unlimited volunteer, stated his only concern was not knowing what the value of the license money will be to him as a hunter and to Louisiana. He added that this proposal would have to be done year after year and would not have a long term benefit as opposed to enhancing habitat. Mr. Miller also commented that the money could be turned into a larger amount that could be utilized over a longer period of time.

Commissioner Stone stated this money would be invested in a pilot project to study and find out if there is an impact on ducks from predators, how much impact and is it possible to obtain other funds. He then added that the funds to Ducks Unlimited would not be shut off.

Chairman Denmon read the Therefore Be It Resolved portion of the Resolution. Commissioner Mouton made a motion to approve the Resolution and it was seconded by Commissioner Busbice. The motion passed with no opposition.

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

RESOLUTION

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

2003 DELTA WATERFOWL FOUNDATION
AND DUCKS UNLIMITED FUNDING

WHEREAS, R.S. 56:104.A.(1)(b) provides that ten percent (10%) of the fees collected from the sale of hunting licenses shall be dedicated by the Commission to the development and preservation of breeding grounds for migratory waterfowl, and

WHEREAS, over the past 14 years the Department has been acting under an agreement letter between the Department and Ducks Unlimited, Inc. whereby these funds have been dedicated to the development and preservation of breeding grounds for migratory waterfowl, and

WHEREAS, as the breeding grounds for migratory waterfowl have been altered by changing land use patterns over the years resulting in a change in the predator assemblages on these areas, and

WHEREAS, Delta Waterfowl Foundation has conducted research that demonstrates that duck nest success can be significantly increased by managing predators on the breeding grounds, and

WHEREAS, while improving waterfowl breeding habitat remains the long term goal of the Commission, the research conducted by Delta Waterfowl Foundation has provided another tool for improving the conditions of the breeding grounds, now

THEREFORE BE IT RESOLVED, the Louisiana Wildlife and Fisheries Commission hereby directs the Department of Wildlife and Fisheries to enter into a cooperative endeavor agreement with Delta Waterfowl Foundation whereby one third (33.3%) of the funds collected by the Department from the sale of hunting licenses pursuant to R.S. 56:104.A.(1)(b) shall be allocated to fund a predator management program on the waterfowl breeding grounds, and

BE IT FURTHER RESOLVED, the Louisiana Wildlife and Fisheries Commission hereby directs the Department to enter into a cooperative endeavor agreement with Ducks Unlimited, Inc. whereby two thirds (66.7%) of the funds collected by the Department from the sale of hunting licenses pursuant to R.S. 56:104.A.(1)(b) shall be allocated to fund habitat programs on the waterfowl breeding grounds, and

BE IT FURTHER RESOLVED, that the Commission hereby directs the Secretary to take all necessary steps in furtherance of the above directives, and

BE IT FURTHER RESOLVED, that this resolution shall remain in effect until January 2008.

Terry D. Denmon, Chairman
Wildlife and Fisheries
Commission

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

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

Region I - Minden - 77 citations and 6 warnings.

Region II - Monroe - 73 citations and 4 warnings.

Region III - Alexandria - 113 citations and 2 warnings.

Region IV - Ferriday - 90 citations and 1 warning.

Region V - Lake Charles - 100 citations and 1 warning.

Region VI - Opelousas - 135 citations and 12 warnings.

Region VII - Baton Rouge - 111 citations and 7 warnings.

Region VIII - New Orleans - 194 citations and 3 warnings.

Region IX - Schriever - 155 citations and 17 warnings.

Oyster Strike Force - 62 citations.

Seafood Investigation Unit - 42 citations.

SWEP - 50 citations.

Refuge Patrol - 28 citations and 3 warnings.

The grand total of citations issued statewide for the month of January was 1,048. Also there were 52 warning citations issued statewide.

The aviation report for January 2003 showed enforcement pilots flew three airplanes a total of 52.4 hours for enforcement and 28.2 hours for other divisions.

Major LaCaze then provided a copy of a report from Region VI on the 6 point rule in the parishes of Pointe Coupee, Iberville and West Baton Rouge. There were 6 cases made for taking illegal deer. The biggest problem for enforcement was trying to determine where a deer was harvested. A lot of the calls received in the Opelousas office were from hunters not in favor of the new regulation and from those that were not aware of the penalty for taking an illegal deer.

Approval of Atchafalaya Delta WMA Lease Renewal was handled by Mr. Phil Bowman. He stated the Resolution would approve, ratify and confirm a lease for Atchafalaya Delta WMA and would authorize the Chairman and Secretary to sign and execute another 25 year lease. Atchafalaya Delta WMA is a 125,000 acre WMA that is extremely important for waterfowl and other migratory birds. The WMA also provides a tremendous amount of recreation for the people of Louisiana. Mr. Bowman read the Therefore Be It Resolved portion of the Resolution. Hearing no comments, Commissioner Kelly made a motion to approve the Resolution. Commissioner Sagrera seconded the motion and it passed with no opposition.

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

RESOLUTION

ATCHAFALAYA DELTA WILDLIFE MANAGEMENT AREA
adopted by the
Louisiana Wildlife and Fisheries Commission

February 6, 2003

WHEREAS, Atchafalaya Bay is a major wintering and staging area for waterfowl and other neo-tropical migrants, and annually attracts hundreds of thousands of ducks and geese, and is also an important fisheries estuary and nursery waters for a wide variety of fish and other aquatic organisms, and

WHEREAS, Atchafalaya Bay is owned by the state, in trust for the benefit of the citizens of the State, and is a prime waterfowl hunting and fishing area for many of Louisiana's hunters and fishermen, and

WHEREAS, Atchafalaya Bay is comprised of more than 125,000 acres, the vast majority of which, about 90%, is water bottom, with the rest, or more than 12,000 acres, being land formed by accretion, and

WHEREAS, since 1977, the entirety of Atchafalaya Bay, both the water bottom and the accreted land, has been actively managed by the Department of Wildlife and Fisheries and the Wildlife and Fisheries Commission as the Atchafalaya Delta Wildlife Management Area, and

WHEREAS, in order to ensure that these properties remain perpetually dedicated for the purpose of maintaining such properties as a wildlife management area, the Wildlife and Fisheries Commission, at its December 6, 2001 meeting passed a resolution confirming that all state owned lands, including water bottoms, located within Atchafalaya Bay, as more particularly described on Exhibit A to that Resolution, were included within a wildlife management area named the Atchafalaya Delta Wildlife Management Area.

WHEREAS, the Wildlife and Fisheries Commission, at its December 6, 2001 meeting authorized and empowered the Secretary of the Department of Wildlife and Fisheries, on behalf of the Commission, to take all actions necessary in furtherance of confirming the establishment the Atchafalaya Delta Wildlife Management Area. Based on this authority, the Secretary and the Chairman of the Commission executed a lease document by and between the Governor of Louisiana, the Commissioner of Administration, the State Land Office, the Department of Natural Resources, the Wildlife and Fisheries Commission,

and the Department of Wildlife and Fisheries, which lease document further confirms that the above described area does constitute a wildlife management area. This lease document is attached hereto and made a part hereof.

THEREFORE BE IT RESOLVED, that the Wildlife and Fisheries Commission does hereby approve, ratify, and confirm the above described lease document and the provisions contained therein and the authority of the Secretary of the Department of Wildlife and Fisheries and the Chairman of the Commission to sign the lease document on behalf of the Commission.

Terry D. Denmon, Chairman
Wildlife and Fisheries
Commission

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

Mr. Marty Bourgeois presented the item, **Consideration of Offshore Territorial Sea Shrimp Closure**. He stated the Resolution and Declaration of Emergency would close a portion of Louisiana's offshore territorial waters from the eastern shore of Freshwater Bayou to Caillou Boca to shrimping on Monday, February 10. Also the Department requested the Commission reopen the waters from the Atchafalaya River Ship Channel to the U.S. Coast Navigational Light at Caillou Boca on April 14. The Declaration of Emergency would authorize Secretary Jenkins to close the remaining waters to shrimping if data indicates a need and to reopen when the need was no longer necessary. During this time of year, there are considerable numbers of overwintering white shrimp and by protecting these shrimp, it will allow them the chance to reenter the bays and grow into larger count shrimp. Commissioner Felterman stated he has received calls from shrimpers in the Dulac area stating they are still catching good sized shrimp. He asked if there is data to back up the proposed? Mr. Bourgeois stated the samples are showing very small white shrimp with some as small as 300-400 count. He added that information on harvest from the trip tickets would not be available until next month. Commissioner Kelly asked if the season was closed and then it was determined there was a harvestable crop that would not hurt the spring season, would the Secretary be able to reopen the season? Mr. Bourgeois answered yes. Chairman Denmon asked if he would have authority to reopen a portion of the waters? Again Mr. Bourgeois answered yes. He then read the Therefore Be It Resolved portion of the Resolution. The Chairman then asked for public comments.

Mr. Emile Hotard, a fisherman from Dulac, stated he never has a problem with trying to save young shrimp. The problem with the closure, according to Mr. Hotard, is that it was too late. He added that since the last week, the shrimp have been nice sized. During the month of March, he felt there would be good shrimp available and these would help them until the May season opens. Once the seasons are closed, Mr. Hotard felt it would be difficult to reopen again.

Chairman Denmon asked Mr. Bourgeois if there was a mechanism to monitor shrimp? Mr. Bourgeois stated the offshore waters are sampled bi-monthly and this would increase in March. With reference to the April 14 date, data from the previous 6 years showed this is the date white shrimp are usually larger than 100 count. Chairman Denmon asked if the data would be available in a timely fashion that would allow the Secretary to reopen the shrimp season? Mr. Bourgeois again answered yes.

Mr. Hotard asked if there was a problem west of the River, he would like to see shrimp season remain open from Caillou Boca to Atchafalaya. Again he stated the season should have been closed 1-1/2 months ago.

Commissioner Kelly made a motion to adopt the Resolution with the stipulation of making a special effort to monitor the shrimp season so it could be reopened timely if biological data indicates. Commissioner Stone seconded the motion. Commissioner Felterman suggested Mr. Hotard bring data to Mr. Bourgeois when available to show shrimp size. The motion passed with no opposition.

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

RESOLUTION

2003 Closure of State Outside Waters to Shrimping
adopted by the
Louisiana Wildlife and Fisheries Commission
February 6, 2003

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Louisiana Wildlife and Fisheries 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 saltwater 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 state outside waters, water temperatures remain below 15 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 state outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters,

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of state outside waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W, at 6 a.m. on Monday, February 10, 2003.

BE IT FURTHER RESOLVED, that that portion of state outside 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 U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W shall reopen to shrimping at 6 a.m. on Monday, April 14, 2003.

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 remaining state outside 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 special seasons for the harvest of white shrimp in any portion of the State's inside waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing state outside waters is attached to and made a part of this resolution.

Terry D. Denmon, 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 state outside waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that portion of state outside waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W. This closure is effective at 6 a.m., Monday, February 10, 2003. The Commission also hereby orders that that portion of state outside waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W 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 14, 2003.

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 state outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters. This action is being taken to protect these small white shrimp and provide them the opportunity to grow to a larger and 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 remaining state outside 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 special seasons for the harvest of white shrimp in any portion of state inside waters where such a season would not detrimentally impact small brown shrimp.

Terry D. Denmon
Chairman

Presentation of Stock Assessments for Black Drum, Striped Mullet, Southern Flounder and Sheepshead began with Mr. Joey Shepard stating in 1995 the Louisiana Legislature passed Act 1316, the Marine Resource Conservation Act. The Act requires the Commission provide an annual peer reviewed report to the Legislature by March 1. This report should contain spawning potential, biological condition and profile on mullet, black drum, sheepshead and flounder. The Act also set the spawning potential management target at 30 percent. There were no substantive changes in the method used from last year and there was no new data for the biological profiles. Results for black drum showed 44 percent SPR in the worst case scenario; striped mullet showed 30-37 percent SPR; southern flounder was at 28-30 percent and sheepshead was 44-81 percent. The one peer review comment received was also provided to the Commission. Mr. Shepard then asked the Commission to make a motion to accept the Department's reports and have the Department Secretary submit the reports to the Legislature before March 1. Commissioner Busbice made a motion to accept the reports as presented and to ask the Secretary to forward the reports to the Legislature. Commissioner Sagraera seconded the motion and it passed with no opposition.

The Commissioners agreed to hold the **June 2003 Meeting** on Thursday, June 5, 2003 beginning at 10:00 a.m. at the Baton Rouge Headquarters.

Chairman Denmon then asked for **Public Comments**. Mr. Henry Goudeau stated he was a member of one of the hunting clubs that borders Area 6. He stated he has problems with the new 6 point rule established last year. One such problem was the people in the area are afraid to speak out against the one major landowner and the biologist is pushing the issue with that landowner. It was stated 86 percent of the landowners were in favor of the new rule, but the hunters were not asked their opinion of the rule. Once inside the levees where he hunts, Mr. Goudeau stated the habitats change due to flooding. He felt the rule was not fair to new youth just starting to hunt. He then asked the Commission to change the boundary or create a new area in order to make it better for the new and the old hunters.

Mr. Phil Bowman stated a final report on the impacts of Tropical Storm Isidore and Hurricane Lili to Department properties was included in the packets. Staff has been working with FEMA and the Office of Wildlife has been notified they will receive \$1.4 million to repair damage done. Also Mr. Bowman mentioned the Office of Wildlife would present the Notice of Intent for the 2003-04 resident hunting seasons at the next meeting. Chairman Denmon asked how long will damage from the storms to the waterfowl habitat take to recover? Mr. Bowman stated recovery should occur when the waters warm in the spring. Commissioner Stone asked if all of the areas that were covered like carpet regrow? Mr. Bowman stated some may regrow with emergent growth while others may have submergent aquatic vegetation which could be beneficial to waterfowl and other birds.

An Unidentified Speaker that is a waterfowl hunter stated he did not hear anything from the meeting that would make him think waterfowl hunting would be better next year. He stated he hunts in rice fields and he saw ducks only twice when cold fronts moved through the state. The organizations in the states are getting bigger each year but the hunting in Louisiana keeps getting worse. Also the speaker noted geese numbers are getting less and less each year.

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

James H. Jenkins, Jr.
Secretary

JHJ:sch



The Advocate Outdoors

Friday, February 07, 2003

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Ducks big topic at LWFC meeting

Commission votes to reduce donation to DU

By JOE MACALUSO

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Advocate outdoors writer

Duck season is over for Louisiana hunters, but ducks dominated the discussion at Thursday's Louisiana Wildlife and Fisheries Commission meeting.

After State Waterfowl Study leader Robert Helm outlined reasons to explain the two-year decline in migratory waterfowl into the state, the seven-man commission voted to reduce its annual donation to Ducks Unlimited to fund Delta Waterfowl Foundation predator-control projects.

State law allows the Department of Wildlife and Fisheries to contribute 10 percent of hunting license-sale fees to national organizations like Ducks Unlimited. The law also places a \$300,000 ceiling on the donation. Ducks Unlimited has been the only organization benefiting from past donations.

The LWFC's 7-0 vote will move as much as \$100,000 annually to Delta Waterfowl projects on northern breeding grounds. Delta's research, some of which has been conducted by LSU graduate students, shows that predator control on limited acreage sites increases brood survival of ducks.

Ducks Unlimited's focus is on habitat preservation and improvements on the breeding grounds in the northern U.S. and several Canadian provinces.

The vote came over the objections of former LDWF waterfowl biologist Richard Yancey, former LDWF secretary Joe Herring and state Ducks Unlimited volunteers.

Yancey, an acknowledged national waterfowl expert, headed the first habitat programs developed by the state and U.S. and Canadian wildlife agencies, said improved habitat is the key to duck production and

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increased numbers in the fall migration.

November

December

Yancey said in his 30 years of attending Mississippi Flyway Council meetings -- Louisiana is one of 14 states in the flyway -- with biologists from 14 states and Canadian provinces, "... at no time did any professional come in and talk about starting predator control." He said habitat is the key to duck production.

LSU professor Frank Rohwer, the former scientific director for Delta Waterfowl, said he agrees that habitat is a big factor, and added, "But, we've seen that lots of habitat doesn't produce ducks.

"There are lots of areas where waterfowl production is abysmal ... and it's because predators kill hens and raid nests."

Delta officials said red foxes, raccoons and skunks are the main predators.

Darwin Miller, a DU volunteer, said the state's donation to DU is matched with federal funds to increase its effect on breeding-grounds projects, and doubted any money going to Delta Waterfowl will receive the same funding matches.

Newly appointed commissioner Henry Mouton of Lafayette introduced the resolution.

Helm pointed to warmer November and December weather in the northern U.S., decreased duck populations, tropical storms and an extra-wet October as reasons Louisiana hunters have called the LDWF to complain about a second straight sub-par duck season.

Helm said he expects to see a 25 percent reduction in numbers of ducks taken by state hunters from last season's numbers. That lower take comes after a near 20 percent decline from the 2001-02 to the previous season.

In other action, the LWFC approved a renewal in its lease for the Atchafalaya Delta Wildlife Management Area, approved a closed season on shrimp in state offshore waters from areas near Caillou Boca south of Cocodrie west to the Atchafalaya Bay, learned that stocks of black drum, flounder, striped mullet and sheepshead are adequate to sustain the species in state waters, and voted its June meeting date for June 5 in Baton Rouge.

State biologist Marty Bourgeois said the shrimp closure is to protect small white shrimp to allow a haul of larger shrimp when the areas are reopened April 14.

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COMMISSION MEETING
ROLL CALL

Thursday, February 6, 2003
Baton Rouge, LA
Wildlife & Fisheries Building

	Attended	Absent
Terry Denmon (Chairman)	<u>✓</u>	—
Lee Felterman	<u>✓</u>	—
Bill Busbice	<u>✓</u>	—
Tom Kelly	<u>✓</u>	—
Wayne Sagrera	<u>✓</u>	—
Jerry Stone	<u>✓</u>	—
Henry Mouton	<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 6, 2003
10:00 AM

1. Roll Call
2. Approval of Minutes of January 9, 2003
3. Wildlife Division Report on Waterfowl - Robert Helm
4. Delta Waterfowl Proposal - Henry Mouton
5. Enforcement & Aviation Reports/January - Keith LaCaze
6. Approval of Atchafalaya Delta WMA Lease Renewal - Phil Bowman
7. Consideration of Offshore Territorial Sea Shrimp Closure - Marty Bourgeois
8. Presentation of Stock Assessments for Black Drum, Striped Mullet, Southern Flounder and Sheepshead - Joey Shepard
9. Set June 2003 Meeting Date
10. Public Comments
11. Adjournment



SOUTHERN REGIONAL OFFICE
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(601) 956-1936 Fax (601) 956-7814
www.ducks.org

February 5, 2003

Mr. James H. Jenkins
Secretary
Louisiana Dept. of Wildlife and Fisheries
P.O. Box 98000
Baton Rouge, LA 70898-9000

Dear Secretary Jenkins:

Earlier this week I learned through an article in the Baton Rouge Advocate that the Louisiana Wildlife and Fisheries Commission (LWFC) had on their February 6th agenda, a \$100,000 proposal from Delta Waterfowl Foundation to fund predator control/management in the Prairie Pothole Region of North America. It is my understanding that this grant would be made at the expense of the long-standing partnership between your agency and Ducks Unlimited (DU) to conserve waterfowl habitat in Canada. I was disappointed by the fact that DU staff and volunteers had to learn of this pending action from the local newspaper, particularly in light of the long-term partnership that exists between DU and the LWFC not only on the Canadian breeding grounds but in the Bayou State as well.

The Louisiana Department of Wildlife and Fisheries (LDWF) has supported DU's habitat conservation activities on the Canadian breeding grounds dating back to 1965. Ducks Unlimited and your department have enjoyed a similarly close working relationship on in-state programs since 1985 with the advent of the Matching Aid to Restore States Habitat (M.A.R.S.H.) program. In fact, the very first M.A.R.S.H. project in the United States was on Marsh Island in Louisiana! Since 1985, Ducks Unlimited has spent more than \$16.5 million on 2500 projects in Louisiana. More recently, Ducks Unlimited has pledged a significant amount of our financial and staff resources to Governor Foster's "*Campaign to Save Coastal Louisiana*" in an effort to increase public awareness and funding for this vital wetlands conservation campaign. Given the history of the partnership between DU and LDWF, I think you will appreciate my surprise upon reading the newspaper article suggesting that LWFC's contribution to DU was at stake pending this week's Commission meeting.

I do not intend to debate the merits and pitfalls of predator control as a means of bolstering continental waterfowl populations in this letter; there are more appropriate forums to do that. I also appreciate the fact that the LWFC can elect to support whichever programs/activities it chooses, within the limits of the law. I will, however, take this opportunity to encourage you and the LWFC to ensure that you have all the pertinent facts upon which to base any decision that would involve diversion of funds from habitat-based conservation activities into more short-term management actions such as predator control. The impact of any reduction in LWFC funding for Ducks Unlimited's Canadian NAWMP/NAWCA program is potentially significant given the 5-fold match DU has been able to secure on the Commission's contribution.

I respectfully request that the LWFC and/or the LDWF consult with Ducks Unlimited prior to imposing any reduction in the current level of funding provided to DU in support of habitat conservation activities on the Canadian breeding grounds. I am available to meet with you or your staff on this matter at your earliest convenience.

Sincerely,

A handwritten signature in black ink, appearing to read "Ken Babcock".

Ken Babcock
Director of Operations

cc: Don Young
Governor Foster
LWFC members

RESOLUTION

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

2003 DELTA WATERFOWL FOUNDATION
AND DUCKS UNLIMITED FUNDING

WHEREAS, R.S. 56:104.A.(1)(b) provides that ten percent (10%) of the fees collected from the sale of hunting licenses shall be dedicated by the Commission to the development and preservation of breeding grounds for migratory waterfowl, and

WHEREAS, over the past 14 years the Department has been acting under an agreement letter between the Department and Ducks Unlimited, Inc. whereby these funds have been dedicated to the development and preservation of breeding grounds for migratory waterfowl, and

WHEREAS, as the breeding grounds for migratory waterfowl have been altered by changing land use patterns over the years resulting in a change in the predator assemblages on these areas, and

WHEREAS, Delta Waterfowl Foundation has conducted research that demonstrates that duck nest success can be significantly increased by managing predators on the breeding grounds, and

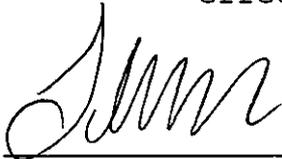
WHEREAS, while improving waterfowl breeding habitat remains the long term goal of the Commission, the research conducted by Delta Waterfowl Foundation has provided another tool for improving the conditions of the breeding grounds, now

THEREFORE BE IT RESOLVED, the Louisiana Wildlife and Fisheries Commission hereby directs the Department of Wildlife and Fisheries to enter into a cooperative endeavor agreement with Delta Waterfowl Foundation whereby one third (33.3%) of the funds collected by the Department from the sale of hunting licenses pursuant to R.S. 56:104.A.(1)(b) shall be allocated to fund a predator management program on the waterfowl breeding grounds, and

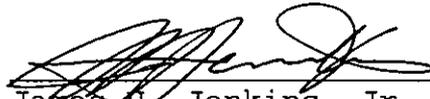
BE IT FURTHER RESOLVED, the Louisiana Wildlife and Fisheries Commission hereby directs the Department to enter into a cooperative endeavor agreement with Ducks Unlimited, Inc. whereby two thirds (66.7%) of the funds collected by the Department from the sale of hunting licenses pursuant to R.S. 56:104.A.(1)(b) shall be allocated to fund habitat programs on the waterfowl breeding grounds, and

BE IT FURTHER RESOLVED, that the Commission hereby directs the Secretary to take all necessary steps in furtherance of the above directives, and

BE IT FURTHER RESOLVED, that this resolution shall remain in effect until January 2008.



Terry D. Denmon
Chairman
Wildlife and Fisheries
Commission



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

State of Louisiana



James H. Jenkins, Jr.
Secretary

Department of Wildlife and Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-98000
(225-765-2800)
4 February 2003

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

MEMORANDUM

TO: Tommy Prickett, Wildl. Div. Admin.

FROM: Mike Olinde, Research Program Manager

SUBJECT: Delta Waterfowl Foundation Proposal Evaluation

As per your request, I reviewed the proposal and developed a rough number of ducks that the project might produce. Using data presented in the proposal, the project would produce an estimated 21,000 more ducks (Appendix 1) than had no predator project been undertaken and assuming that no benefit would be accrued from the \$100,000 otherwise given to Ducks Unlimited for habitat development or used in Louisiana for wetland acquisition and management. Relative to Louisiana's wintering duck estimate of about 5 million, this equates to less than 0.5%. It is highly unlikely that all of the 21,000 ducks will reach Louisiana. Based on the distribution of band recoveries from the proposed operational sites, many of the ducks will be harvested in other states, including some outside of the Mississippi Flyway. Recent USFWS mid-winter duck surveys suggest that 60% of the ducks in the Mississippi Flyway winter in Louisiana. Assuming no mortality during the fledging period through migration into Louisiana and no birds migrate past Louisiana, an additional 13,000 ducks might be expected in the state as a result of the project. However, it must be noted that this assumption is obviously violated; for example, blue-winged teal, a species which accounts for greater than 25% of the species benefited by the predator control action, are largely unavailable to be harvested by late December.

So what impact might the project have on our harvest? According the U.S. Fish and Wildlife 2001-02 harvest survey, 86,135 active waterfowl hunters harvested just over 2,000,000 ducks for a seasonal average of 23.9 ducks per hunter. With a harvest rate of 5.1%, an optimal number because this value is for immature male mallards in Louisiana based on harvest distribution within the Mississippi Flyway, then increased harvest would less than 1,000 ducks. Relative to our current harvest of over 2,000,000 birds, this increase in harvest would have no affect on the average seasonal harvest of ducks per hunter. The 2001-02 seasonal harvest estimate would still be 23.9 ducks per hunter.

All research provided in the proposal and conducted by the Delta Foundation relative to the predator work has shown that production within control areas (without predator control) had sufficient reproductive success to maintain populations. This is also evident with the graphic provided in the proposal (Figure 6).

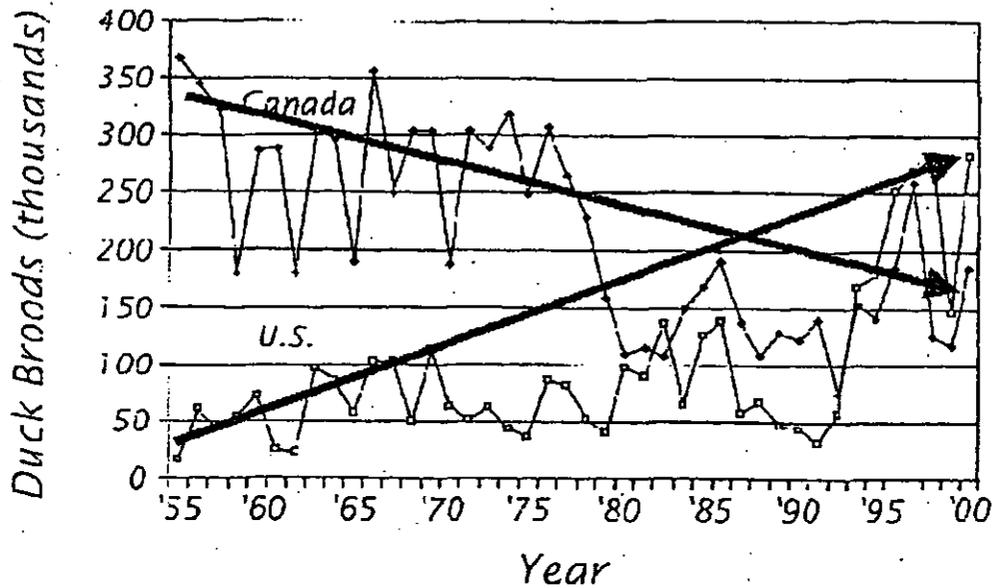


Figure 6. Duck brood estimates for the United States and Canada from 1955 – 2000.

From an ecological standpoint, it is uncertain what long-term impact the removal of mesomammalian predators will have. Will other species become a problem? Will rodents become problems? Presumably this group of animals will increase with the removal of substantial numbers of their predators. In other parts of the breeding range of waterfowl, avian predators are the major factor for loss of production. Will higher rodent populations lead to higher avian predator densities in the long-term?

Finally, in this instance, the monies are not new dollars, rather they are being taken from existing habitat programs. When a predator program stops, the benefits stop. This is unlike a habitat program where habitat is generally geared towards long-term or perpetual management/protection.

Appendix 1. Ducks Calculations

	Factor	Value	Nests/Eggs Produced/ Ducks Hatched/ Ducks Fledged
Production with Predator Control	Size (sq. mi.)	144	
	Nesting Pairs	80	11,520
	Clutch Size	12	138,240
	Nest Success	0.40	55,296
	Fledging Success	0.55	30,413
Production without Predator Control	Size (sq. mi.)	144	
	Nesting Pairs	80	11,520
	Clutch Size	12	138,240
	Nest Success	0.20	27,648
	Fledging Success	0.33	9,124
Additional Ducklings Fledged with Predator Control			21,289
Additional Ducks Produced	Factor	Value	Additional Ducks
	Predator Control	30,413	
	No Control	21,289	
			9,124
Mid-Winter MS Flyway Duck Distribution (1996-00 Mean)	Factor	Value	Proportion
	Total Flyway	6,392,319	100
	Louisiana	3,819,960	60
Harvest Implications	Factor	Value	
	Imm. M. Mallard Harvest Rate	0.17	
	LA Percent of MS Flyway Harvest	0.30	LA Imm. M. Mallard Harvest Rate
			0.05
			LA Additional Bag
	Additional Ducks	9,124	465
			New LA Bag
	LA 2001 Harvest	2,056,857	2,057,322
			Percent Increase
			0.02

LA Seasonal Bag Per Active Hunter	Factor	Value	2001 Seasonal Bag Per Active Hunter
	Active Hunters	86,135	23.9
	LA 2001 Harvest	2,056,857	
Revised Seasonal Bag			2001 Seasonal Bag Per Active Hunter
	Active Hunters	86,135	
	Revised Harvest	2,057,322	23.9

ENFORCEMENT CASE REPORT

JANUARY 2003

REGION 1:MINDEN
18 Agent positions

**PARISHES: BIENVILLE, BOSSIER,
CADDO, CLAIBORNE,
WEBSTER**

TOTAL CASES	77
TOTAL	DESCRIPTION OF CITATION
6	Boating Safety
20	Angling W/O A Resident License
2	Angling W/O A License - Non-Resident
3	Fishing W/O A Resident Cane Pole License
1	Violate Recreational Gear License Regulations
1	Take Game Fish Illegally (Wire Nets)
1	Take/Possess Over Limit Freshwater Game Fish
1	Hunt W/O Resident License
3	Hunt W/Unplugged Gun
1	Hunt, Stand, Loiter On Public Road
1	Hunt W/O A Resident Big Game License
4	Hunt Deer From Public Road
8	Take Illegal Deer Open Season
8	Possession Of Illegally Taken Deer
3	Hunt W/O Hunter's Orange
2	Hunt W/O Muzzleloader License

1	Trap W/O Resident License
2	Violate MGB Treaty Act
1	Hunt MGB W/Unplugged Gun
1	Possession Untagged MGB
1	Using Lead Shot In Area Designated As Steel Shot Zone
1	Field Possession MGB (Closed Season)
1	Wanton Waste Of MGB
1	Take/Possess Over Limit MGB
1	Hunt WMA W/O WMA Permit
2	Littering

WRITTEN WARNINGS:

TOTAL 6	DESCRIPTION OF CITATION
1	Boating Safety
1	Angling W/O License
2	Failure To Wear Hunter Orange
1	Not Abiding By Rules & Reg. On WMA
1	Hunt On WMA W/O WMA Permit

CONFISCATIONS:

CONFISCATION DESCRIPTION
4 woodducks; 2 rod & reel combos; 12 doves; 6 deer; 6 shotguns; 6 wire nets; 1 pintail drake; 1 - 15 hp Yamaha motor; 1 - 9.9 hp Mariner motor.

TOTAL OF EACH CATEGORY FOR REGION 1

TOTAL	DESCRIPTION
6	Boating
00	Commercial Fishing
8	Federal Migratory
2	Littering
1	Miscellaneous
28	Recreational Fishing
32	State Hunting/Trapping
6	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
1	Public Assistance

REGION 2:MONROE
20 Agent positions

**PARISHES: E. CARROLL, JACKSON,
 LINCOLN, MOREHOUSE
 QUACHITA, RICHLAND
 UNION, W. CARROLL**

TOTAL CASES	73
TOTAL	DESCRIPTION OF CITATION
9	Boating
5	Take Illegal Deer In Open Season
4	Hunt Deer From A Public Road
1	Discharge Firearm From Public Road
1	Hunting From A Moving Vehicle
3	Angle Without A Resident License
1	Fail To Comply With Commission Rules and Regulations
3	Possession OF Illegally Taken Deer in Open Season
6	Hunting M.G.B. Illegal Hours
3	Illegal Possession of Alligator
1	Theft of Alligators
2	Use Lead Shot in Area Designated as Steel Shot

1	Possession of Over Limit of Deer
3	Hunt Without Resident Basic License
3	Hunt Without State M.G.B. Stamp
4	Hunt Without Federal Stamp
1	Not Abiding By Rules and Regulations on W.M.A.
2	Possession of Marijuana
1	Possession of Drug Paraphernalia
2	Operate A.T.V. On Public Road
2	Fail to Wear Hunters Orange
1	Hunt Deer Illegal Methods
6	Hunt on W.M.A. Without Permit
3	Hunt With Unsigned Federal Duck Stamp
1	Hunt M.G.B. From A Vehicle
1	Hunt M.G.B. With Unplugged Gun
1	Obtain License or Engage In Activity During Revocation Period

WRITTEN WARNINGS: 4

TOTAL	DESCRIPTION OF CITATION
1	Hunt Without a Resident Basic License
1	Hunt Without a Resident Big Game License
2	Not Abiding By Rules and Regulation on W.M.A.

CONFISCATIONS:

CONFISCATION DESCRIPTION
5- Deer; D.M.A.P. Records and Tags; 1-Woodcock; 1-Shotgun; 1- Rem. 300 Ultra-mag Rifle; 15- Leadshot shells; 3- Unsigned Federal Waterfowl Stamp; 1-Basic Resident Hunting License,1-Resident Big Game License, 1-Bow License, 1-W.M.A. Permit,1-Resident Duck License.

TOTAL OF EACH CATEGORY FOR REGION 2

TOTAL	DESCRIPTION
9	Boating
0	Commercial Fishing
19	Federal Migratory
0	Littering
5	Miscellaneous
3	Recreational Fishing
37	State Hunting/Trapping
4	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
10	Public Assistance (Assisting Stranded Motorists and Boaters)

REGION 3:ALEXANDRIA

PARISHES:AVOUELLES, GRANT
NATCHITOCHE
RAPIDES, SABINE
VERNON, WINN

26 Agent positions

TOTAL CASES	113
TOTAL	DESCRIPTION OF CITATION
1	Boating
1	Hunt MGB W/O State Stamp
1	Using Lead Shot In Area Designated As Steel Shot Only
1	Sell Or Buy Fish W/O Wholesale/Retail Dealer License
2	Take/Possess Undersize Commercial Fish
2	Take/Possess Game Fish Illegally
17	Hunt From Moving Vehicle
14	Hunt Deer From Public Road
5	Not Abiding By Rules And Regulations
1	Hunt Deer Illegal Weapon
10	Hunt Deer Illegal Hours
3	Fail To Wear Hunter Orange
3	Hunt W/O Resident License
3	Hunt W/O Resident Big Game License
3	Hunt W/O Resident License
1	Fail To Comply With Hunter Safety Regulations

2	Hunt Deer Illegal Method
8	Hunt Wild Quads. Illegal Hours
1	Hunt, Stand, Loiter From Public Road
3	Hunt From Public Road
2	Hunt With Unplugged Gun
2	Take Illegal Deer Open Season
1	DMAP Regulations Violation
2	Hunt W/O Muzzel loader License
1	Possess Buckshot During Closed Deer Season
3	Fish W/O Resident Pole License
8	Angling W/O A License
1	Possession Of Marijuana
1	Discharge Firearm From Public Road
7	Operate ATV On Public Road
3	Littering

WRITTEN WARNINGS:

TOTAL	DESCRIPTION OF CITATION
2	Not Abiding By Rules And Regulations
1	Hunt, Stand, Loiter From Public Road

CONFISCATIONS:

CONFISCATION DESCRIPTION
10 rifles, 2 shotguns, 4 spotlights, 2 flashlights, 6 rabbits, 2 pistols, 6 white perch, 6 marijuana cigarettes.

TOTAL OF EACH CATEGORY FOR REGION 3

TOTAL	DESCRIPTION
1	Boating
5	Commercial Fishing
2	Federal Migratory
3	Littering
9	Miscellaneous
11	Recreational Fishing
82	State Hunting/Trapping
2	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
12	Public Assistance

REGION 4:FERRIDAY
24 Agent positions

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

TOTAL CASES	90
TOTAL	DESCRIPTION OF CITATION
3	Boating
1	Hunting W/O A Resident License
2	Hunting W/O A Non- Resident License
5	Failure To Abide By Commission Rules
13	Hunting From A Moving Vehicle
1	Hunting W/Unplugged Gun
3	Hunt Wild Quadrupeds Illegal Hours
3	Hunt From Public Road
1	Hunt MGB W/O State Stamp
1	Use Firearm With W/Illegal Electronic Sights
1	Obtain License Fraudulently
13	Hunt Or Take Deer Illegal Hours With Artificial Light
7	Hunt Or Take Deer From A Public Road
1	Hunt Or Take Illegal Deer Open Season
1	Hunt Or Take Deer W/Illegal Weapon
2	Possess Over Limit Of Deer

6	Fail To Comply W/Hunter Orange Regs.
1	Hunt W/O Muzzleloader License
1	Hunt Ducks W/O Federal Stamp
5	Hunt MGB Illegal Hours
2	Possession Over Limit Of Ducks
3	Not Abiding By Rules And Regs. On WMA
5	Hunt On WMA W/O WMA Permit
4	Illegal Possession Of Drugs And Marijuana
1	DWI
2	Other Than Wildlife And Fisheries
1	Possession Of Firearm By Convicted Felon
1	Flight From An Officer

WRITTEN WARNINGS:

TOTAL	DESCRIPTION OF CITATION
1	Failure to comply with PFD requirements

CONFISCATIONS:

CONFISCATION DESCRIPTION
6 deer; 12 woodducks; 2 rabbits; 1- 9.9 outboard motor; 4 rifles; 2 shotguns; 1 muzzleloader; 3 spotlights

TOTAL OF EACH CATEGORY FOR REGION 4

TOTAL	DESCRIPTION
3	Boating
0	Commercial Fishing
8	Federal Migratory
0	Littering
9	Miscellaneous
0	Recreational Fishing
70	State Hunting/Trapping
1	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
3	Public Assistance

REGION 5: LAKE CHARLES
23 Agent positions

PARISHES: BEAUREGARD, CALCASIEU
EVANGELINE, ALLEN,
CAMERON, ACADIA,
VERMILION, JEFF DAVIS

TOTAL CASES	100
TOTAL	DESCRIPTION OF CITATION
10	Boating
8	Angling W/O A License
3	Angling W/O A Non. Res. License
1	Angling W/O Saltwater License Non. Res.
2	Hntg. W/O Res. License
4	Hntg. From Moving Vehicle &/Or Aircraft
1	Hntg. W/Unplugged Gun Or Silencer
5	Hntg. Wild Quadrupeds &/Or Wild Birds Illegal Hours
5	Hunt, Stand, Loiter From Public Road
2	Poss. Of Buckshot During Closed Deer Season
1	Hntg. W/O Res. Big Game License
2	Hunt Or Take Deer From Public Road
2	Hunt Or Take Illegal Deer Closed Season
4	Fail To Wear Hunter's Orange
2	Poss. Of Illegally Taken Deer Closed Season
5	Hunt/Trap On DMAP Lands W/O Permit From Owner/Lease

1	Take Bobcat Illegally
5	Hntg. Ducks Or Geese W/O Federal Stamp
5	Hntg. MGB W/Unplugged Gun
5	Hntg. MGB Illegal Hours
2	Hntg. MGB Over Baited Area
1	Field Poss. Of Freshly Killed MGB Closed Season
2	Hntg. MGB From Moving Motorboat
4	Using Lead Shot In Area Designated As Steel Season Only
2	Poss. O/L Of Geese (Field Possession)
1	Hntg. Ducks Closed Season
1	Poss. O/L Of Ducks (Field Possession)
4	Hntg. MGB W/O State Stamp
3	Hntg. MGB W/O State Hntg. License
2	Miscellaneous Federal Violations – Aiding and Abetting
1	Littering
1	Operate ATV Vehicle On Public Road
1	Flight From An Officer
2	Discharge Firearm From Public Road

WRITTEN WARNINGS:

TOTAL	1	DESCRIPTION OF CITATION
1		Hntg. W/O Res. License

CONFISCATIONS:

CONFISCATION DESCRIPTION
3 rods; 3 reels; 2 beer cans; 1 bobcat; 2 doe deer; 1 buck knife w/sheath; 21 buckshot shells; 14 lead shot shells; 5 rounds 22 mag shells; 2 boxes 243 rifle shells; 2 spent 270 rifle rounds; 3-22 rifles w/scopes; 2 shotguns; 2-270 rifles; 3 woodducks; 2 pintails'; 1 mallard hen; 1 spoonbill; 1 widgeon; 22 teal; 1 coot; 2 gallinules; 1 sora rail; 1 mottled duck; 1 gadwall; 4 white fronted geese, and 1 snow goose.

TOTAL OF EACH CATEGORY FOR REGION 5

TOTAL	DESCRIPTION
10	Boating
0	Commercial Fishing
37	Federal Migratory
1	Littering
4	Miscellaneous
12	Recreational Fishing
36	State Hunting/Trapping
1	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REGION 6:OPELOUSAS
24 Agent positions

PARISHES: IBERIA, IBERVILLE,
PT.COUPÉE,LAFAYETTE
ST.MARTIN,IBERIA
IBERVILLE,W.B.R.

TOTAL CASES	135
TOTAL	DESCRIPTION OF CITATION
23	Boating
12	Angling W/O License
5	Hunt W/O Resident License
2	Fail To Comply With Hunter Safety Regulations
6	Fail To Wear Hunters Orange
3	Hunt MGB W/O Resident Stamp
2	Hunt W/O Resident Big Game License
1	Possess Overlimit Of Deer Or Bear
2	Hunt On WMA W/O WMA Hunting Permit
3	Transport Of Completely Dressed MGB
4	Not Abiding By Rules/Regulations On WMA
7	Hunt Wild Quadruped Illegal Hours
8	Hunt From a Moving Vehicle
6	Hunt From a Public Road
4	Hunt Or Take Deer Illegal Hours Or With Artificial Light

1	Fail To Have Vessel License In Possession
1	Take Rabbits Illegal Methods
1	Trap Or Sell FBA Or Parts W/O Resident License
1	Hunt From Public Road Or Right-Of-Way
2	Hunt Or Take Illegal Deer Open Season
1	Take/Possess Spotted Fawn
1	Possession Of Illegal Taken Deer or Bear Open Season
1	Hunt From A Levee Road
3	Littering
1	Not Abiding By Rules/Regulations On WMA
1	Angling W/O Non-Resident License
3	Hunt Ducks W/O Federal Stamp
5	Hunt MGB Illegal Hours
3	Hunt MGB Over Baited Area
3	Use Leadshot In Area Designated As Steel Shot Only
2	Hunt MGB With Unplugged Gun
1	Take Or Possession Of Other Non-Game Birds – No Season
4	Fail To Maintain Records
1	Fail To Report Commercial Fish Data
1	Taking Robins – No Season

3	Fish W/O Resident Pole License
2	Failure To Abide By Commission Rules
1	Hunt W/O Muzzleloader License
1	Removing Contents Of Crab Traps
1	Possession Of Live Alligator W/O Permit
1	Field Possession Of Deer Meat W/O Tag
1	Fail To Maintain Sex ID

WRITTEN WARNINGS:

TOTAL 12	DESCRIPTION OF CITATION
1	Fail To Abide By Commission Rules/Regulations
1	Not Abiding By Rules And Regulations On WMA
2	Use WMA W/O License Or Stamp
2	Fail To Comply With Hunter Safety Regulations
2	Hunting W/O Resident License
1	Fail To Wear Hunters Orange
1	Angling W/O License
1	Hunt W/O Resident License
1	Hunt W/O State Stamp

CONFISCATIONS:

CONFISCATION DESCRIPTION
1 permission slip, 3 crab traps, 1 robin, 1 woodduck, 1 warbler, 3 dressed ducks, 2 rabbits, 1 shotgun, 1 rabbit trap, 6 deer, 1 q-beam, 1 rod and reel, 40 shotgun shells, 1 box of leadshot shells, 8 DMAP tags, 2 jaw bones, 3 empty shotgun shells, 1 alligator.

TOTAL OF EACH CATEGORY FOR REGION 6

TOTAL	DESCRIPTION
23	Boating
7	Commercial Fishing
21	Federal Migratory
3	Littering
7	Miscellaneous
16	Recreational Fishing
58	State Hunting/Trapping
12	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REGION 7:BATON ROUGE

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

22 Agent positions

TOTAL CASES	111
TOTAL	DESCRIPTION OF CITATION
9	Boating
6	Angling w/o Basic Resident License
2	Angling w/o Basic Non-Resident License
9	Hunting w/o Basic Resident License
7	Hunting w/o Big Game License-Resident
2	Hunting w/Un-plugged Gun
2	Hunting w/o Muzzleloader License-Resident
22	Fail to Wear w/Hunters Orange
5	Violate D-map Rules and Regulations
5	Hunt on W.M.A. w/o Permit
1	Obtain License by Fraud
3	Hunt from a Moving Vehicle
1	Hunt from a Public Road
6	Hunt Deer from a Public Road
3	Hunt Deer Illegal Hours

4	Take Illegal Deer Open Season
1	Possess Over Limit of Deer
1	Take Deer While Swimming
1	Possess Illegally Taken Deer Open Season
1	Hunt Deer w/Illegal Weapon
1	Possess Live Non-Game Quadruped w/o Permit (Bobcat)
2	Spotlighting from a Public Road
2	Criminal Trespass
15	Violate Rules and Regulations on W.M.A.

WRITTEN WARNINGS:

TOTAL	DESCRIPTION OF CITATION
7	
1	Fishing w/o Resident License
2	Boating
1	Hunt w/o W.M.A Permit
1	Hunt w/o Big Game License
2	Violate Rules and Regulations on W.M.A.

CONFISCATIONS:

CONFISCATION DESCRIPTION
7 deer, 4 rifles, 1 bobcat, 1 light and 4 licenses.

TOTAL OF EACH CATEGORY FOR REGION 7

TOTAL	DESCRIPTION
9	Boating
0	Commercial Fishing
0	Federal Migratory
0	Littering
2	Miscellaneous
9	Recreational Fishing
91	State Hunting/Trapping
7	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
1	Public Assistance: Pull Vehicle Out of a Ditch on Sandy Hollow W.M.A.

REGION 8:NEW ORLEANS
18 Agent positions

PLAQUEMINE, ST. BERNARD,
ORLEANS, JEFFERSON
ST. CHARLES

TOTAL CASES	194
TOTAL	DESCRIPTION OF CITATION
23	Boating
16	Angling W/O A License
4	Angling W/O A License Non-Resident
3	Angling W/O Saltwater Lic.
4	Take/Poss. O/L Red Drum (On Water)
1	Possess over 10 Red Drum (Off Water)
1	Take/Poss. Red Drum in Federal Waters
1	Fail to Have Fish Intact (Saltwater)
3	Take or Poss. Undersized Red Drum (Recreational) 16" Minimum
1	Take or Poss. Undersized Black Drum(Recreational) Commission Action
1	Commission Rules and Regs. Red Snapper (Recreational) Specify Violation
1	Take or Poss. O/L Black Drum (Recreational) Commission Action
1	Commission Rules and Regs. Tuna (Commercial) Specify Violation
2	Take or Sell Commercial Fish W/O Comm. Lic.
2	Take Commercial Fish W/O Comm. Gear Lic.
3	Take or Poss. Commercial Fish W/O Vessel Lic.

2	Fail to Maintain Records
3	Use Saltwater Net Illegally
1	Buy Commercial Fish from Un-Lic. Fisherman
1	Take/Possess Undersized Black Drum Commercial
46	Unlawfully Take Oysters From State Water Bottoms
3	Take Oysters From Unapproved Area (polluted)
6	Failure to Display Proper Number on Vessel
1	Failure to Tag Sacked Oysters
1	Possession of Untagged Oysters
1	Harvest Oysters W/O Oyster Harvester License
1	Violation of Sanitary Code
6	Hunting W/O Resident Lic.
2	Possess Wild Quadruped W/O A Lic.
5	Failure to Abide By commission Rules
1	Hunting From Moving Vehicle
2	Hunting w/unplugged Gun
5	Hunt Wild Quadrupeds Illegal Hours
1	Hunt Across Public Road
2	Possess buckshot closed season
2	Running Deer Dogs During Still Hunt Season

1	Hunt Deer Illegal Hours
1	Hunting Ducks W/O Federal Stamp
1	Hunting MGB With Unplugged Gun
3	Hunting MGB Illegal Hours
1	Field Possession of Freshly Killed MGB Closed Season
1	Using Lead Shot In Area Designated As Steel Shot Only
3	Hunting Ducks Closed Season
1	Possess Over Limit of Ducks
1	Hunt MGB Without State Duck Stamp
1	Hunt MGB Without State Hunting License
2	No Hunting Permit(Federal)
2	Hunting Closed Season (Federal)
2	Hunt in Closed Area of Refuge (Federal)
2	Hunt with buckshot on federal refuge(Federal)
2	Criminal Trespass
3	Littering
3	Other Than Wildlife and Fisheries
5	Hunt WMA W/O Permit

WRITTEN WARNINGS:

TOTAL 3	DESCRIPTION OF CITATION
3	Boating

CONFISCATIONS:

CONFISCATION DESCRIPTION
<p>Returned to water-420 oyster sacks, 5 perch, 5 sheepshead, 1 black drum, Destroyed-4 oyster pints, and 1 deer. Donated-34 red drum, 3-14 lbs. of fillets, 4 gar fish, 3 red snapper, 8 ducks, 1 deer, 1 rabbit, 17 nutria, 4 black drum. Other-5 jug lines, 1 gill net, 1 boat and 2 motors, 1 pirogue, .22 rifle, 4 shotguns, 4 rod and reels, 4 oyster dredges, 1 headlight, 12 battery volt, 1 sales receipt book, and 4 trip tickets.</p>

TOTAL OF EACH CATEGORY FOR REGION 8

TOTAL	DESCRIPTION
23	Boating
74	Commercial Fishing
21	Federal Migratory
3	Littering
15	Miscellaneous
36	Recreational Fishing
22	State Hunting/Trapping
3	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
5	Public Assistance

REGION 9: SCHRIEVER

25 Agent positions

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

TOTAL CASES	155
TOTAL	DESCRIPTION OF CITATION
42	Boating
36	Angling Without A License
2	Angling Without A Non-Resident License
18	Angling Without A Saltwater License
2	Angling Without A Non-Resident Saltwater License
1	Possess Freshwater Trout Without Freshwater Trout License
1	Take Over Limit Black Drum (Recreational)
2	Take Undersized Red Drum
3	Take Undersized Black Drum (Recreational)
1	Take Game Fish Illegally (Red Drum On Commercial Set Line)
1	Buy Fish Without Wholesale/Retail/Dealer's Resident License
2	Fail To Maintain Records
2	Failure To Have Written Permission
2	Taking Oysters From Unapproved Area (Polluted)
3	Hunting Without Resident License

1	Hunting Without Non-Resident License
2	Hunting With Unplugged Gun
1	Hunt Wild Quadrupeds Illegal Hours
4	Fail To Wear Hunter's Orange
2	Hunt Without Resident Big Game License
1	Hunt Without Non-Resident Big Game License
1	Hunting Ducks Without Federal Stamp
1	Wanton Waste Of MGB
3	Using Lead Shot In Area Designated As Steel Shot Only
1	Hunting Ducks Closed Season
4	Possess Over Limit Of Ducks (Field Possession)
1	Hunting Rails Closed Season
2	Hunting Gallinules Closed Season
1	Taking Robins (No Season)
3	Littering
1	Possess Firearm Of Convicted Felon
1	Contributing to Delinquency Of Minor
1	Not Abiding Rule And Regulations By Hunting Under Influence Of Alcohol
5	Not Abiding Rules And Regulations By Carrying Loaded Weapon While Vessel Underway
1	Not Abiding Rules And Regulations By Hunting From Permanent Blind

WRITTEN WARNINGS:

TOTAL 17	DESCRIPTION OF CITATION
6	Angling Without A License
3	Angling Without Saltwater License
7	Boating
1	Hunt Without Muzzleloader License (Resident)

CONFISCATIONS:

CONFISCATION DESCRIPTION
1 rabbit, 1 deer, 15 gallinules, 30 black drum, 16 red drum, 11 dozen oysters, 1 teal duck, 14 scaup, 57 dressed robins, 1 pin tail duck, 1 shotgun, 1 beverage bottle, various lead shots.

TOTAL OF EACH CATEGORY FOR REGION 9

TOTAL	DESCRIPTION
42	Boating
7	Commercial Fishing
15	Federal Migratory
3	Littering
8	Miscellaneous
66	Recreational Fishing
14	State Hunting/Trapping
17	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
2	Public Assistance

OYSTER STRIKE FORCE
3 Agent positions

COASTAL WATERS

TOTAL CASES	62
TOTAL	DESCRIPTION OF CITATION
6	Boating
1	Take Or Possess Commercial Fish W/O A Commercial License
1	Take Or Possess Commercial Fish W/O A Commercial Gear License
3	Unlawfully Take Oysters From Private Lease
3	Failure To Have Written Permission
19	Unlawfully Take Oysters From State Water Bottoms
3	Take Oysters From An Unapproved Area
4	Failure To Display Proper Number On Vessel
1	Harvest Oysters W/O An Oyster Harvester License
5	Angling W/O A Basic License
5	Angling W/O A Saltwater License
3	Take Or Possess Undersize Red Drum
2	Take Or Possess Undersize Black Drum
1	Take Or Possess Game Fish Illegally
1	Hunting W/O Resident License
1	Hunt MGB C/S

1	Wanton Waste Of MGB
2	Hunt Gallinules C/S

WRITTEN WARNINGS:

TOTAL 0	DESCRIPTION OF CITATION
0	

CONFISCATIONS:

CONFISCATION DESCRIPTION
4 oyster dredges, 127 sacks of oysters, 1 pintail and 15 gallinules.

TOTAL OF EACH CATEGORY FOR OYSTER STRIKE FORCE

TOTAL	DESCRIPTION
6	Boating
35	Commercial Fishing
2	Federal Migratory
0	Littering
0	Miscellaneous
16	Recreational Fishing
3	State Hunting/Trapping
0	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

SEAFOOD INVESTIGATIVE UNIT
8 Agent positions

STATEWIDE

TOTAL CASES	42
TOTAL	DESCRIPTION OF CITATION
6	Buy/Sell Fish W/O A Wholesale/Retail Seafood Dealer's License
16	Fail To Maintain Records
1	Fail To Comply With Game Fish Shipping Regulations
1	Fail To Report Commercial Fisheries Data
8	Violation Of Federal Lacy Act
1	Take/Sale Commercial Fish Or Bait Species W/O Commercial License
1	Take Commercial Fish W/O Gear License
1	Take/Possess commercial Fish W/O Vessel License
1	Violation Of Sanitation Code (Oysters)
1	Failure To Fill Out Oyster Tags Properly
1	Transport W/O Required License
3	Sell/Buy W/O Retail Seafood Dealer's License
1	Buy From Unlicensed Non-Resident Dealer

WRITTEN WARNINGS:

TOTAL 0	DESCRIPTION OF CITATION
0	

CONFISCATIONS:

CONFISCATION DESCRIPTION
3 cobia sold for \$105.60, 3 containers of oysters destroyed, and 60 sacks.

TOTAL OF EACH CATEGORY FOR SEAFOOD INVESTIGATIONS UNIT

TOTAL	DESCRIPTION
0	Boating
42	Commercial Fishing
0	Federal Migratory
0	Littering
0	Miscellaneous
0	Recreational Fishing
0	State Hunting/Trapping
0	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

S.W.E.P.
8 Agent positions

COASTAL WATERS

TOTAL CASES	50
TOTAL	DESCRIPTION OF CITATION
2	Boating
2	Angling W/O A License
1	Angling W/O Saltwater License
2	Take Commercial Fish W/O Commercial License
2	Take Commercial Fish W/O Commercial Gear License
2	Take Commercial Fish W/O Commercial Vessel License
3	Violate Commission Rules And Regs. Possession Undersize Cobia
1	Violate Commission Rules And Regs. Possession Overlimit Cobia
1	Violate Commission Rules And Regs. Possession Overlimit Shark
1	Fail To Keep Saltwater Fish Intact
1	Possession Undersize Black Drum
1	Possession Overlimit Of Black Drum
1	Possession Overlimit Of Red Drum
1	Drive Motor Vehicle W/O Insurance
1	Drive Motor Vehicle W/O License Plate
1	Drive Motor Vehicle W/O Registration

1	Drive Motor Vehicle W/O Registration
1	Fail To Comply With Federal Law In EEZ Overlimit of Cobia
2	Fail To Comply With Federal Law In EEZ Poss. Red Snapper C/S
3	Unlawfully Take Oysters From State Water Bottoms
3	Failure To Have Written Permission
3	Unlawfully Take Oysters Off Of Private Lease
1	Failure To Tag Sacked Oysters
2	Field Possession Of Freshly Killed MGB C/S
2	Not Hunting Permit On WMA
2	Hunting In Closed Season
2	Hunting Deer Closed Season On WMA
2	Using Buckshot On WMA
4	Take Federally Controlled Fish In C/S

WRITTEN WARNINGS:

TOTAL 0	DESCRIPTION OF CITATION
0	

CONFISCATIONS:

CONFISCATION DESCRIPTION
3 ducks, 52 sacks of oysters returned to water, 498 lbs. of cobia sold for \$498.00, 14 lbs. of tuna filets, 2,111 lbs. of shrimp sold for \$3,451.55, 387 lbs. of red snapper, 7 red drum, 28 black drum, 6 red snapper, 1 shark, 2 cobia.

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

TOTAL	DESCRIPTION
2	Boating
23	Commercial Fishing
10	Federal Migratory
0	Littering
7	Miscellaneous
8	Recreational Fishing
0	State Hunting/Trapping
0	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REFUGE PATROL
8 Agent positions

**MARSH ISLAND,
ROCKEFELLER, STATE
WILDLIFE**

TOTAL CASES	28
TOTAL	DESCRIPTION OF CITATION
10	Boating
5	Take Or Possess Federally Controlled Fish Closed Season (Redsnapper)
1	Violate Federal Fisheries Law In EEZ (Take Redsnapper C/S)
1	Violate Commission Rules And Regs. (Take Overlimit Of Shark)
1	Driving On Right Side Of Highway And left Of Center
1	Hunt MGB With Unplugged Gun
2	Hunt MGB Illegal Hours
2	Hunt Ducks W/O Federal Stamp
2	Hunt MGB W/O State Stamp
2	Use Lead Shot In Area Designated As Steel Shot Only
1	Removing Contents Of Crab Traps W/O Permission Of Owner

WRITTEN WARNINGS:

TOTAL 3	DESCRIPTION OF CITATION
1	Improper or no fire extinguisher
2	Fail to comply with P.F.D. requirements(No Type IV throwable)

CONFISCATIONS:

CONFISCATION DESCRIPTION
2-ducks (donated), 1-shotgun shell, 3-crab traps, 201 Redsnapper and 1-shark.

TOTAL OF EACH CATEGORY FOR REFUGE PATROL

TOTAL	DESCRIPTION
10	Boating
8	Commercial Fishing
9	Federal Migratory
0	Littering
1	Miscellaneous
0	Recreational Fishing
0	State Hunting/Trapping
3	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
8	Public Assistance Assisted stranded boaters, towed to safe harbor.

TOTAL CASES

-1048

NOTE: WRITTEN WARNINGS =52

ENFORCEMENT AVIATION REPORT
JANUARY, 2003

185-Amph. - 61092
Hrs. - 45.0

185-Float - 9667Q
Hrs. - 20.3

210 - 9467Y
Hrs. - 15.3

Enforcement Hours - 52.4

Other Divisions - 28.2

Total Plane Use - 80.6

State of Louisiana



James H. Jenkins, Jr.
Secretary

Department of Wildlife and Fisheries
5652 La. Hwy. 182
Opelousas, LA 70570
(318)948-0255

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

February 5, 2003

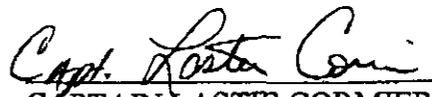
To: Col. Winton Vidrine
From: Captain Lastie Cormier
Re: Six Point Commission Action

For the 2002-2003 deer hunting season a total of 6 cases were made by Region VI Enforcement agents for taking illegal deer that did not fall into the criteria of a legal buck under the six point commission rule for Pt. Coupee, West Baton Rouge and Iberville Parishes.

The greatest enforcement problem the agents are encountering are trying to determine where deer are being harvested. The parish lines between Iberville and St. Martin parishes are not distinct and several hunting clubs encompass land in both parishes. Deer harvested in St. Martin parish are brought back to camps in Iberville parish. Once a deer reaches camp it is almost impossible to prove where this deer was harvested.

A very high percentage of calls received in the Region VI office are not in favor of the six point rule. I feel a large percentage of hunters were not aware of the meetings that were being held or did not understand what the ruling would mean to them as hunters.

Agents in Region VI also confiscated DMAP tags from 3 DMAP cooperators for tagging violations. All three clubs opted not to have an administrative hearing and stated they would drop out of the program.


CAPTAIN LASTIE CORMIER

RESOLUTION

ATCHAFALAYA DELTA WILDLIFE MANAGEMENT AREA adopted by the Louisiana Wildlife and Fisheries Commission

February 6, 2003

- WHEREAS, Atchafalaya Bay is a major wintering and staging area for waterfowl and other neotropical migrants, and annually attracts hundreds of thousands of ducks and geese, and is also an important fisheries estuary and nursery waters for a wide variety of fish and other aquatic organisms, and
- WHEREAS, Atchafalaya Bay is owned by the state, in trust for the benefit of the citizens of the State, and is a prime waterfowl hunting and fishing area for many of Louisiana's hunters and fishermen, and
- WHEREAS, Atchafalaya Bay is comprised of more than 125,000 acres, the vast majority of which, about 90%, is water bottom, with the rest, or more than 12,000 acres, being land formed by accretion, and
- WHEREAS, since 1977, the entirety of Atchafalaya Bay, both the water bottom and the accreted land, has been actively managed by the Department of Wildlife and Fisheries and the Wildlife and Fisheries Commission as the Atchafalaya Delta Wildlife Management Area, and
- WHEREAS, in order to ensure that these properties remain perpetually dedicated for the purpose of maintaining such properties as a wildlife management area, the Wildlife and Fisheries Commission, at its December 6, 2001 meeting passed a resolution confirming that all state owned lands, including water bottoms, located within Atchafalaya Bay, as more particularly described on Exhibit A to that Resolution, were included within a wildlife management area named the Atchafalaya Delta Wildlife Management Area.
- WHEREAS, the Wildlife and Fisheries Commission, at its December 6, 2001 meeting authorized and empowered the Secretary of the Department of Wildlife and Fisheries, on behalf of the Commission, to take all actions necessary in furtherance of confirming the establishment the Atchafalaya Delta Wildlife Management Area. Based on this authority, the Secretary and the Chairman of the Commission executed a lease document by and between the Governor of Louisiana, the Commissioner of Administration, the State Land Office, the Department of Natural Resources, the Wildlife and Fisheries Commission, and the Department of Wildlife and Fisheries, which lease document further confirms that the above described area does constitute a wildlife management area. This lease document is attached hereto and made a part hereof.

THEREFORE BE IT RESOLVED, that the Wildlife and Fisheries Commission does hereby approve, ratify, and confirm the above described lease document and the provisions contained therein and the authority of the Secretary of the Department of Wildlife and Fisheries and the Chairman of the Commission to sign the lease document on behalf of the Commission.



Terry D. Denmon, Chairman
Wildlife and Fisheries Commission



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

UNITED STATES OF AMERICA

STATE OF LOUISIANA

PARISH OF EAST BATON ROUGE

BE IT KNOWN, that on this 16th day of January, 2003, the State of Louisiana, acting through M. J. "Mike" Foster, Jr., Governor of the state of Louisiana, Mark C. Drennen, Commissioner of Administration, Jack C. Caldwell, Secretary of the Department of Natural Resources, and Charles R. St. Romain, Administrator of the Office of State Lands, (hereinafter cumulatively referred to as LESSOR), and the Department of Wildlife and Fisheries, represented by James H. Jenkins, Jr., Secretary of the Department of Wildlife and Fisheries, and the Wildlife and Fisheries Commission, herein represented by Terry D. Denmon, Chairman of the Wildlife and Fisheries Commission, (hereinafter cumulatively referred to as LESSEE), do hereby make and enter into the following agreement under provisions of Act No. 565 of the 1977 Regular Session of Louisiana Legislature:

I.

That the LESSOR is the owner of the following described property situated in the Parish of St. Mary, State of Louisiana, to wit:

A certain portion of Atchafalaya Bay, belonging to the State of Louisiana and designated an "arm of the sea" by L.S.A. R.S. 38:2356 M (2) including all present or former beds and areas of navigable waters or the shores within the area hereafter described, and also, but not by limitation, all islands except those islands, if any, which may be owned or leased by the United States government or its agencies, and all present and future depositions of shell, sand, or silt and present or future emerging lands created thereby; which portion of Atchafalaya Bay is bounded by a line described more fully, to wit:

From a point, with Louisiana Plane Coordinate System, South Zone coordinates of X=1,930,619 ft., Y=309,763 ft., which marks the mean low water line of the extreme tip of Point Chevreuil in St. Mary Parish, T-17-S, R-9-E, as depicted on Map No. 3 of 5, entitled "Point Chevreuil" of the Set of 54 Maps of the Louisiana Coast, submitted into evidence as Exhibit No. 119 in Number 9 Original, United States of America v. State of Louisiana, et al., {which set of maps is hereinafter referred to as the "Set of 54 Maps"}, thence to the mean high water mark of the extreme tip of Point Chevreuil, which is the point of beginning; thence from the point of beginning, proceed northeasterly along the mean high water line to the westernmost entrance point of the Wax Lake Outlet; thence in a straight line across the mouth of Wax Lake Outlet to Belle Isle Point; thence following the mean high water line, easterly, closing off all bayous, to the easternmost point of Shell Island; thence by a straight closing line across the Atchafalaya River to the northernmost headland of Deer Island Bayou; thence closing the mouth of Deer Island Bayou to the tip of the southern headlands; thence following the mean high water line to the northernmost headland of Four League Bay, thence southerly by straight closing line across Four League Bay to the northernmost point of South Point; thence following the mean high water line along the coast to Point au Fer to that point with the assigned coordinates of X=1,993,420 ft., Y=241,930 ft., depicted on Map No. 1 of 5, "Point au Fer," of the "Set of 54 Maps;" thence along a line connecting said point on Point au Fer with a point on

Mound Point on Marsh Island with the coordinated of X=1,845,475 ft., Y=293,595 ft., depicted on Map No. 4 of 5, "Marsh Island S.E." of the "Set of 54 Maps," to that point where said line between Point au Fer and Mound Point intersects a north-south line with a constant coordinate value of X=1,930,619 ft., on the Louisiana Plane Coordinate System, South Zone; thence north to the point of the mean low water line of Point Chevreuil with coordinates of X=1,930,619 ft., Y=309,763 ft., described herein above; thence to the point of beginning; which points, and mean high water line constituting the boundaries of the Atchafalaya Delta Wildlife Management Area are depicted on the "Set of 54 Maps" identified herein, which maps are made a part hereof by specific reference.

II.

That the LESSOR, in consideration of the benefits, uses and advantages, accruing to LESSOR by reason of the LESSEE establishing and locating a Wildlife Management Area on the above described property, and by reason of the development, improvement, preservation and protection of said above described property in their natural state for the propagation of wild game life at the expense of the LESSEE in accordance with existing laws, DOES HEREBY LEASE AND LET THE said above described property for the purpose of establishing a Wildlife Management Area under the jurisdiction of LESSEE for a period of 25 years, beginning at 12:01 a.m. on the 1st day of July, 2003, and ending at midnight on the 30th day of June, 2028, unto the LESSEE here present, accepting and acknowledging delivery and possession thereof (hereafter "leased area"). The LESSEE shall use and maintain the leased area as a wildlife management area for the benefit of the citizens of the state.

III.

That as a further consideration for the leasing and letting of the leased area, and in furtherance of their development, improvements, preservation and protection in their natural state, as well as in the supervision and management of wild game life thereon, LESSEE shall:

- (a) post and erect signs where feasible, to adequately designate the boundaries of said Wildlife Management Area located on the leased area;
- (b) prohibit unauthorized trespassing upon the leased area, subject only to the use by the LESSOR, its agents and representatives, in any normal operation of the leased area;
- (c) patrol and supervise for game management purposes the leased area through duly authorized wildlife management area supervisors or wardens, wildlife agents or other commissioned Department employees;
- (d) undertake habitat improvement programs where feasible for the purpose of maintaining and improving the productiveness of the leased area for fish and wildlife;

(e) exercise exclusively through its commissioned employees, the supervision, management and operations of restocking and protecting, as well as the utilization and removal of any wild game life by public hunting, trapping or other means to and from the leased area;

(f) establish regulations relating to the use and possession of firearms by any person during closed season on the leased area, unless said person be a commissioned employee of the Department of Wildlife and Fisheries or representative of LESSEE, or a party specially authorized by LESSEE to go upon the leased area, and to carry, possess and use firearms while on the leased area;

(g) prohibit dogs within the boundaries of the leased area except as prescribed by LESSEE;
and

(h) direct the manner of utilization and removing of any wild game on the leased area.

IV.

Nothing herein shall be construed as preventing LESSOR from leasing any of the leased area for the exploration or production of minerals; provided that such leases shall recognize the prevailing use of the leased area as a wildlife management area under the jurisdiction of LESSEE and shall provide reasonable restrictions on such mineral activity to assure compatibility therewith. In accordance with La. R.S. 56:631, all revenue derived from trapping leases or the sale of furs or mineral leases or exploitation in any way of the mineral resources within the leased area are dedicated to the Louisiana Wildlife and Fisheries Commission to be used for the protection, maintenance, operation, and development of wildlife management areas, wildlife refuges, public shooting grounds, outdoor recreation areas or for the acquisition of other such areas. Pursuant to this dedication, LESSOR provides that the funds remitted to LESSOR under the terms of existing and future mineral leases which are paid to the Office of Mineral Resources, the Register of the State Land Office, or those otherwise endorsed or processed by the Secretary of the Department of Natural Resources pursuant to his general authority, in accordance with La. R.S. 30:136, be disposed, transferred, remitted or otherwise directed to the Conservation Fund (La. Const. Art. VII, § 10-A).

V.

The LESSOR, pursuant to La. R.S. 41:1173, reserves the right to grant rights-of-way across the leased area whenever the rights-of-way pass through the area and originate from outside the leased area; recognizing at all times, the prevailing use of the leased area as a wildlife management area and the necessity to provide reasonable restrictions on such activity to assure compatibility therewith. All revenue derived from rights-of-way originating from outside the leased area and not

associated with the exploitation of mineral resources within the leased area shall be deposited in the State Treasury.

VI.

It is mutually understood and agreed that the RIGHT of the State of Louisiana and/or the United States Army, Corps of Engineers to perform all works necessary for the maintenance of flood control and stream navigability IS RETAINED and that this right is considered paramount and shall take precedence over all others. Further, it is understood and agreed that the LESSEE is PROHIBITED from performing any work, the result of which, would obstruct, diminish or in any manner interfere with the free flow of water located within the leased area.

VII.

It is mutually agreed by and between the LESSOR and the LESSEE that:

(a) Lease Contract No. 1132 entered into on December 16, 1977, by the State of Louisiana, acting through William C. Huls, Secretary, Department of Natural Resources, and J. Burton Angelle, Secretary, Department of Wildlife and Fisheries, was extended on September 1, 2002, to remain in effect until midnight on June 30, 2003;

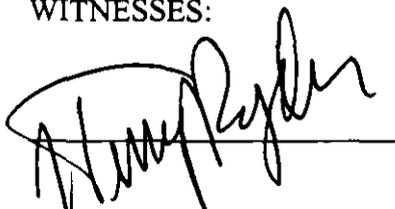
(b) the scope of jurisdiction, supervision, management, operation and control of the leased area by LESSEE is limited to the terms of this lease unless otherwise provided for by law;

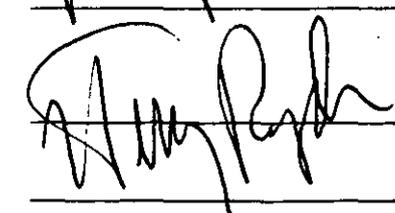
(c) upon the termination of this agreement the LESSEE shall have the right to remove any and every improvement, installed by LESSEE (of a movable nature) including the wild game located on the leased area.

Should said property not be used by the LESSEE for the purpose above stated during the period of said lease, the lease shall lapse and no rights there under shall hereafter be vested in the LESSEE.

IN WITNESS WHEREOF the parties hereto have signed these presents on the day and date hereinabove set forth and in the presence of the undersigned witnesses after due reading of the whole.

WITNESSES:





LESSOR, STATE OF LOUISIANA, through,



GOVERNOR, STATE OF LOUISIANA, LESSOR



COMMISSIONER, DIVISION OF ADMINISTRATION,
LESSOR

Jeri P. Ricks
Katie Polichansky

Paul Johnson
SECRETARY, DEPARTMENT OF NATURAL
RESOURCES, LESSOR

Amita Bech
William W. Kosog

Charles H. McManis
ADMINISTRATOR, STATE LAND OFFICE, LESSOR

LESSEE, through,

Jeri P. Ricks
Katie Polichansky

Maria D.
SECRETARY, DEPARTMENT OF WILDLIFE AND
FISHERIES, LESSEE

Jeri P. Ricks
Matt Busby

Joseph J. ...
CHAIRMAN, WILDLIFE AND FISHERIES
COMMISSION, LESSEE

RESOLUTION

2003 Closure of State Outside Waters to Shrimping
adopted by the
Louisiana Wildlife and Fisheries Commission
February 6, 2003

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Louisiana Wildlife and Fisheries 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 saltwater 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 state outside waters, water temperatures remain below 15 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 state outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters,

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of state outside waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W, at 6 a.m. on Monday, February 10, 2003.

BE IT FURTHER RESOLVED, that that portion of state outside 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 U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W shall reopen to shrimping at 6 a.m. on Monday, April 14, 2003.

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 remaining state outside 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 special seasons for the harvest of white shrimp in any portion of the State's inside waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing state outside waters is attached to and made a part of this resolution.



Terry D. Denmon, 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 state outside waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that portion of state outside waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude $29^{\circ} 03' 10''$ N and longitude $90^{\circ} 50' 27''$ W. This closure is effective at 6 a.m., Monday, February 10, 2003. The Commission also hereby orders that that portion of state outside waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude $29^{\circ} 03' 10''$ N and longitude $90^{\circ} 50' 27''$ W 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 14, 2003.

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 state outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters. This action is being taken to protect these small white shrimp and provide them the opportunity to grow to a larger and 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 remaining state outside 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 special seasons for the harvest of white shrimp in any portion of state inside waters where such a season would not detrimentally impact small brown shrimp.

Terry D. Denmon

Chairman

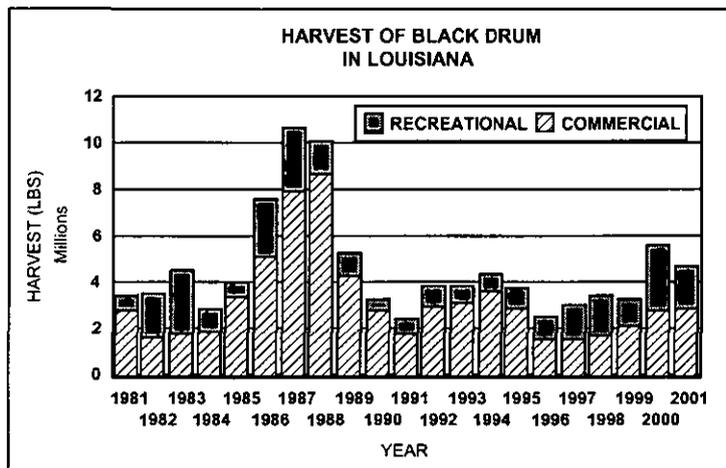
BLACK DRUM SUMMARY OF CHANGES FROM 2002 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2002 assessment conducted for black drum.

- There are no substantive changes in methods from the 2002 assessment.

2003 DOCUMENT HIGHLIGHTS

- The 2001 combined commercial and recreational harvest of 4,729,491 pounds was the second highest recorded since 1989. It was 895,675 pounds lower than 2000's thirteen year high.
- 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 44%. An M of 0.15 or 0.2 would indicate a more lightly fished stock with yield being 66% to 45% of maximum and with SPR being 57% to 66% respectively.
- 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.
- As a result of having several years of commercial trip ticket data, and collecting recreational fishery statistics data, the department was able to begin a program to representatively sample fishery dependent otoliths in 2002. The program uses trip ticket data and recreational survey data to weight sampling sites for the collection of otoliths for the species of interest. It is expected that this method of otolith sampling will improve stock assessments by providing more accurate annual catch-at-age data.



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 estimate 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 et al. (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. (1990) from fish harvested in Louisiana was used in this assessment. The equation is as follows:

$$W = (1.14 * 10^{-5}) FL^{3.05}$$

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. The current assessment uses yield-per-recruit and SPR analysis to estimate the impact of fishing on spawning potential.

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 Nieland et al. (1993) were used to estimate spawning potential. The equation is as follows:

$$BF = 49,249 * Age + 530,052$$

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), $F_{20\%SPR}$ (fishing mortality that produces 20% SPR), $F_{30\%SPR}$ (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 by Act 1316 in 1995 may have reduced harvest even further as evidenced from 1996 - 1999; however, landings are increasing, and approaching 1995 landing level. Commercial landings prior to 1991 was obtained from the National Marine Fisheries Service's (NMFS) General Canvass Landing Program, from 1991 through 1998 it was collected by the Louisiana Department of Wildlife and Fisheries' (LDWF) Monthly Dealer Reports and from 1999 to present LDWF's "Trip Tickets" program is utilized to gather this type of data.

Harvest from the recreational fishery collected through the NMFS's Marine Recreational Fishery Statistics Survey fluctuated, between 0.5 and 2.7 million pounds, for the years prior to regulation (1981-1988), and 0.4 to 2.7 million pounds post-regulations (Figure 5.2). Recreational harvest since regulations were implemented in 1989 have remained relatively stable through 1995. Recent harvest (1996-2000) shows an increasing trend. 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 (1981-2001), 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, 1998, 1999, 2000, and 2001. Fisheries dependent recreational landings data is collected through the NMFS's Marine Recreational Fisheries Statistical Survey and currently collected by LDWF Biologists.

Catch-per-effort data from the Department's, fishery-independent trammel net (750' x 6' - 1 5/8" inner, 6" outer wall) and small mesh bag seine (50' - 1/4" delta mesh) samples were calculated as follows:

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

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 1986-2002. 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, 1999 and 2000. 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, 1999, 2000, 2001, and 2002.

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 legal commercial gear to harvest black drum was limited to trawl, set lines and hook and line. 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 44%. An M of 0.15 or 0.2 would indicate a more lightly fished stock with yield being 66% to 45% of maximum and with SPR being 57% to 66% respectively (Table 5.1).

Current regulations are as follows: 16 inches minimum total length and 5 fish per person daily bag and possession limit with not more than one exceeding 27 inches for recreationally harvested black drum. For commercially harvested black drum there is a 16 inch minimum total length and an annual harvest quota of 3.25 million pounds for black drum measuring 16-27 inches total length and annual harvest of 300,000 fish measuring longer than 27 inches total length with the fishing year beginning September 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.

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 =	0.982	3.0260	1,659,670	23.80%	100.00%	Benchmarks
F0.1 =	0.260	2.4809	3,902,316	55.96%	81.99%	
F20% =	1.156	3.0159	1,394,714	20.00%	99.67%	
F30% =	0.760	3.0022	2,092,071	30.00%	99.21%	
* Regulations =	0.426	2.7925	3,089,373	44.30%	92.28%	Estimate

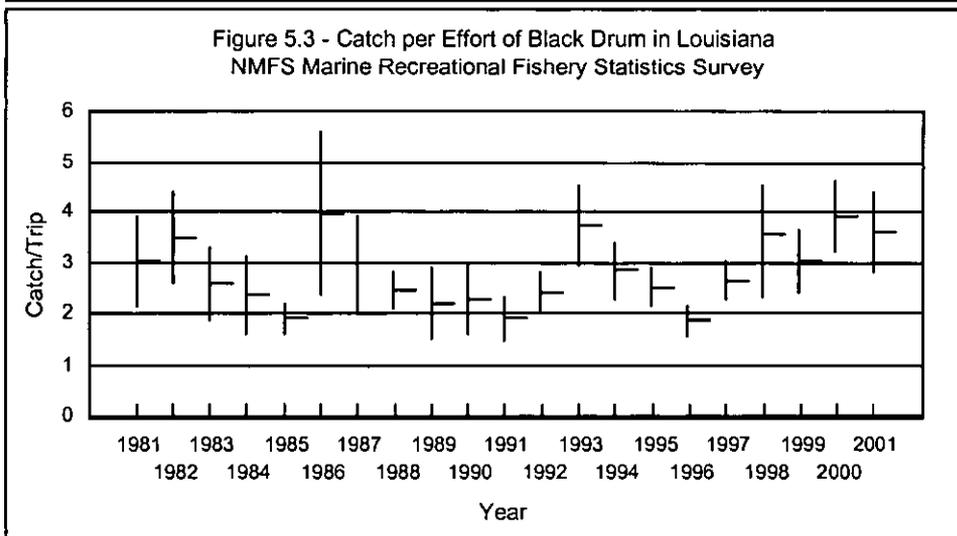
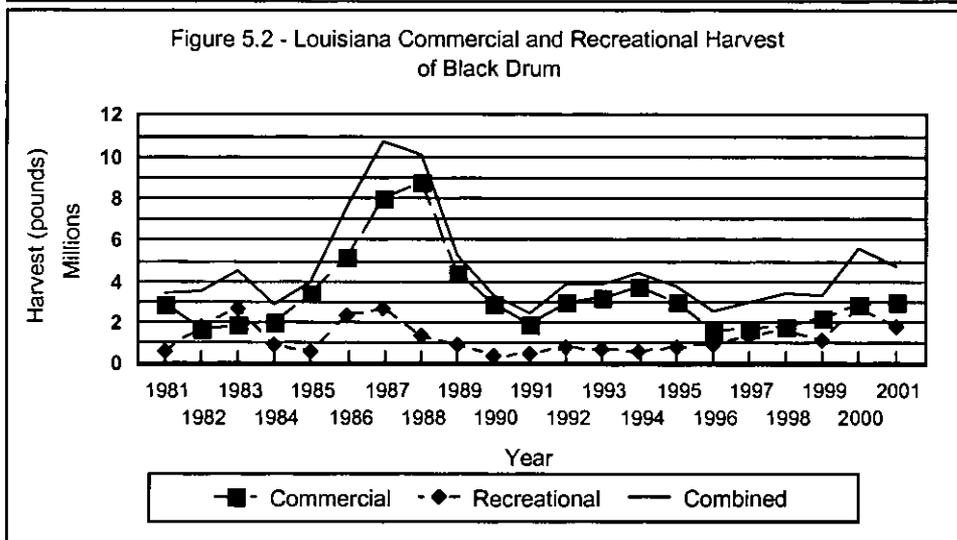
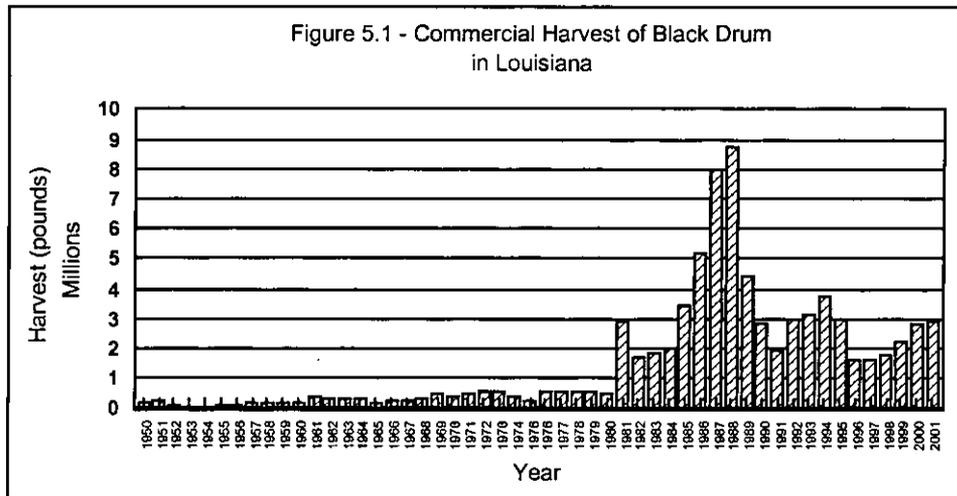
M=0.15

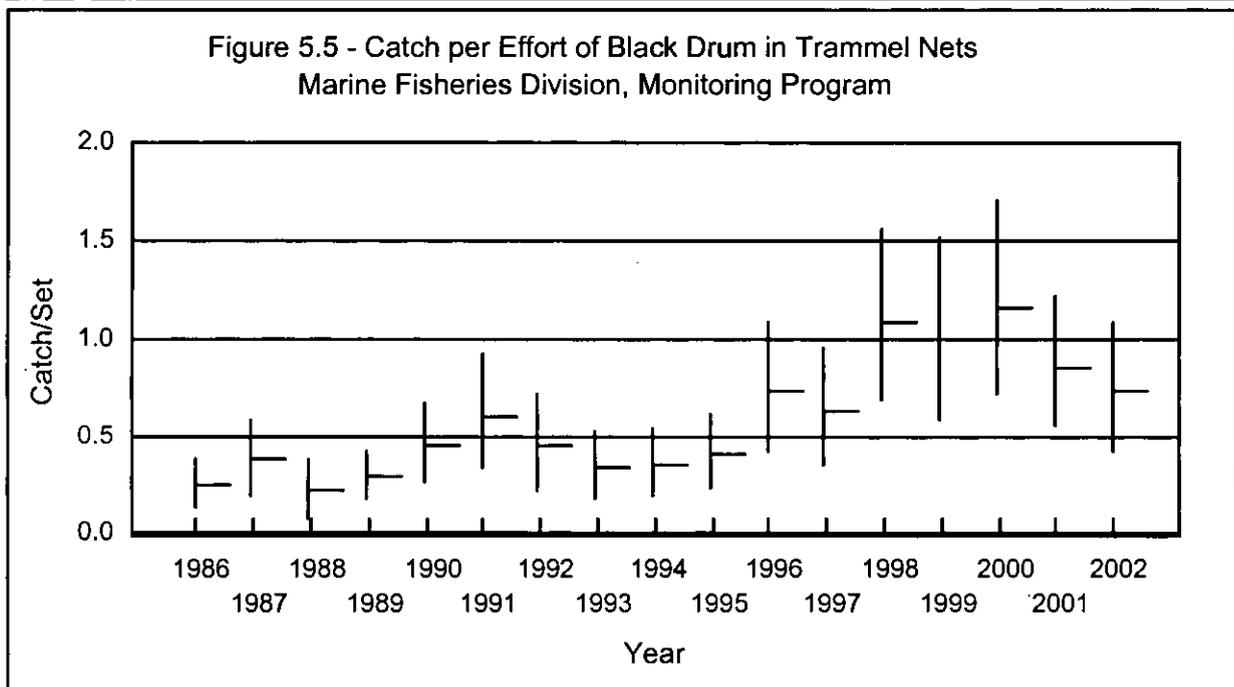
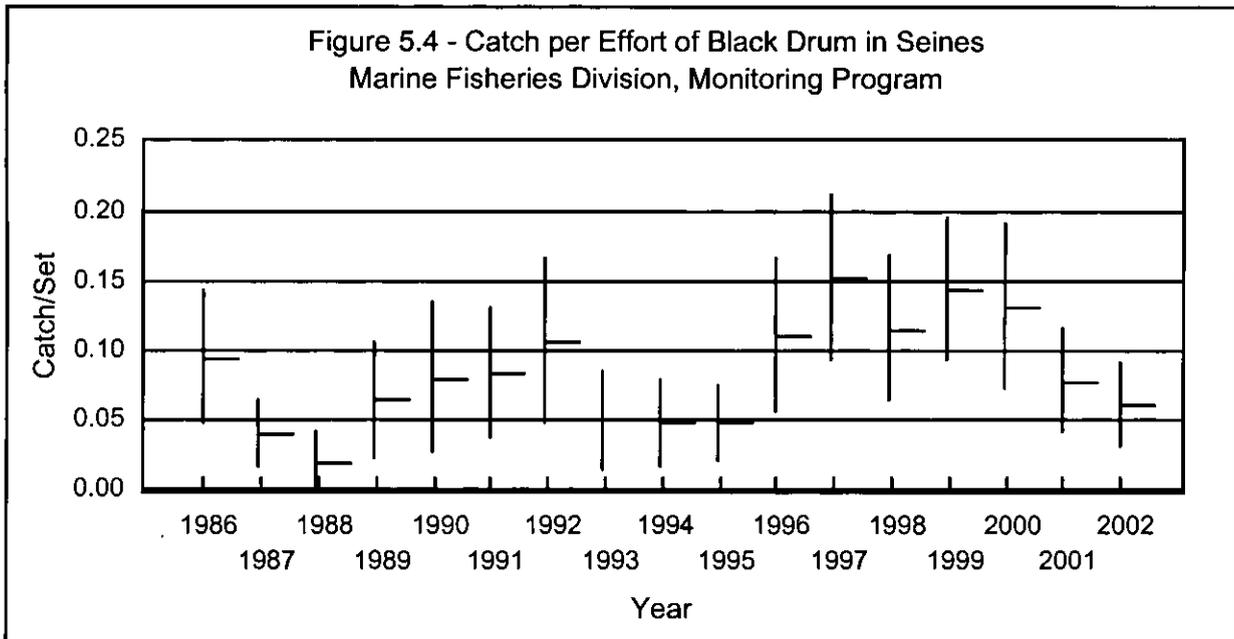
	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax =	2.100	2.1766	373,755	11.48%	100.00%	Benchmarks
F0.1 =	0.605	1.7506	1,466,963	45.05%	80.43%	
F20% =	1.462	2.1353	651,218	20.00%	98.10%	
F30% =	1.019	2.0185	976,828	30.00%	92.74%	
* Regulations =	0.376	1.4562	1,880,508	57.75%	66.90%	Estimate

M=0.2

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax =	3.822	1.8101	61,480	3.52%	100.00%	Benchmarks
F0.1 =	1.153	1.5197	545,318	31.22%	83.96%	
F20% =	1.671	1.6792	349,286	20.00%	92.77%	
F30% =	1.199	1.5388	523,929	30.00%	85.01%	
* Regulations =	0.326	0.8173	1,375,910	66.71%	45.36%	Estimate

* Regulations prior to 1995 and Act 1316





STRIPED MULLET SUMMARY OF CHANGES FROM 2002 ASSESSMENT

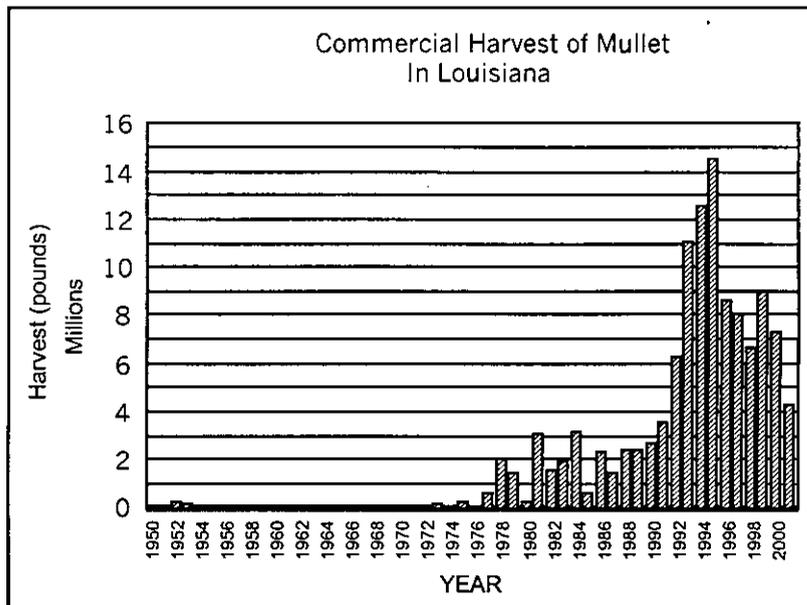
This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2002 assessment conducted for striped mullet.

- There are no substantive changes in methods from the 2002 assessment.

2003 DOCUMENT HIGHLIGHTS

- 2001 commercial landing of 4.2 million pounds was the lowest harvest since 1991.

- 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 30% to 37%. An M of 0.6 would indicate a more lightly fished stock with yield being 67% to 88 of maximum and with SPR being 61% to 73%.



- 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.
- As a result of having several years of commercial trip ticket data, and collecting recreational fishery statistics data, the department was able to begin a program to representatively sample fishery dependent otoliths in 2002. The program uses trip ticket data and recreational survey data to weight sampling sites for the collection of otoliths for the species of interest. It is expected that this method of otolith sampling will improve stock assessments by providing more accurate annual catch-at-age data.

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, 1981-2000). 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 1998 fishing year, as defined for this report, consists of February 1998 through January 1999. 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 Louisiana Department of Wildlife and Fisheries' (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 3,580 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 (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 1994-2001. 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	0.0011
2	0.0372
3	0.2616
4	0.7780
5 and over	1.0

Disappearance rates (Z') were derived by regression of the descending arm of the catch curve (Figures 5.1A-H). 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 Gulfmenhaden (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 a 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). Commercial landings prior to 1991 was obtained from NMFS's General Canvass Landing Program, from 1991 through 1998 landings was collected through the LDWF's Monthly Dealer Reports and from 1999 to present LDWF's Commercial Reporting Requirement "Trip Tickets" program is utilized to gather this type of data. Recreational landings was obtained through the NMFS's Marine Recreational Fishery Statistics Survey. Harvest increased in the early 1990's, as the commercial 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. Legislation allowing the use of hoop nets in freshwater areas for taking mullet was legalized in 1999. The law required that no leads be used on the hoop nets, no harvest or possess of mullet from between the hours of official sunset and official sunrise, and mullet caught in the freshwater areas of the state could not be possessed by commercial fishermen in the saltwater areas of the state. Three legislative acts were passed in 2001: Act 51 defined certain portion of the Intracoastal waterway, from the overhead power lines at the Interharbor Navigation Canal east to the Rigolets, in Orleans Parish as saltwater and freshwater for the purposes of possessing regulated gear and allows the harvest of mullet in that area in addition to a portion of Lake Pontchartrain located south and east of the I-10 bridge as long as commercial fishing operations in these waters will not interfere with normal commercial traffic; Act 116 statutorily created a mullet task force to advise LDWF on certain issues; and Act 147 adopted a three-strikes and you are out penalty system within the commercial mullet fishery: first conviction, one year permit suspension, second conviction two years suspension, third conviction lifetime permit ban.

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) from 1996 through 2001 of the seventeen years examined (1987-2002) but the 2002 CPUE is back to the level prior to 1996. 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 five 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 30% to 37%. An M of 0.6 would indicate a more lightly fished stock with yield being 67% to 88% of maximum and with SPR being 61% to 73% (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 over-harvest.

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
1981	3,051,461	564	3,052,025	99.98%
1982	1,533,452	16,546	1,549,998	98.93%
1983	1,886,654	0	1,886,654	100.00%
1984	3,157,215	2,793	3,160,008	99.91%
1985	579,297	7,504	586,801	98.72%
1986	2,277,713	52,921	2,330,634	97.73%
1987	1,439,425	0	1,439,425	100.00%
1988	2,367,106	105,876	2,472,982	95.72%
1989	2,413,768	75,287	2,489,055	96.98%
1990	2,645,927	296,111	2,942,038	89.94%
1991	3,563,137	26,303	3,589,440	99.27%
1992	6,214,532	121,273	6,335,805	98.09%
1993	11,026,497	185,012	11,211,509	98.35%
1994	12,560,261	97,509	12,657,770	99.23%
1995	14,545,610	89,626	14,635,236	99.39%
1996	8,658,881	216,838	8,875,719	97.56%
1997	8,083,201	129,917	8,213,118	98.42%
1998	6,252,317	15,459	6,267,776	99.75%
1999	8,954,299	48,766	9,003,065	99.46%
2000	7,252,017	88,202	7,340,219	98.80%
2001	4,260,650	115,618	4,376,268	97.36%

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	
10	18	67	7	1			1				94
11	2	76	52	12	3						145
12	9	105	153	87	18	5	1				378
13	12	110	251	195	79	22	2	3			674
14	12	74	200	225	131	34	9	3			688
15	4	46	137	151	89	41	10	9	1	1	489
16	1	49	116	122	67	26	8	1	1		391
17		30	100	111	55	18	4	2	1		321
18	1	6	47	71	34	11	5	1	1		177
19	1	2	16	47	32	7	4				109
20		1	3	15	23	14	6				62
21			1	3	4	4	2		2	1	17
22				2	3	4	5	1			15
23			1		3	2	3				9
24					5	3	3				11
All	60	566	1084	1042	546	191	63	20	6	2	3580

Table 5.3 Regression Output from the Estimation of Disappearance Rates

1994		1995	
	Regression Output:		Regression Output:
Constant	18.5503	Constant	19.224847
Std Err of Y Est	0.4624425	Std Err of Y Est	0.2586424
R Squared	0.9702872	R Squared	0.989781
No. of Observations	8	No. of Observations	7
Degrees of Freedom	6	Degrees of Freedom	5
X Coefficient(s)	-0.99882	X Coefficient(s)	-1.07565
Std Err of Coef.	0.0713564	Std Err of Coef.	0.0488788
1996		1997	
	Regression Output:		Regression Output:
Constant	18.566267	Constant	18.432739
Std Err of Y Est	0.156	Std Err of Y Est	0.1661209
R Squared	0.9959516	R Squared	0.9953224
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-1.033969	X Coefficient(s)	-1.024001
Std Err of Coef.	0.0294812	Std Err of Coef.	0.0313939
1998		1999	
	Regression Output:		Regression Output:
Constant	18.855665	Constant	18.114605
Std Err of Y Est	0.4101676	Std Err of Y Est	0.5090718
R Squared	0.9778915	R Squared	0.95371
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-1.152746	X Coefficient(s)	-0.976449
Std Err of Coef.	0.0775144	Std Err of Coef.	0.0962055
2000		2001	
	Regression Output:		Regression Output:
Constant	17.448049	Constant	19.668877
Std Err of Y Est	0.6605562	Std Err of Y Est	0.4369422
R Squared	0.911813	R Squared	0.9765425
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-0.897566	X Coefficient(s)	-1.191336
Std Err of Coef.	0.1248334	Std Err of Coef.	0.0825743

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

M = 0.3

	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max =	0.5758	85.6013	432,921	38.24%	100.00%	Benchmarks
F0.1 =	0.3020	78.9656	595,581	52.61%	92.25%	
F20% =	2.0131	70.0656	226,433	20.00%	81.85%	
F30% =	0.9119	82.7357	339,650	30.00%	96.65%	
1994 =	0.6988	85.0543	390,946	34.53%	99.36%	Estimate
1995 =	0.7757	84.3400	369,952	32.68%	98.53%	
1996 =	0.7340	84.7522	380,926	33.65%	99.01%	
1997 =	0.7240	84.8426	383,693	33.89%	99.11%	
1998 =	0.8527	83.4676	351,873	31.08%	97.51%	
1999 =	0.6764	85.2198	397,729	35.13%	99.55%	
2000 =	0.5976	85.5805	424,584	37.50%	99.98%	
2001 =	0.8913	82.9943	343,750	30.36%	96.95%	

M = 0.4

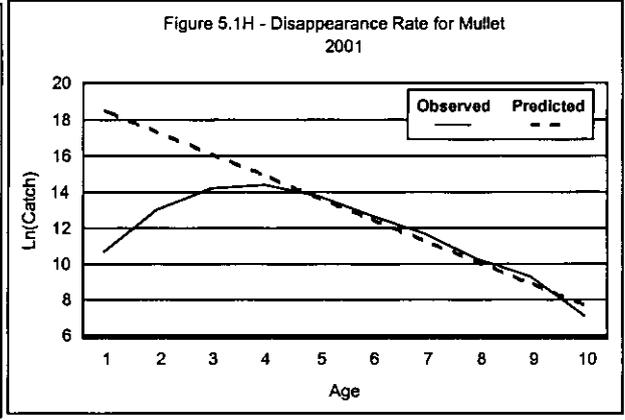
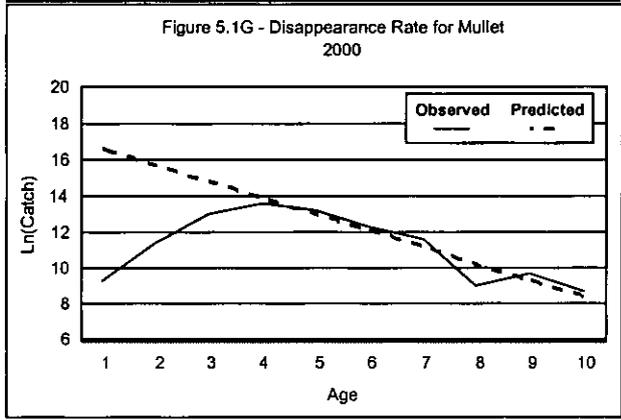
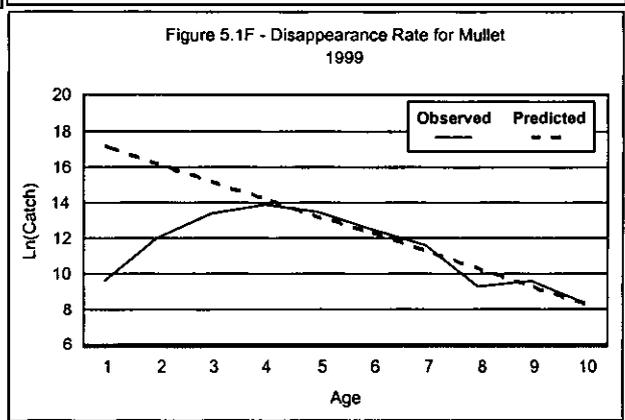
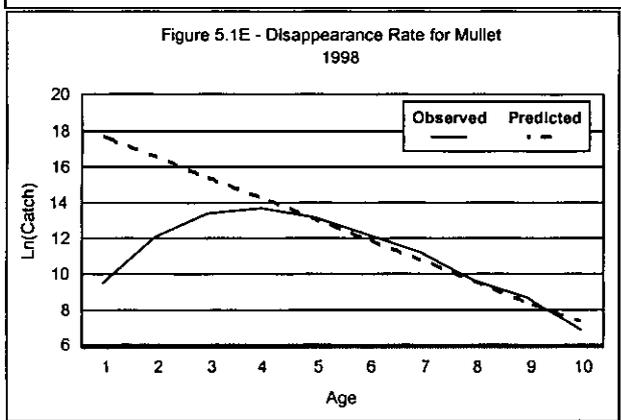
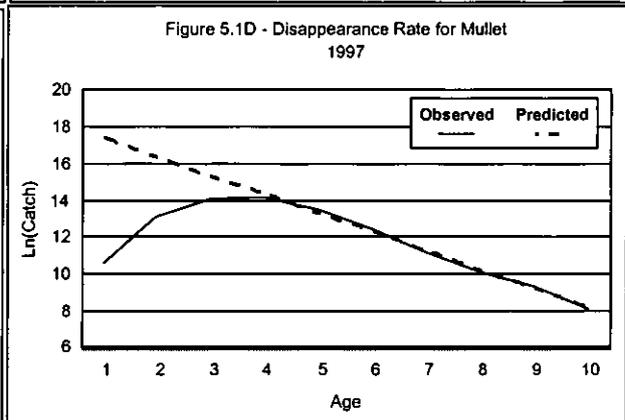
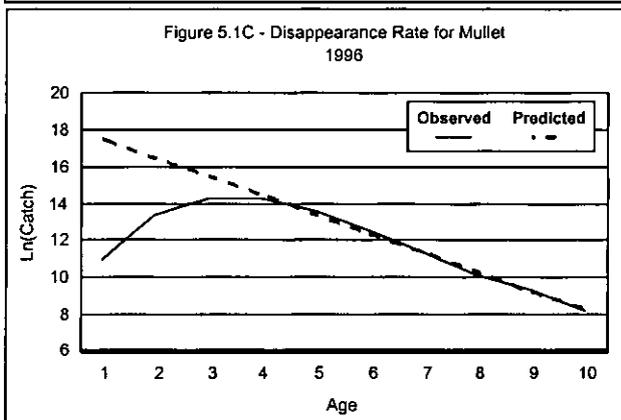
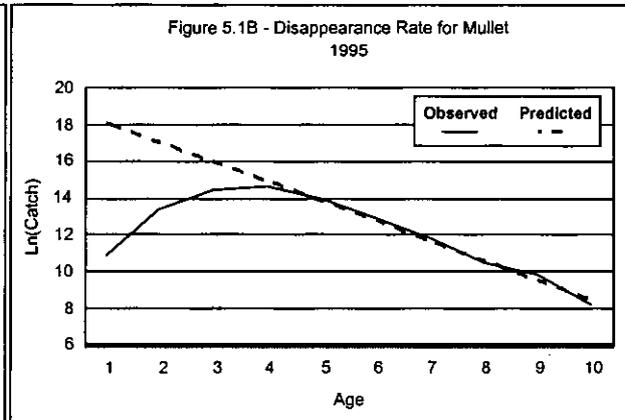
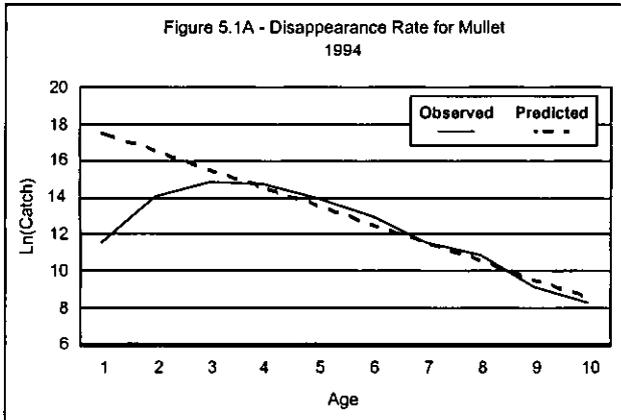
	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max =	0.7988	50.3253	245,293	40.68%	100.00%	Benchmarks
F0.1 =	0.3822	45.8515	335,236	55.59%	91.11%	
F20% =	3.8965	40.3205	120,602	20.00%	80.12%	
F30% =	1.5759	47.5398	180,903	30.00%	94.47%	
1994 =	0.5988	49.6615	278,442	46.18%	98.68%	Estimate
1995 =	0.6757	50.1055	264,163	43.81%	99.56%	
1996 =	0.6340	49.9019	271,629	45.05%	99.16%	
1997 =	0.6240	49.8407	273,510	45.36%	99.04%	
1998 =	0.7527	50.2982	251,856	41.77%	99.95%	
1999 =	0.5764	49.4700	283,053	46.94%	98.30%	
2000 =	0.4976	48.4966	301,297	49.97%	96.37%	
2001 =	0.7913	50.3246	246,322	40.85%	100.00%	

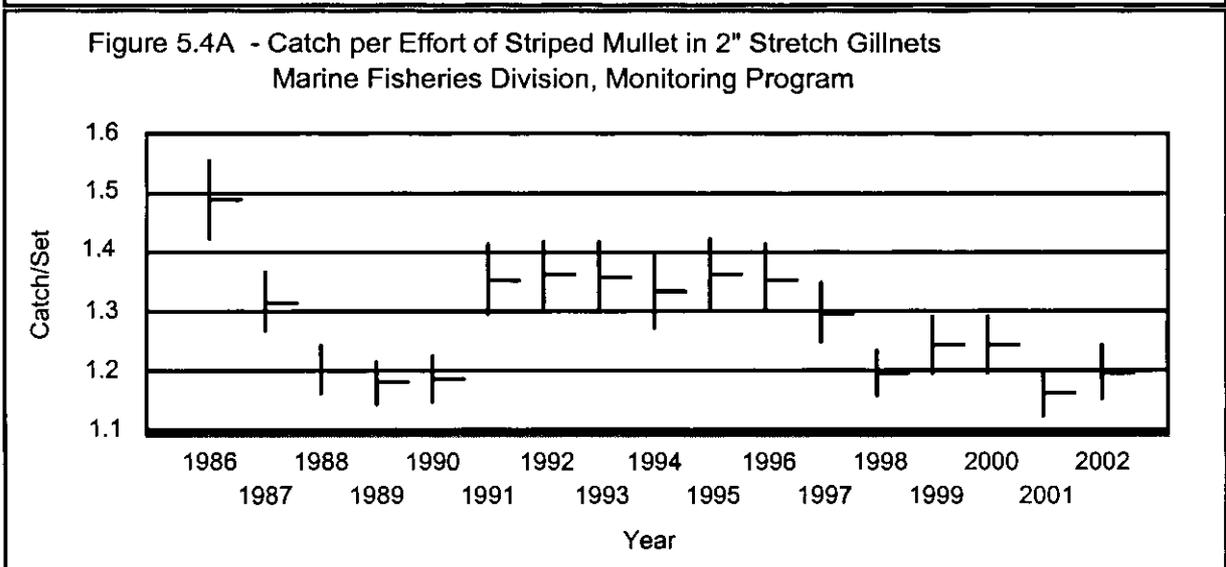
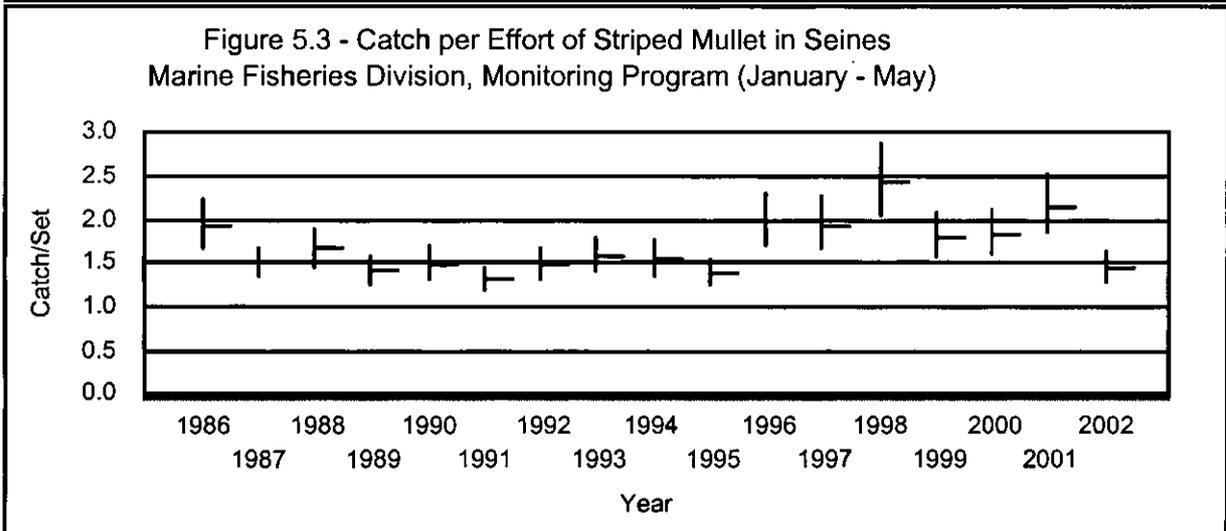
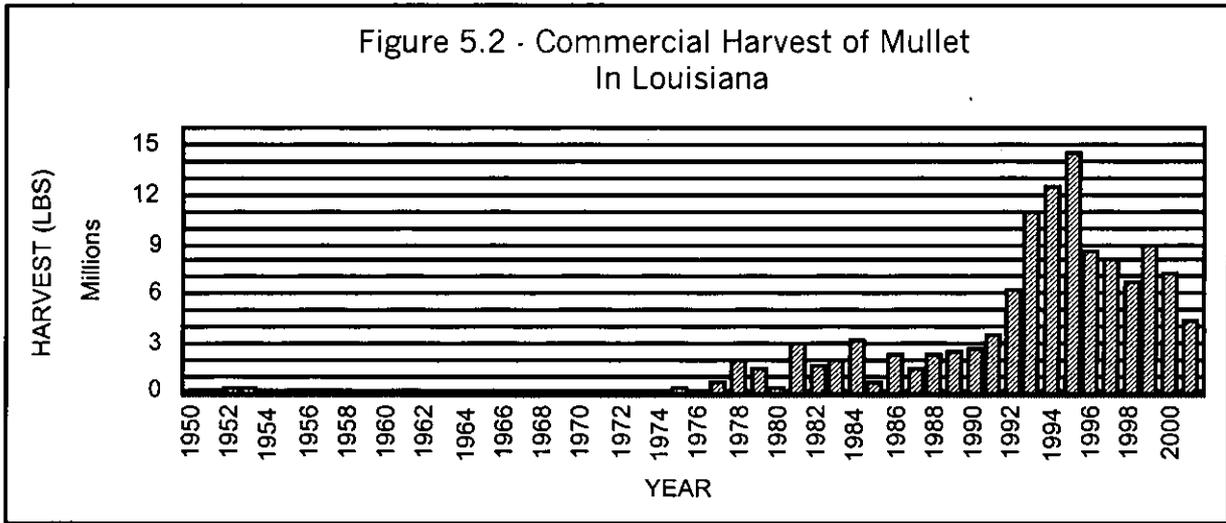
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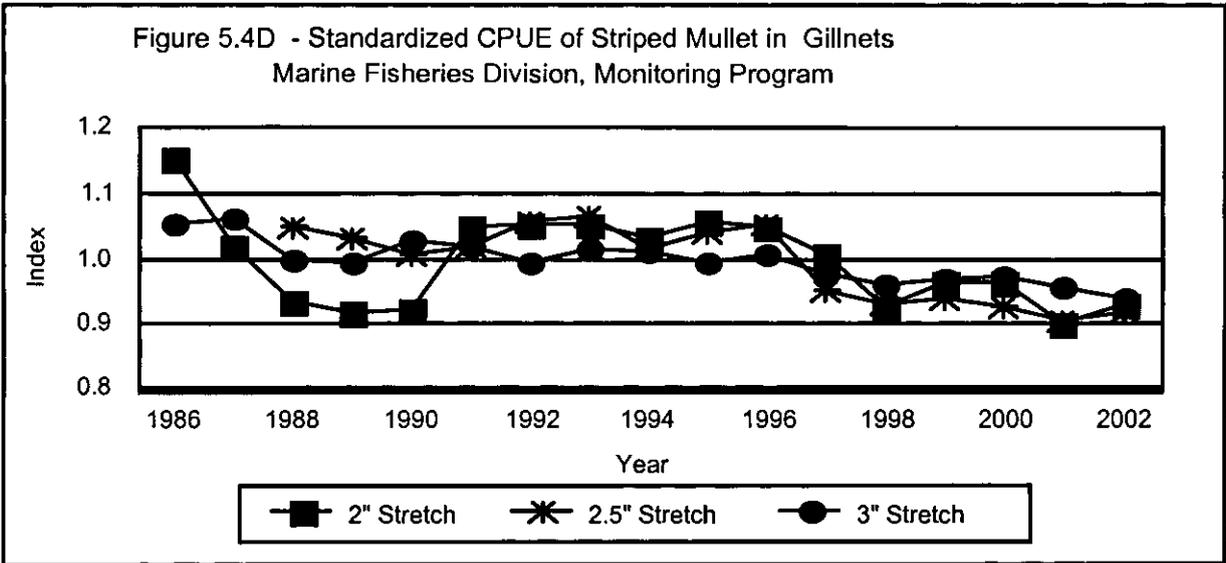
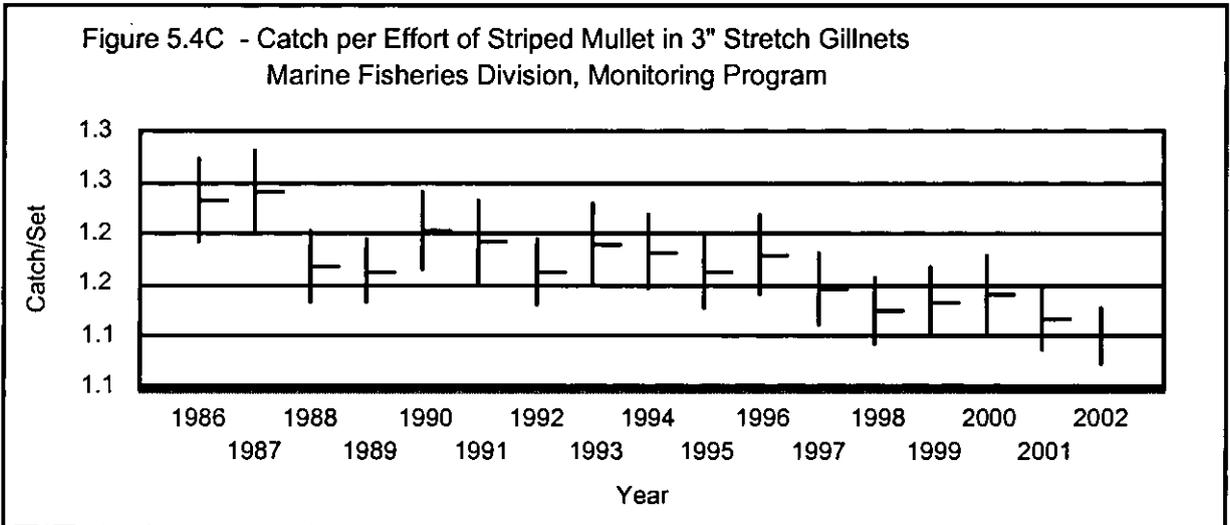
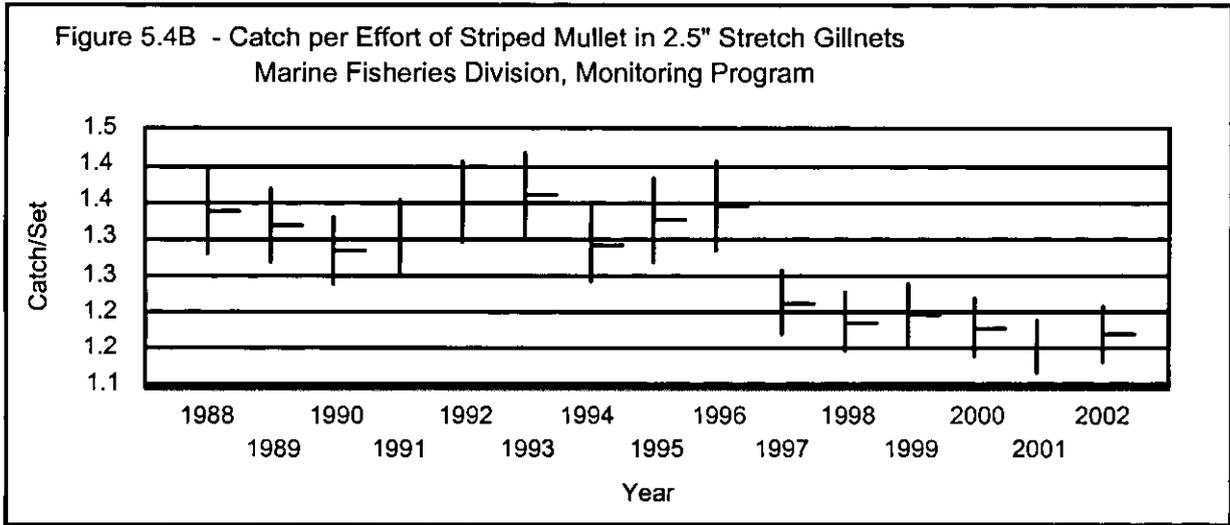
	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max =	1.1147	30.9974	147,696	42.96%	100.00%	Benchmarks
F0.1 =	0.4762	27.8648	202,144	58.80%	89.89%	
F20% =	7.0888	24.9089	68,757	20.00%	80.36%	
F30% =	2.7515	28.9557	103,136	30.00%	93.41%	
1994 =	0.4988	28.2032	198,980	57.88%	90.99%	Estimate
1995 =	0.5757	29.1325	189,265	55.05%	93.98%	
1996 =	0.5340	28.6675	194,346	56.53%	92.48%	
1997 =	0.5240	28.5430	195,625	56.90%	92.08%	
1998 =	0.6527	29.7944	180,884	52.62%	96.12%	
1999 =	0.4764	27.8680	202,114	58.79%	89.90%	
2000 =	0.3976	26.3846	214,512	62.40%	85.12%	
2001 =	0.6913	30.0478	177,112	51.52%	96.94%	

M = 0.6

	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max =	1.6415	19.8569	91,314	44.09%	100.00%	Benchmarks
F0.1 =	0.5853	17.5289	128,195	61.89%	88.28%	
F20% =	11.8316	16.1782	41,424	20.00%	81.47%	
F30% =	4.6199	18.7160	62,137	30.00%	94.25%	
1994 =	0.3988	15.3822	142,695	68.89%	77.47%	Estimate
1995 =	0.4757	16.4377	136,084	65.70%	82.78%	
1996 =	0.4340	15.9010	139,542	67.37%	80.08%	
1997 =	0.4240	15.7604	140,413	67.79%	79.37%	
1998 =	0.5527	17.2466	130,374	62.95%	86.85%	
1999 =	0.3764	15.0160	144,827	69.92%	75.62%	
2000 =	0.2976	13.4534	153,254	73.99%	67.75%	
2001 =	0.5913	17.5782	127,802	61.70%	88.52%	







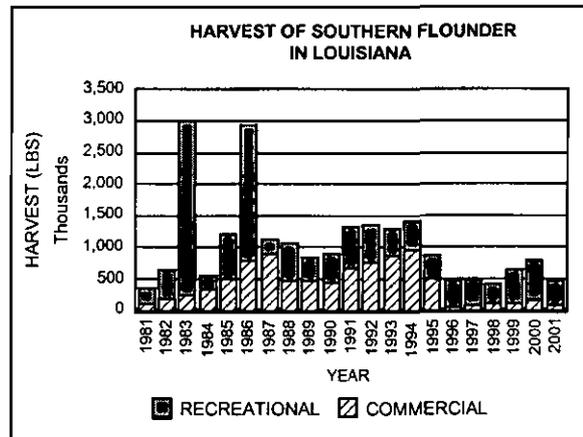
SOUTHERN FLOUNDER
SUMMARY OF CHANGES FROM 2002 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2002 assessment conducted for southern flounder.

- There are no substantive changes in methods from the 2002 assessment.

2003 DOCUMENT HIGHLIGHTS

- The 2001 combined commercial and recreational harvest of 470,835 pounds was below all years from 1995 to 2000, except for 1998. Regulations implemented between 1995 and 1997 have caused significant reductions in the commercial harvest.



- The results of YPR analysis indicate that for the years assessed (1994-2001) 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 93% to 95% of maximum and SPR at 28% to 30%. An M of 0.8 (the highest value within the range examined) would produce yields of 56% to 60% of maximum with SPR at 51% to 54%.
- 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.
- As a result of having several years of commercial trip ticket data, and collecting recreational fishery statistics data, the department was able to begin a program to representatively sample fishery dependent otoliths in 2002. The program uses trip ticket data and recreational survey data to weight sampling sites for the collection of otoliths for the species of interest. It is expected that this method of otolith sampling will improve stock assessments by providing more accurate annual catch-at-age data.

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 Louisiana Department of Wildlife and Fisheries (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:

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

where, $M1\%$ and $M0.1\%$ are the natural mortality rates corresponding to 99% and 99.9% mortality, respectively, given a 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 $M1\%$ and $M0.1\%$ 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:

$$M = 1.521/(T_m 50\%^{0.720}) - 0.155$$

where, $T_{m50\%}$ 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.

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 - 2001). Length frequency data were obtained from the Trip Interview Program (TIP) for the commercial fishery, and from the National Marine Fisheries Service's (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 ($n=2,641$). An age-length-key was developed from otolith aging of fish by Thompson (unpublished data) and LDWF's ongoing aging study. Twenty six hundred and forty one 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 - 2001. The calculated disappearance rates ranged from 1.27 to 1.33 (Table 5.3 and Figures 5.3A-H).

Catch-at-age from the fishery for the years 1994-2001 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. Selectivities are 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 = 0.0166
 age 1 = 0.8619
 ages 2 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 0.5 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 from 1995 through 1999. 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 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 Acts 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 1950-2001 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 from 1996 to present. 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 - 2001. Fishery dependent commercial data prior to 1991 was obtained from NMFS's General Canvass Landing Program, from 1991 through 1998 it was collected by the LDWF's Monthly Dealer Reports and from 1999 to present LDWF's Commercial Reporting Requirement "Trip Tickets" program is utilized to gather this type of data.

Harvest from the recreational fishery has fluctuated for the years examined (1981-2001), 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 2001 having the lowest mean CPUE. From a high in 1990 through 2001 CPUE has shown a declining trend. Fisheries dependent recreational landings data is collected through the NMFS's MRFSS survey and currently collected by LDWF Biologists.

Catch-per-effort data from the Department's, fishery-independent trammel net (750' x 6' - 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 1986-2002, and 16-foot trawl data were used for the period 1967-2002. 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 2002 data through December. CPUE estimates from trammel nets fluctuated throughout the period examined with 2002's January-March and October-December estimate being relatively stable over the past three years (Figure 5.7A-B). 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; however, over the past three years CPUE has been below average. 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 represents 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 93% to 95% of maximum and SPR at 28% to 30%. An M of 0.8 (the highest value within the range examined) would produce yields of 56% to 60% of maximum with SPR at 51% to 54% (Table 5.4).

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 collected.

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	
6	1	3							4
7	16	9	1						26
8	64	20	2						86
9	93	85	5						183
10	52	99	7	1					159
11	38	174	27	3			1		243
12	15	198	35	5					253
13	12	163	39	5					219
14	8	280	103	17			1		409
15	2	180	79	13	1				275
16		173	107	22	3				305
17	1	82	61	22	3				169
18	1	69	54	21	4	5		1	155
19	1	20	22	2	5	1			51
20		12	22	11	5				50
21	1	4	9	5	4				23
22		1	8	3	1		1		14
23			2	3	2	1	1		9
24				2	2	2			6
25				1					1
26				1					1
Total	305	1572	583	137	30	9	4	1	2641

Table 5.3 Regression Output from the Estimation of Disappearance Rates

1994		1995	
	Regression Output:		Regression Output:
Constant	14.915731	Constant	14.441602
Std Err of Y Est	0.2266308	Std Err of Y Est	0.2408644
R Squared	0.9943758	R Squared	0.9937897
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-1.273414	X Coefficient(s)	-1.287563
Std Err of Coef.	0.0428292	Std Err of Coef.	0.0455191
1996		1997	
	Regression Output:		Regression Output:
Constant	13.727194	Constant	13.807823
Std Err of Y Est	0.3056498	Std Err of Y Est	0.3382599
R Squared	0.9906913	R Squared	0.9879663
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-1.332462	X Coefficient(s)	-1.295175
Std Err of Coef.	0.0577624	Std Err of Coef.	0.0639251
1998		1999	
	Regression Output:		Regression Output:
Constant	13.657311	Constant	13.757746
Std Err of Y Est	0.2943606	Std Err of Y Est	0.2576577
R Squared	0.9907404	R Squared	0.9932828
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-1.286675	X Coefficient(s)	-1.324009
Std Err of Coef.	0.0556289	Std Err of Coef.	0.0486927
2000		2001	
	Regression Output:		Regression Output:
Constant	14.123687	Constant	13.747528
Std Err of Y Est	0.2306192	Std Err of Y Est	0.3334914
R Squared	0.9941927	R Squared	0.9883994
No. of Observations	7	No. of Observations	7
Degrees of Freedom	5	Degrees of Freedom	5
X Coefficient(s)	-1.275121	X Coefficient(s)	-1.300819
Std Err of Coef.	0.0435829	Std Err of Coef.	0.0630239

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 =	2.0492	0.6364	0.3508	12.75%	100.00%	Benchmarks
F0.1 =	0.5684	0.5584	1.0486	38.11%	87.74%	
F30% =	0.7836	0.5990	0.8256	30.00%	94.12%	
F20% =	1.2633	0.6301	0.5504	20.00%	99.00%	
1994 =	0.7734	0.5977	0.8341	30.31%	93.91%	Estimates
1995 =	0.7876	0.5995	0.8223	29.88%	94.20%	
1996 =	0.8325	0.6048	0.7866	28.58%	95.03%	
1997 =	0.7952	0.6005	0.8160	29.65%	94.35%	
1998 =	0.7867	0.5994	0.8230	29.91%	94.18%	
1999 =	0.8240	0.6039	0.7931	28.82%	94.89%	
2000 =	0.7751	0.5979	0.8327	30.26%	93.95%	
2001 =	0.8008	0.6012	0.8114	29.49%	94.46%	

M=0.6

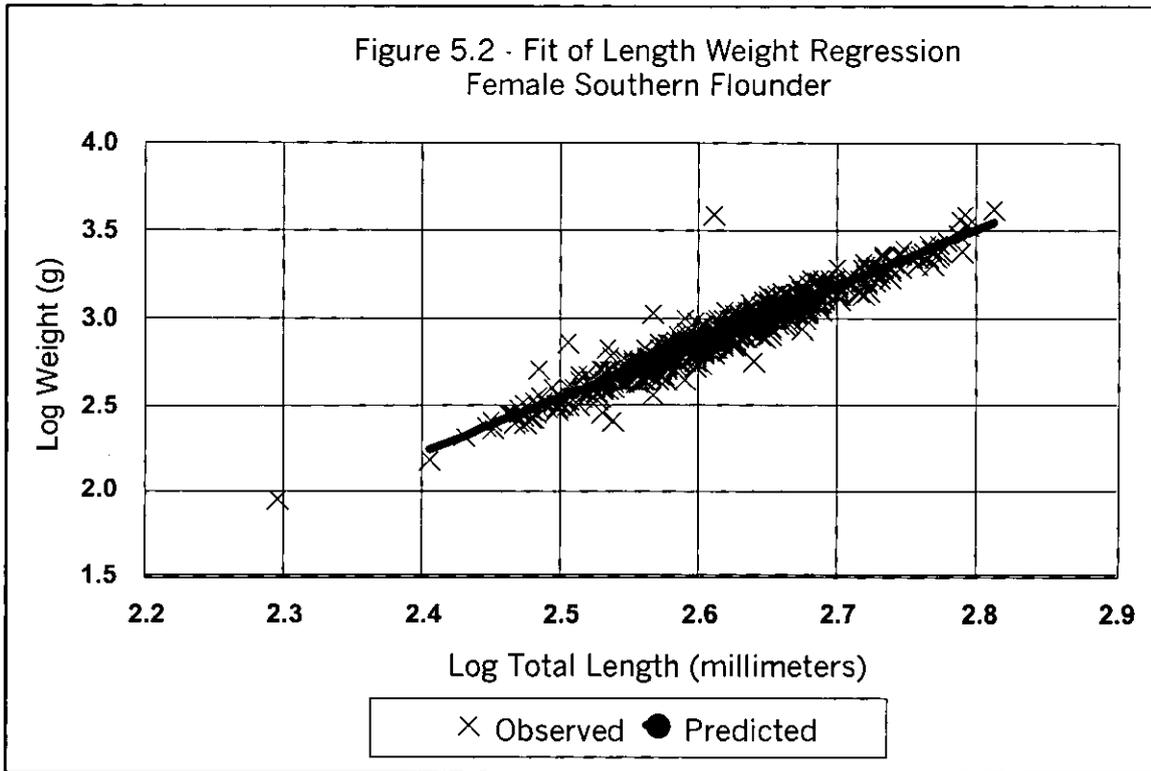
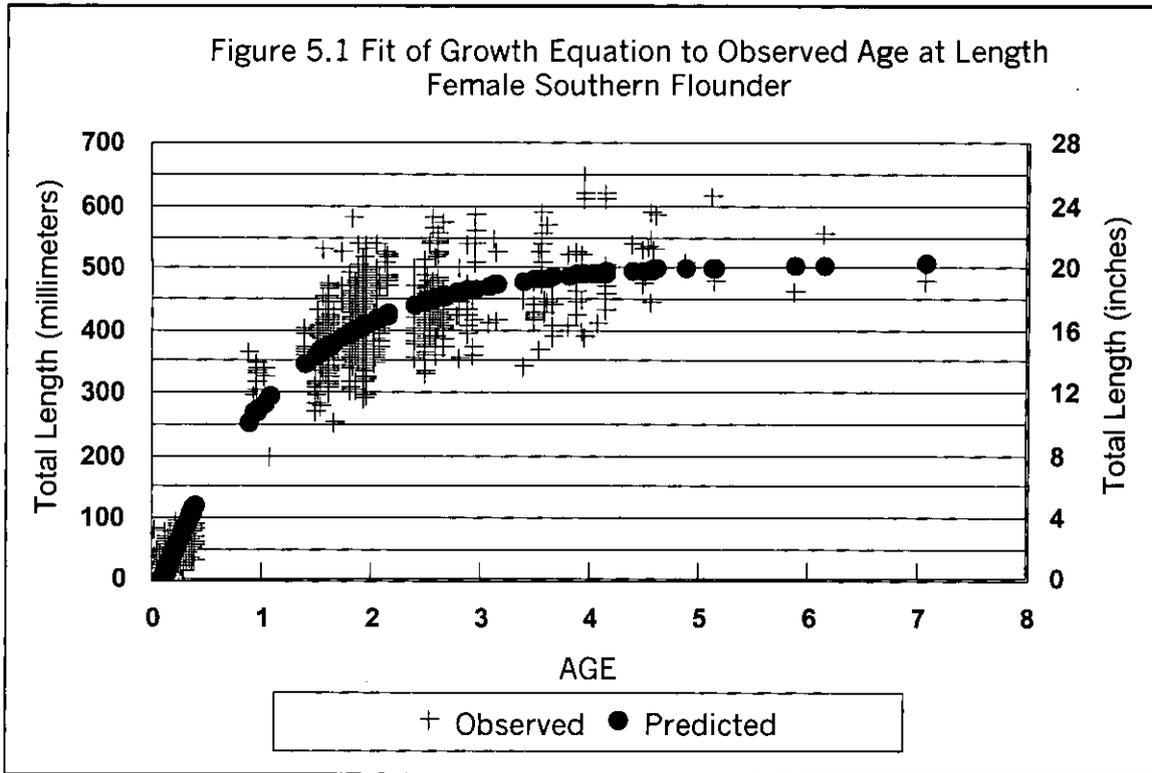
	F Ratio	YPR	SPR	% SPR	% YPR	
F-max =	7.3434	0.5827	0.0882	4.46%	100.00%	Benchmarks
F0.1 =	0.6884	0.4724	0.7377	37.32%	81.07%	
F30% =	0.9275	0.5065	0.5931	30.00%	86.92%	
F20% =	1.5153	0.5415	0.3954	20.00%	92.93%	
1994 =	0.6734	0.4695	0.7489	37.88%	80.57%	Estimates
1995 =	0.6876	0.4722	0.7383	37.35%	81.04%	
1996 =	0.7325	0.4803	0.7064	35.73%	82.43%	
1997 =	0.6952	0.4737	0.7327	37.06%	81.29%	
1998 =	0.6867	0.4720	0.7390	37.38%	81.01%	
1999 =	0.7240	0.4789	0.7122	36.03%	82.18%	
2000 =	0.6751	0.4698	0.7476	37.82%	80.63%	
2001 =	0.7008	0.4747	0.7286	36.86%	81.47%	

M=0.7

	F Ratio	YPR	SPR	% SPR	% YPR	
F-max =	8.2121	0.5218	0.0700	4.80%	100.00%	Benchmarks
F0.1 =	0.8213	0.4052	0.5357	36.71%	77.67%	
F30% =	1.0868	0.4341	0.4377	30.00%	83.20%	
F20% =	1.7964	0.4704	0.2918	20.00%	90.16%	
1994 =	0.5734	0.3589	0.6724	46.08%	68.79%	Estimates
1995 =	0.5876	0.3623	0.6629	45.43%	69.45%	
1996 =	0.6325	0.3725	0.6344	43.47%	71.39%	
1997 =	0.5952	0.3641	0.6579	45.09%	69.79%	
1998 =	0.5867	0.3621	0.6635	45.47%	69.41%	
1999 =	0.6240	0.3706	0.6396	43.83%	71.04%	
2000 =	0.5751	0.3593	0.6713	46.00%	68.87%	
2001 =	0.6008	0.3654	0.6543	44.84%	70.04%	

M=0.8

	F Ratio	YPR	SPR	% SPR	% YPR	
F-max =	9.0072	0.4681	0.0568	5.15%	100.00%	Benchmarks
F0.1 =	0.9725	0.3531	0.3976	36.08%	75.43%	
F30% =	1.2606	0.3775	0.3306	30.00%	80.64%	
F20% =	2.1047	0.4143	0.2204	20.00%	88.52%	
1994 =	0.4734	0.2661	0.6038	54.79%	56.84%	Estimates
1995 =	0.4876	0.2700	0.5953	54.02%	57.68%	
1996 =	0.5325	0.2816	0.5697	51.70%	60.17%	
1997 =	0.4952	0.2721	0.5908	53.61%	58.12%	
1998 =	0.4867	0.2698	0.5958	54.06%	57.63%	
1999 =	0.5240	0.2795	0.5744	52.12%	59.72%	
2000 =	0.4751	0.2666	0.6027	54.69%	56.95%	
2001 =	0.5008	0.2736	0.5875	53.31%	58.44%	



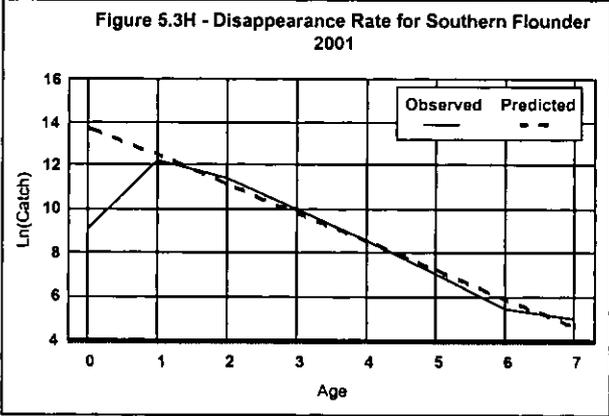
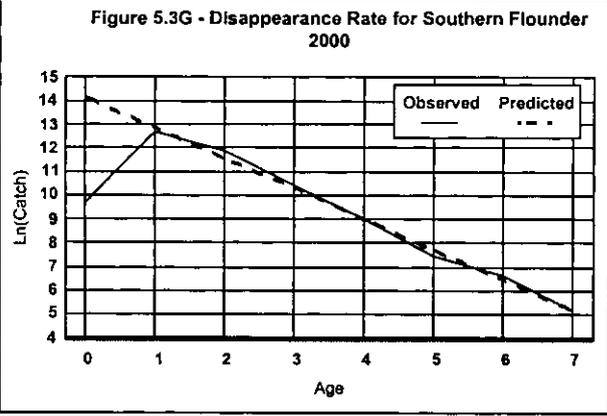
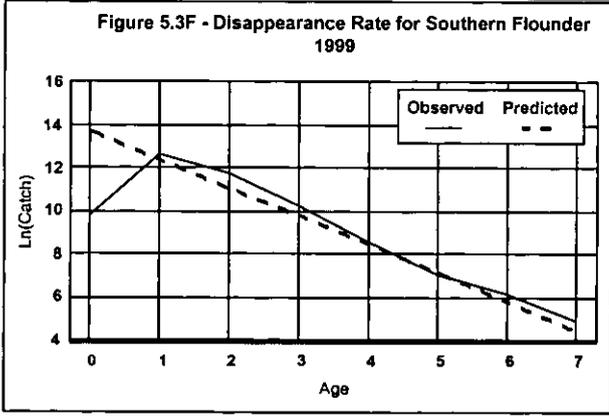
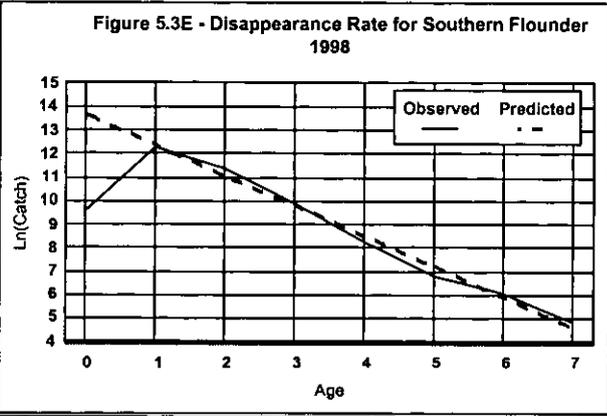
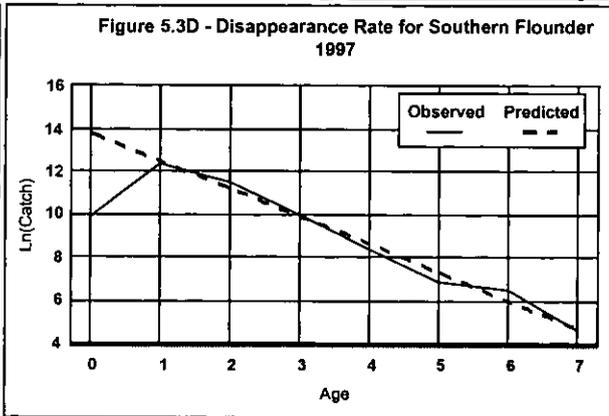
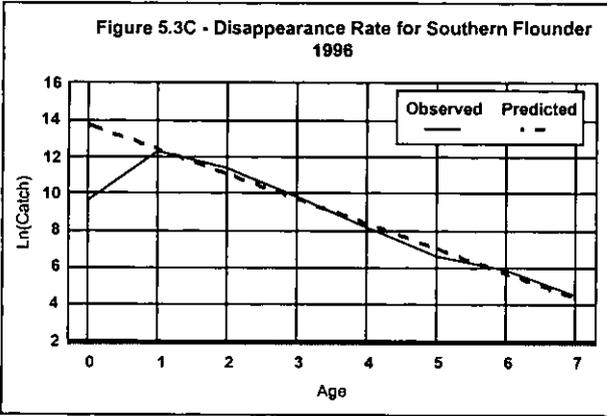
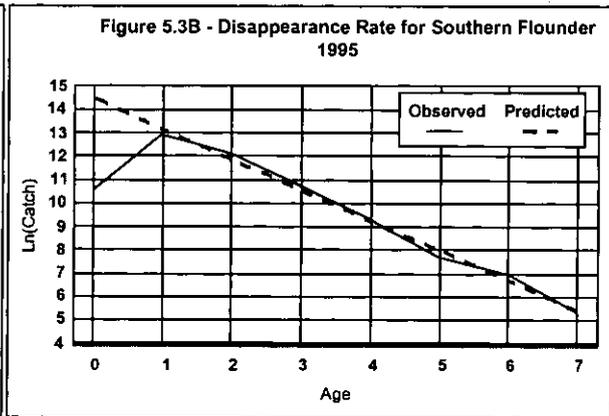
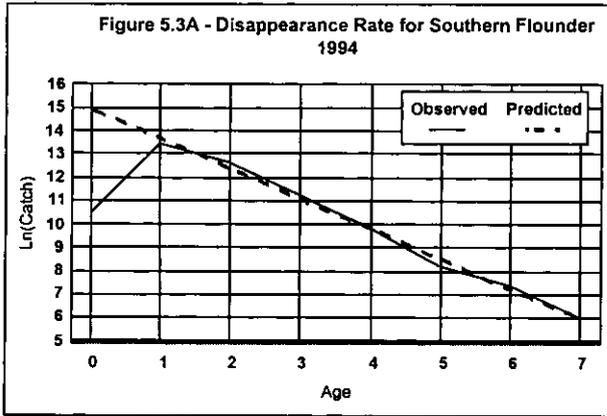


Figure 5.4 - Commercial Harvest of Southern Flounder in Louisiana

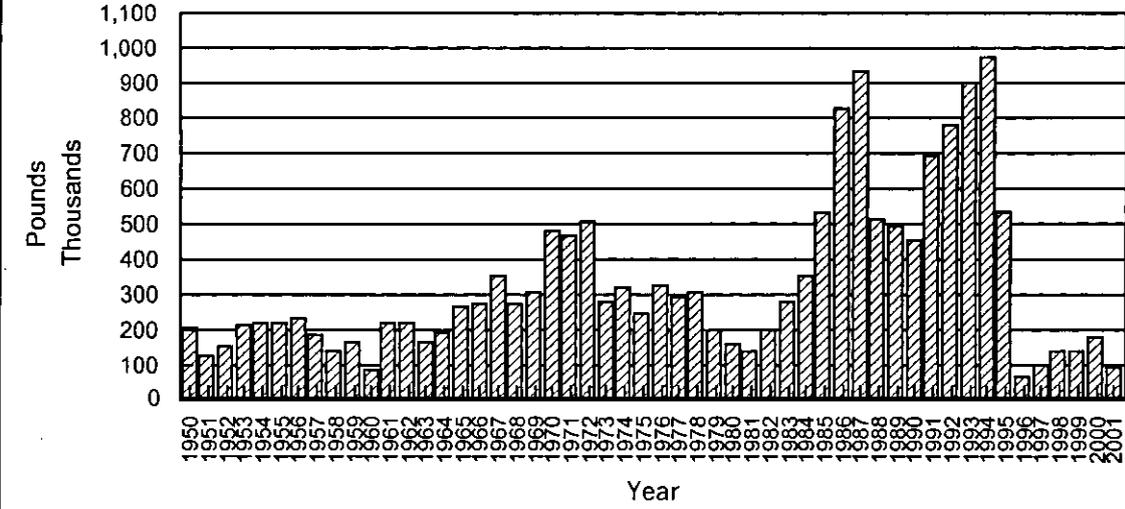


Figure 5.5 - Louisiana Commercial and Recreational Harvest of Southern Flounder

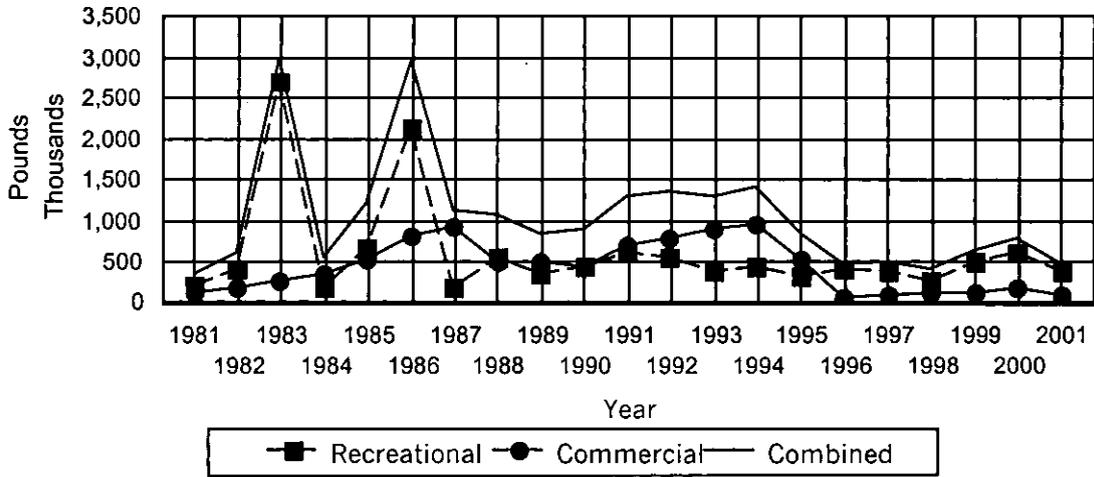
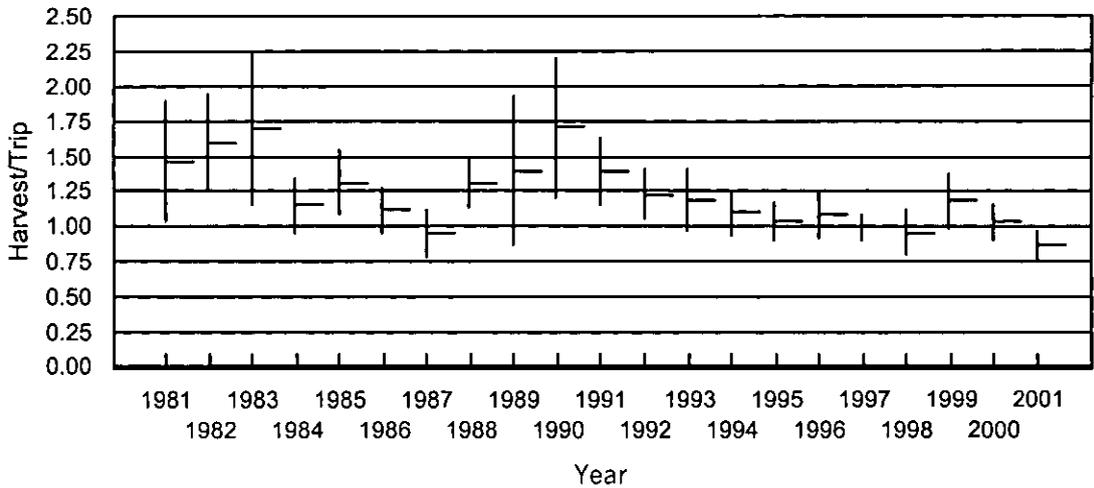
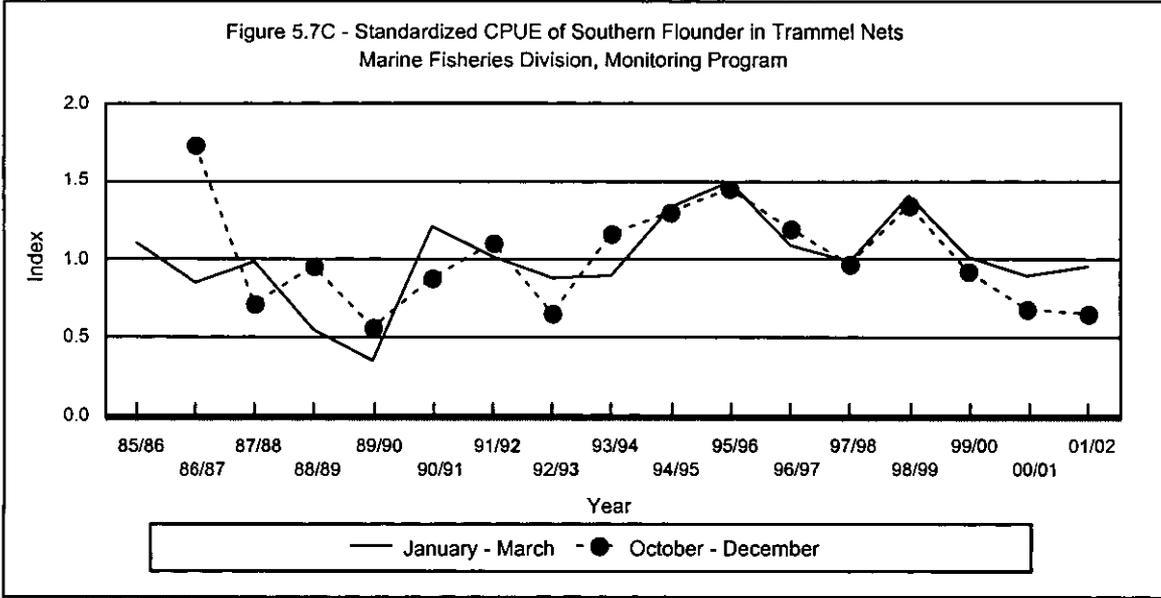
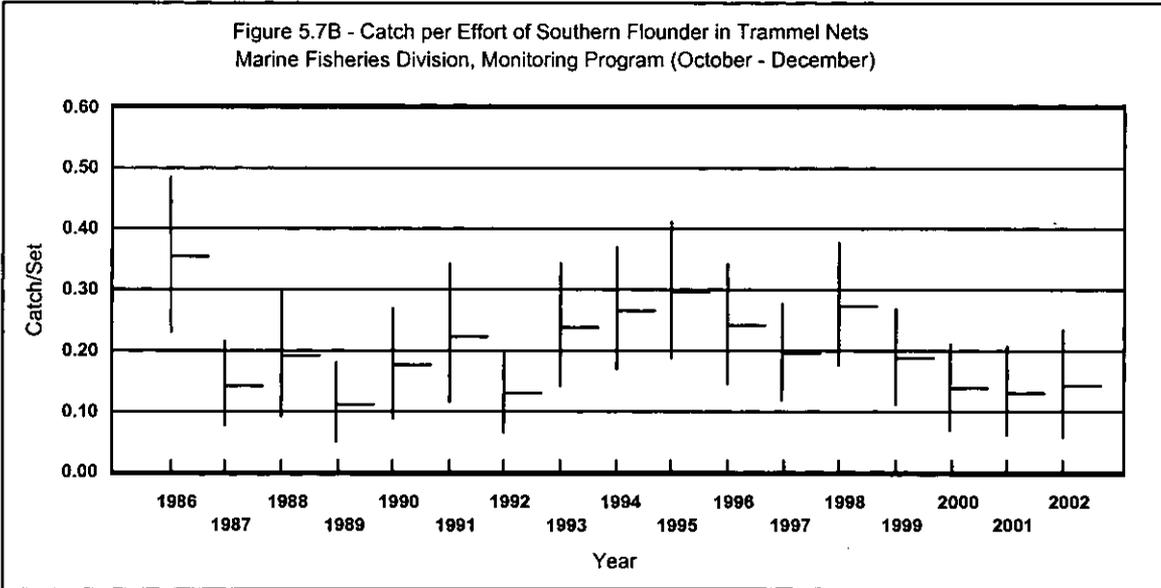
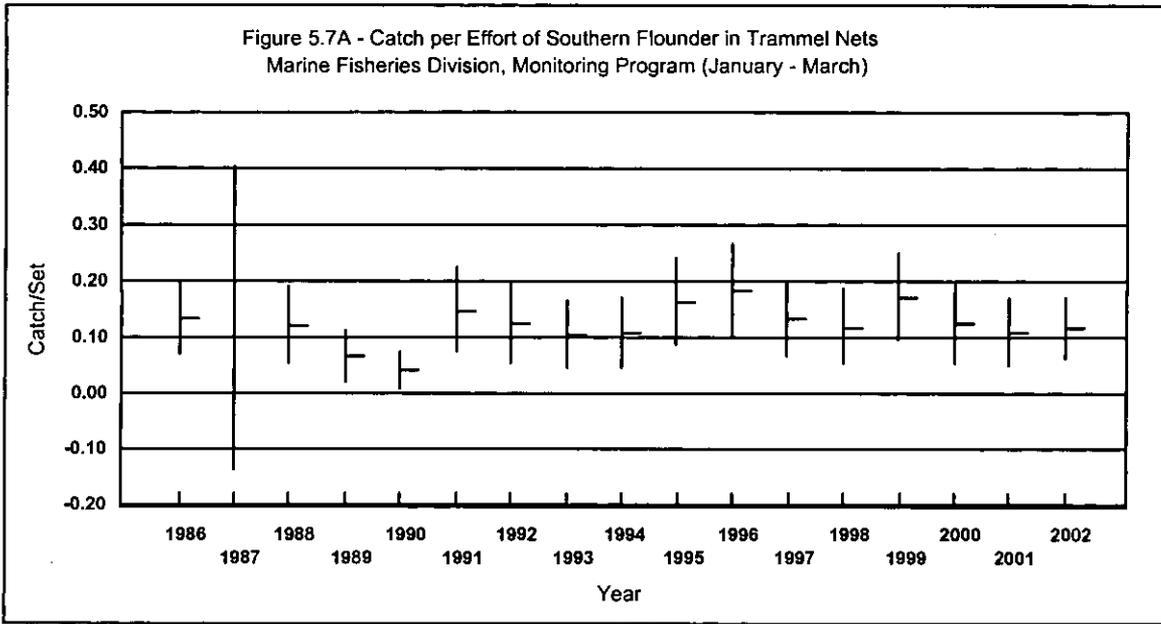
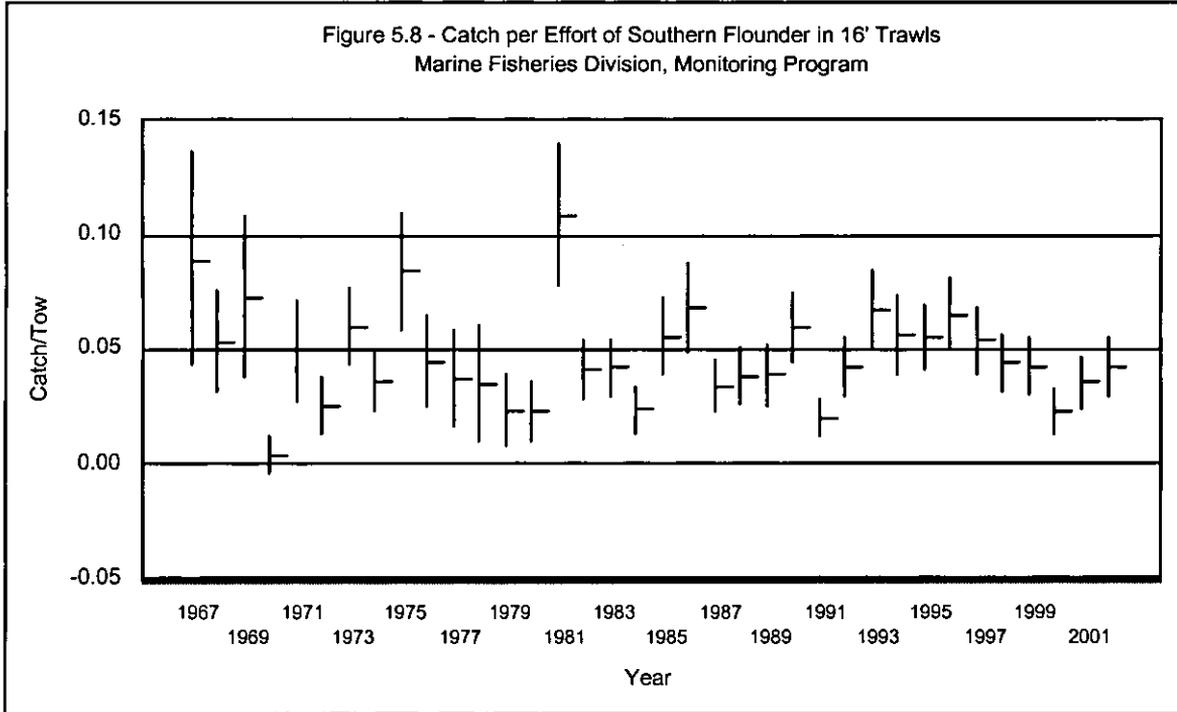


Figure 5.6 - Catch per Effort of Southern Flounder in Louisiana NMFS Marine Recreational Fishery Statistics Survey







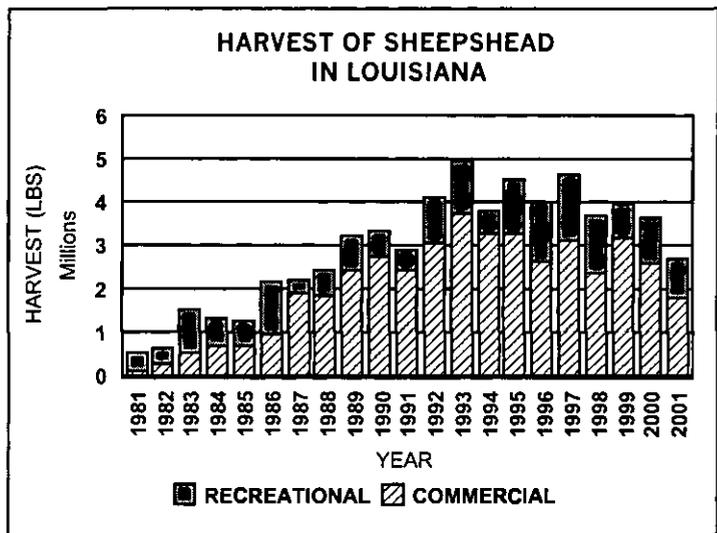
SHEEPSHEAD
SUMMARY OF CHANGES FROM 2002 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2002 assessment conducted for Sheepshead.

- There is no substantive change in methods from the 2002 assessment.

2003 DOCUMENT HIGHLIGHTS

- 2001 combined commercial and recreational harvest of 2,726,804 pounds is the lowest since 1988.
- The results of YPR analysis indicate that if $M=0.2$ (the most conservative value within the range of estimates), the fishery in the years assessed (1994 - 2001) was operating well below $F_{0.1}$ and F_{MAX} , with yield of 34% to 81% of maximum, and SPR at 44% to 81%. An M of 0.3 (the highest value examined) would indicate a more lightly fished stock with yield being 0% to 52% of maximum and with SPR being 64% to 100%.



- 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.
- As a result of having several years of commercial trip ticket data, and collecting recreational fishery statistics data, the department was able to begin a program to representatively sample fishery dependent otoliths in 2002. The program uses trip ticket data and recreational survey data to weight sampling sites for the collection of otoliths for the species of interest. It is expected that this method of otolith sampling will improve stock assessments by providing more accurate annual catch-at-age data.

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 Beckman et al. (1991) from fish harvested in Louisiana were used to calculate length and weight at age for female sheepshead. The equations are as follows:

$$\text{Female } L_t = 447(1 - e^{-0.367(t+1.025)})$$

$$\text{Female } W_t = 2557(1 - e^{-0.219(t+3.061)})^{2.85}$$

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:

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

where, $M_{1\%}$ and $M_{0.1\%}$ are the natural mortality rates corresponding to 99% and 99.9% mortality, respectively, given a fishes lifespan (T_m) in years. Sheepshead in Louisiana have been aged to 20-years-old (Beckman et al. 1991). If it is assumed that 99% or 99.9% of the fish die by age 20 then the corresponding natural mortality rates for $M_{1\%}$ and $M_{0.1\%}$ 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.

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

$$M = 1.521/(T_m 50\%^{0.720}) - 0.155$$

where, $T_{m50\%}$ is the age at which 50% of the population is mature. Age 2 is assumed the age at 50% maturity for the sheepshead population (Render and Wilson 1992) 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.

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 - 2001). Length frequency data were obtained from the Trip Interview Program (TIP) for the commercial fishery, and from the National Marine Fisheries Services' (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 - 2001. The calculated disappearance rates ranged from 0.27 to 0.56 (Table 5.1 and Figures 5.1A-H). The disappearance rate in 2001 (0.27) is below an M of 0.3, therefore; table 5.1 indicates 100% SPR and 0% yield. It is unknown if, an M of 0.3 is a realistic estimate of natural mortality, the stock is so lightly fished to provide those results or disappearance rates or the method used to calculate them are inaccurate.

Catch-at-age from the fishery for the years 1994-2000 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. Regulatory changes in the commercial fishery in 1995 and 1997 were evident in the selectivity patterns observed. Therefore, selectivities were grouped into 3 time periods to reflect those changes in the fishery. Prior to 1995, gillnets and trammel nets were fished in inshore waters of the state on primarily younger fish and were a significant contribution to the commercial landings of sheepshead. Currently, the fishery is primarily an otter trawl fishery on older fish in offshore waters and large bays and sounds. It is evident that the selectivity pattern in the most recent years are on older fish.

Selectivities are as follows:

Age	1994-1995	1996	1997-2000
0	0.00	0.00	0.00
1	0.00	0.00	0.00
2	0.03	0.03	0.02
3	0.36	0.13	0.07
4	1.00	0.68	0.23
5	1.00	1.00	0.55
6	1.00	1.00	0.92
7+	1.00	1.00	1.00

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. 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 5.3). 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 eight years from a high of 3.7 million pounds in 1993 to 1.7 million pounds in 2001. Fishery dependent commercial data prior to 1991 was obtained from NMFS's General Canvass Landing Program, from

1991 through 1998 it was collected by the Louisiana Department of Wildlife and Fisheries' (LDWF) Monthly Dealer Reports and from 1999 to present LDWF's Commercial Reporting Requirement "Trip Tickets" program is utilized to gather this type of data.

Harvest from the recreational fishery obtained through the NMFS'S MRFSS fluctuated from a low of 0.4 million pounds in 1981 to a high of 1.5 million pounds in 1997. Recreational harvest for the years examined (1981-2001), and were equal to those of the commercial fishery until 1987 when the commercial fishery began to expand (Figure 5.4). 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 5.5 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 than the years 1983, 1992, 1993, 1995, 1996, and 1997. Fisheries dependent recreational landings data is collected through the NMFS's MRFSS and currently collected by LDWF Biologists.

Catch-per-effort data from the Department's, fishery-independent trammel net (750' x 6' - 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 1986-2002. 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 October-December only. This allowed the use of 2002 data through December. 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 2002 ranks among the low CPUE years of 1990, 1991, 1996 through 1998, and 2001. Mean CPUE in trammel nets for 2002 fell below the high years of 2000 and 2001, but ranked the six highest for the seventeen 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 legal commercial gear to harvest sheepshead is limited to trawls, set lines and hook and line. 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 in the most recent years (1994-2001) was operating well below $F_{0.1}$ and F_{MAX} , with yield of 34% to 81% of maximum, and SPR at 44% to 81%. An M of 0.3 (the highest value examined) would indicate a more lightly fished stock with yield being 0% to 52% of maximum and with SPR being 64% to 100% (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.

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 collected.

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 sheepshead 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 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 Regression Output from the Estimation of Disappearance Rates

1994		1995	
	Regression Output:		Regression Output:
Constant	15.021596	Constant	14.850944
Std Err of Y Est	0.2345901	Std Err of Y Est	0.3675389
R Squared	0.9838147	R Squared	0.9588283
No. of Observations	11	No. of Observations	12
Degrees of Freedom	9	Degrees of Freedom	10
X Coefficient(s)	-0.523156	X Coefficient(s)	-0.469036
Std Err of Coef.	0.0223673	Std Err of Coef.	0.0307351
1996		1997	
	Regression Output:		Regression Output:
Constant	15.192015	Constant	15.761395
Std Err of Y Est	0.3653936	Std Err of Y Est	0.5768082
R Squared	0.9599547	R Squared	0.9134316
No. of Observations	11	No. of Observations	11
Degrees of Freedom	9	Degrees of Freedom	9
X Coefficient(s)	-0.511724	X Coefficient(s)	-0.535938
Std Err of Coef.	0.0348389	Std Err of Coef.	0.0549965
1998		1999	
	Regression Output:		Regression Output:
Constant	14.193558	Constant	16.063849
Std Err of Y Est	0.3972007	Std Err of Y Est	0.7846194
R Squared	0.8828408	R Squared	0.8414228
No. of Observations	10	No. of Observations	10
Degrees of Freedom	8	Degrees of Freedom	8
X Coefficient(s)	-0.339532	X Coefficient(s)	-0.562813
Std Err of Coef.	0.0437304	Std Err of Coef.	0.0863837
2000		2001	
	Regression Output:		Regression Output:
Constant	14.398424	Constant	13.434931
Std Err of Y Est	0.7004783	Std Err of Y Est	0.4685649
R Squared	0.6610515	R Squared	0.7840281
No. of Observations	9	No. of Observations	10
Degrees of Freedom	7	Degrees of Freedom	8
X Coefficient(s)	-0.334133	X Coefficient(s)	-0.278007
Std Err of Coef.	0.0904314	Std Err of Coef.	0.0515873

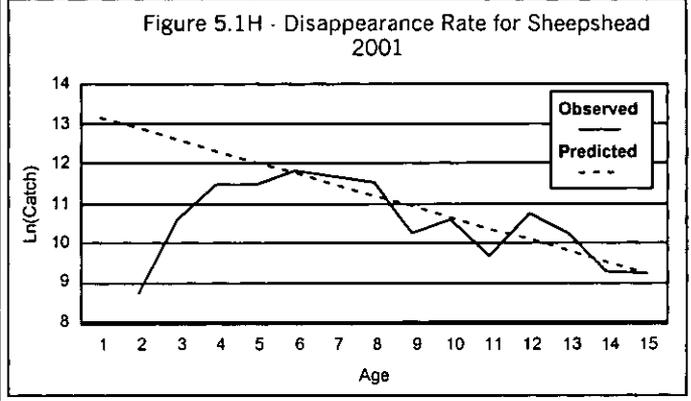
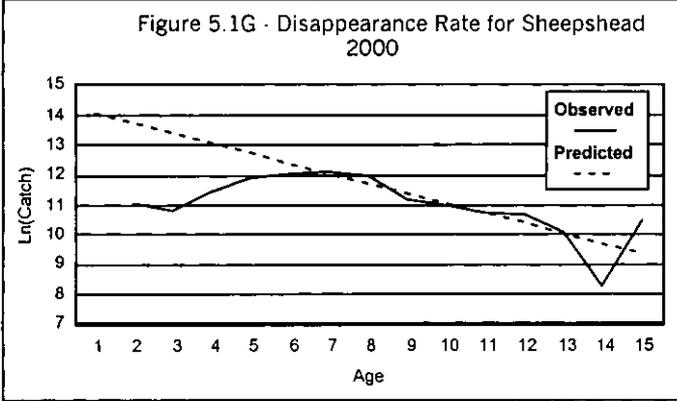
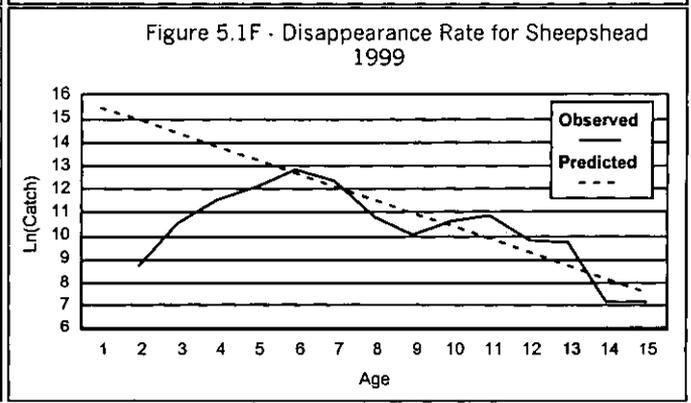
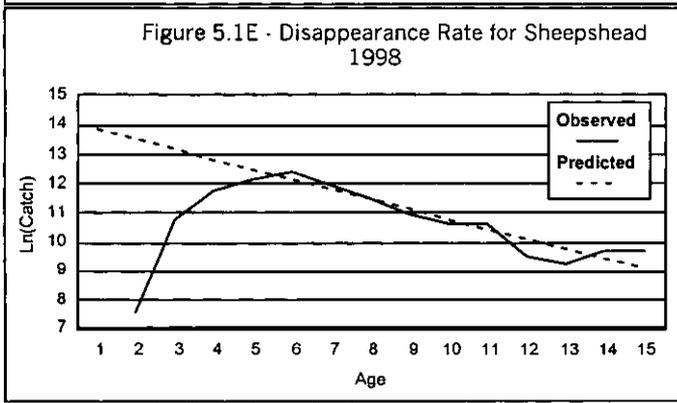
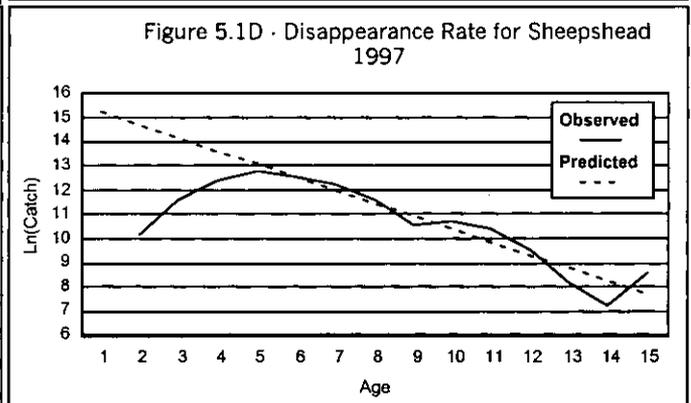
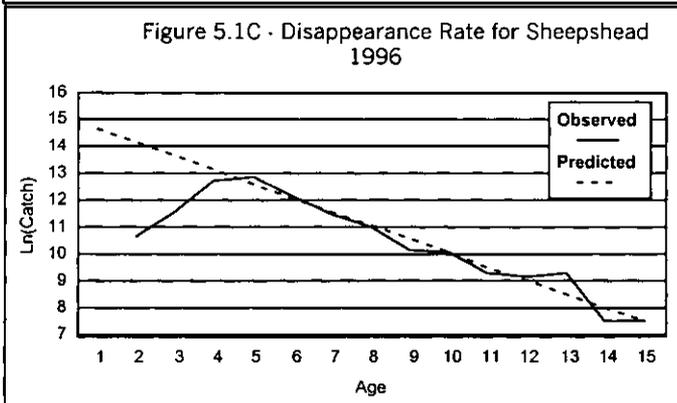
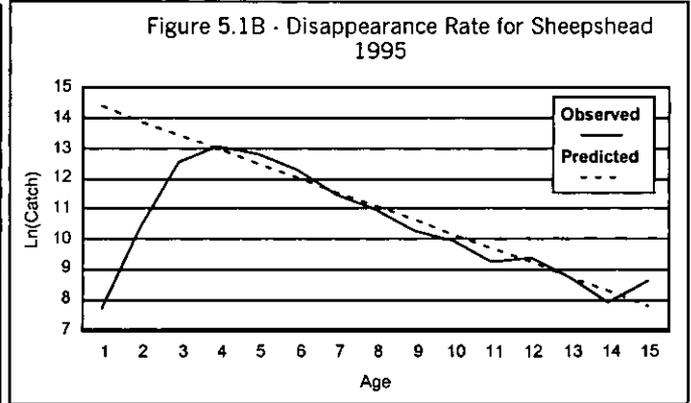
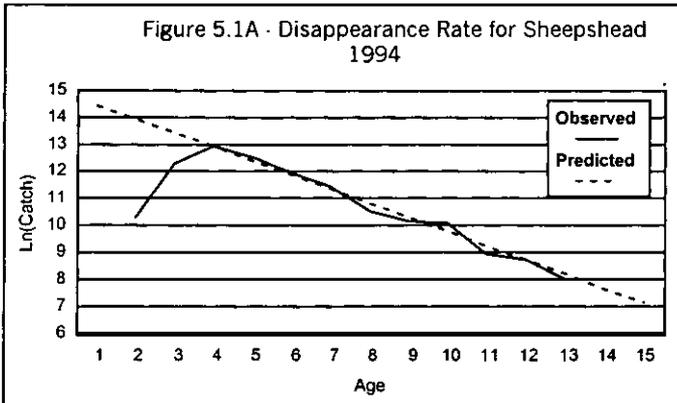
Table 5.2 - Results of Yield Per Recruit and SPR Analysis for Sheepshead

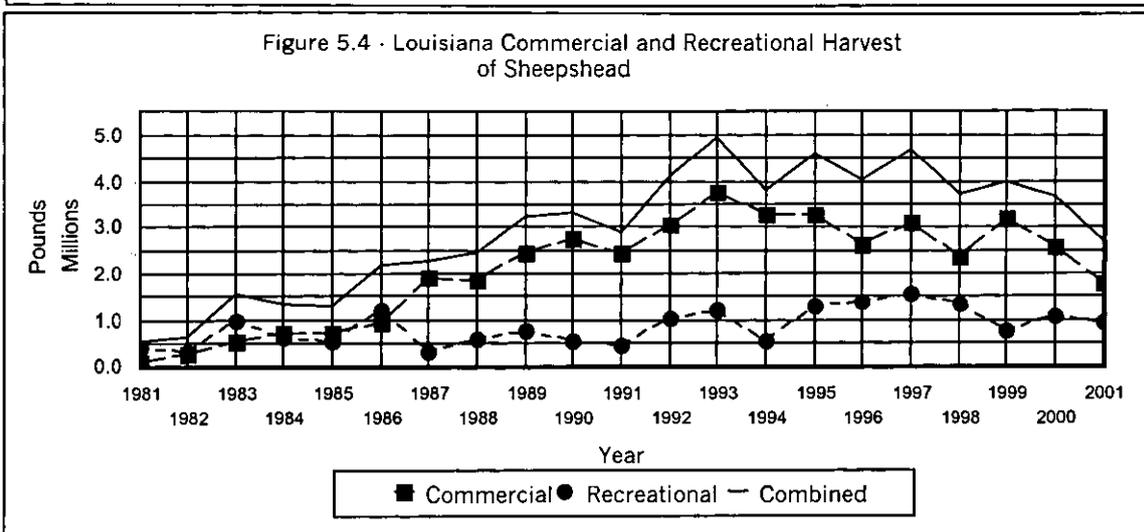
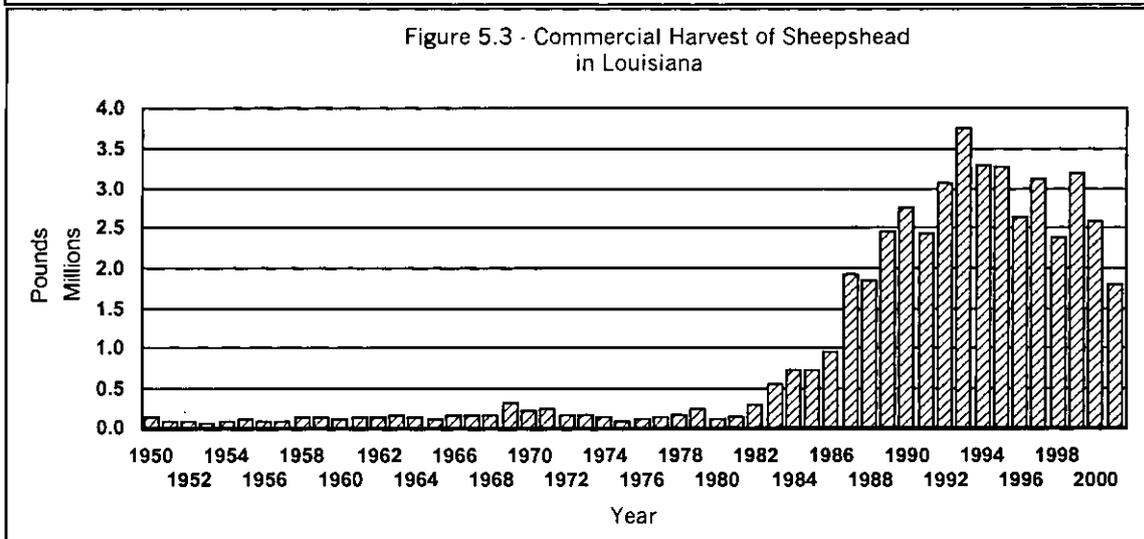
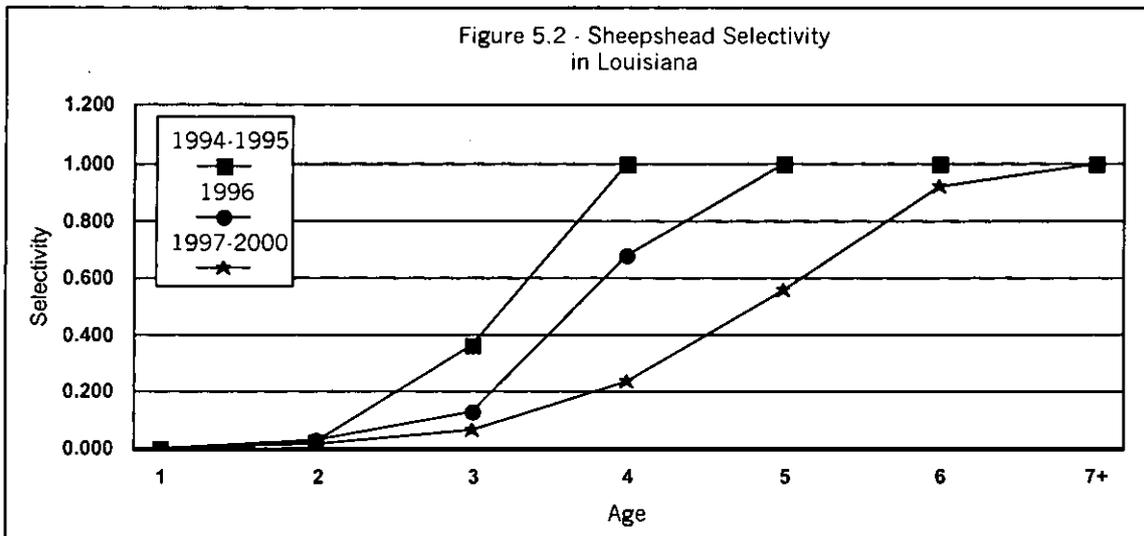
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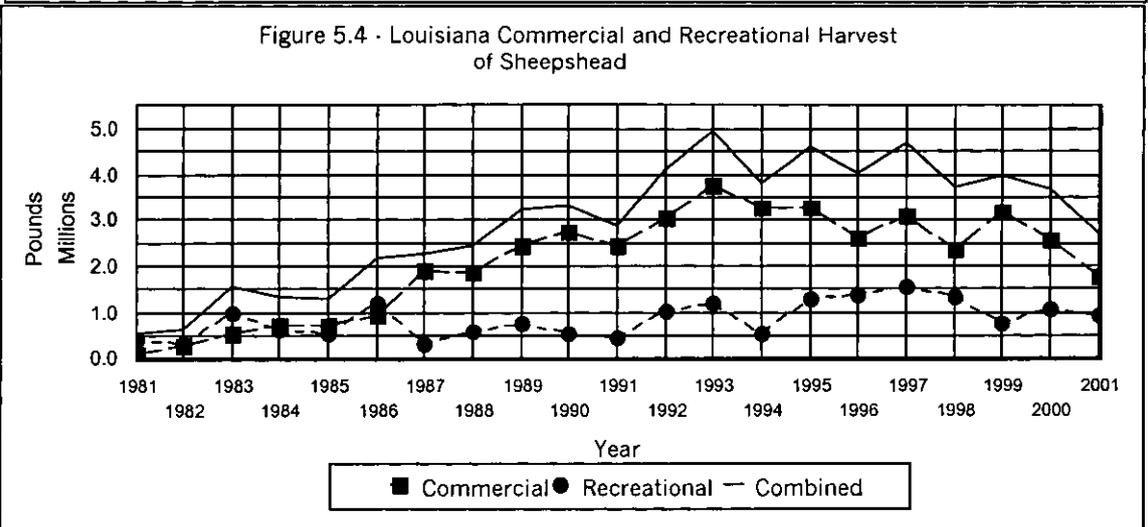
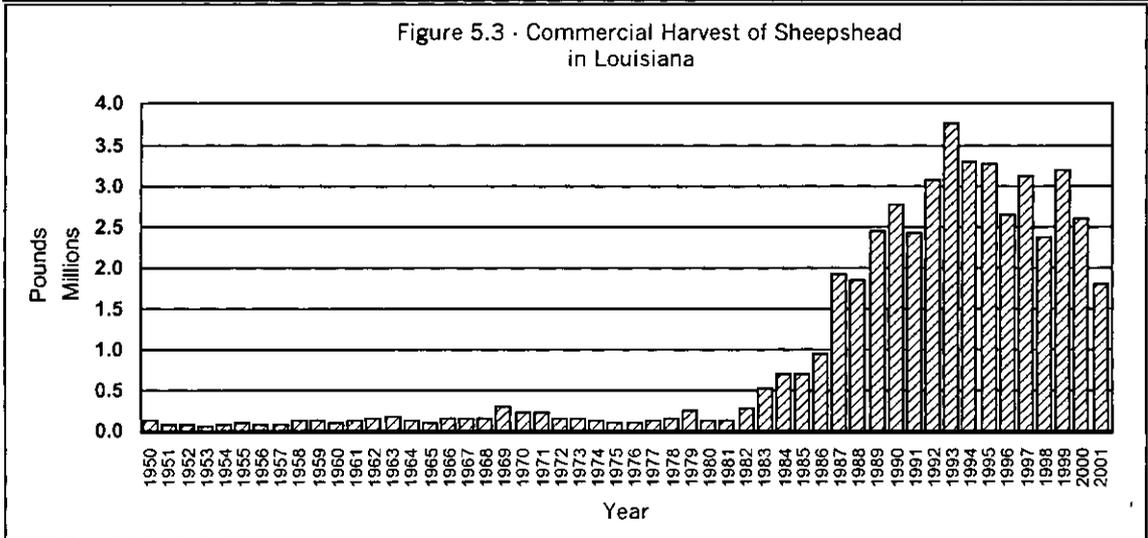
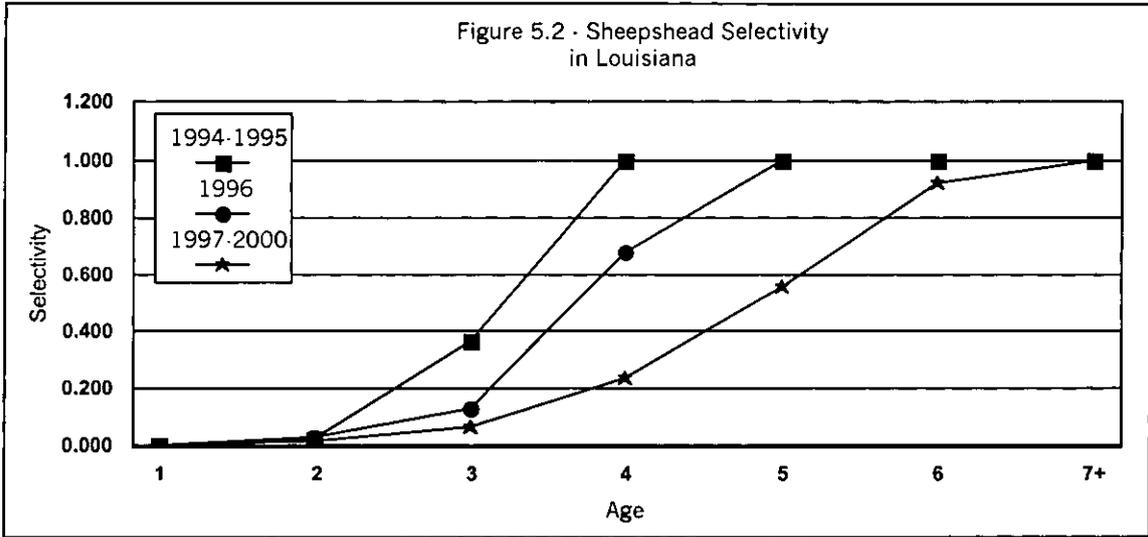
	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax =	61.6150	540.8262	605	11.57%	100.00%	Benchmarks
F0.1 =	0.3422	394.1757	2,890	55.27%	72.88%	
F20% =	11.4052	537.8744	1,046	20.00%	99.45%	
F30% =	2.7621	519.2947	1,569	30.00%	96.02%	
1994 =	0.3232	438.9991	2,344	44.84%	81.21%	Estimates
1995 =	0.2690	416.3976	2,545	48.68%	77.03%	
1996 =	0.3117	416.9339	2,614	49.99%	77.78%	
1997 =	0.3359	392.0070	2,907	55.59%	72.48%	
1998 =	0.1395	271.2942	3,742	71.56%	50.16%	
1999 =	0.3628	400.8474	2,837	54.27%	74.12%	
2000 =	0.1341	262.2520	3,798	72.63%	48.49%	
2001 =	0.0780	186.1849	4,250	81.29%	34.43%	

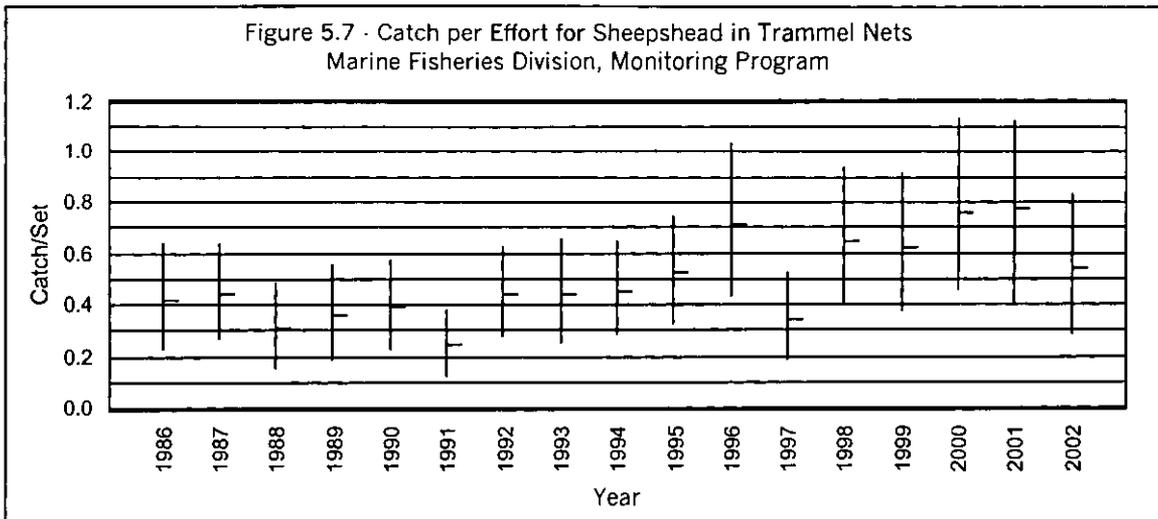
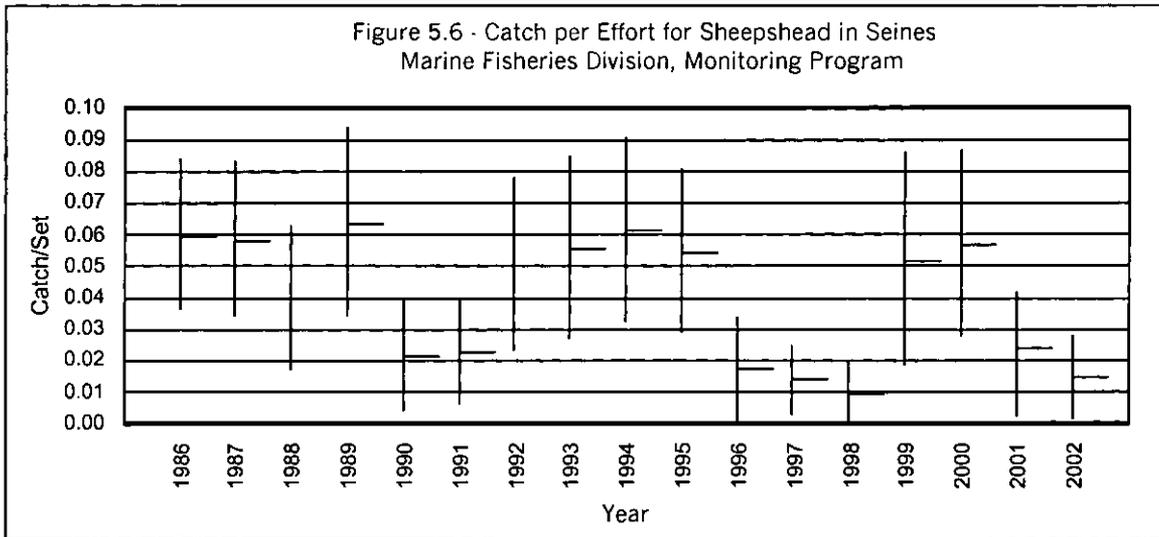
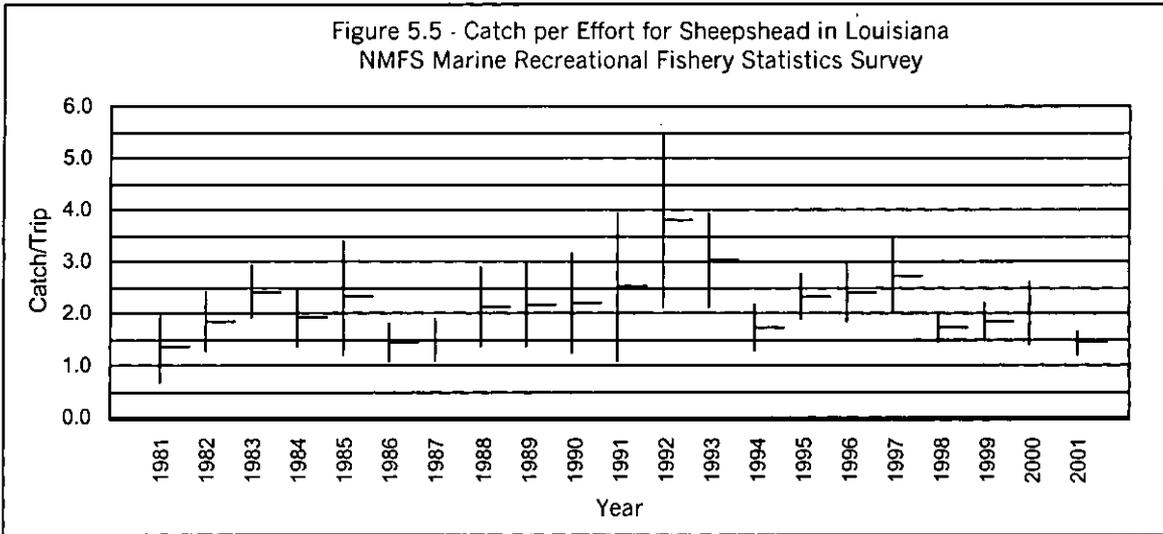
M=0.3

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax =	53687092	448.1602	0	0.00%	100.00%	Benchmarks
F0.1 =	0.5492	238.4160	1,617	61.58%	53.20%	
F20% =	42.8268	393.4992	525	20.00%	87.80%	
F30% =	10.8050	367.3473	788	30.00%	81.97%	
1994 =	0.2232	212.5960	1,695	64.56%	52.48%	Estimates
1995 =	0.1690	183.3489	1,835	69.90%	45.26%	
1996 =	0.2117	188.6759	1,829	69.66%	42.10%	
1997 =	0.2359	168.6200	1,944	74.04%	37.62%	
1998 =	0.0395	46.7472	2,448	93.22%	10.43%	
1999 =	0.2628	178.0026	1,902	72.44%	39.72%	
2000 =	0.0341	40.2992	2,473	94.17%	8.99%	
2001 =	0.0000	0.0000	2,626	100.00%	0.00%	











2003 Southern Flounder 5.0 Stock Assessment Comments

- The data set (provided by B. Thompson, Coastal Fisheries Institute, Louisiana State University) used in the southern flounder stock assessments since the mid-nineties lacks data at critical points in the southern flounder life history. Additional data is needed for rapidly growing juveniles and older, larger fish in order to more accurately model growth.
- Von Bertalanffy growth parameters calculated for females in the southern flounder stock assessment differ from those calculated by Fischer and Thompson (In review). The stock assessment data set Their data set of 1415 fish contained more large fish ranging in age from 6 to 8 years to produce a larger estimate of L_{∞} (maximum theoretical length) of 557 mm TL. In addition, Fischer and Thompson included a number of aged 0 fish ranging in size from 100 to 230mm TL in their model, a size range lacking in the stock assessment model. This size range, a period of rapid growth in southern flounder, drives the estimate of k . The lack of fish in this size range resulted in an estimate of k (0.88) that is larger than in previous research.
- Estimations of natural mortality (M) were calculated using the method of Pauly (1980) using estimates of L_{∞} and k . The use of these parameters from the stock assessment von Bertalanffy model may affect estimates of mortality.
- The assumption that the maximum age of southern flounder has been truncated due to fishing from 9 to 7 years seems unlikely. In a data set of 1415 southern flounder (Fischer and Thompson, in review), less than 1% were aged 5 years or older. Only 2 fish were aged at 7 years and 2 fish at 8 years. In addition, no other fish have been aged at 8 years in published literature. The estimate of longevity (T_m) is most likely somewhere between 0.47 and 0.6 (if you assume maximum survival age of 8 years).

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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, 1981-2000). 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 1998 fishing year, as defined for this report, consists of February 1998 through January 1999. 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 Louisiana Department of Wildlife and Fisheries' (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.

Explain why females only (above + below). Gillnet harvest is mostly female?

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

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 (100% selected).

Large
Proctilled
Females
targeted

Length frequency data from the mullet fishery, derived from Trip Intercept Program (TIP) sampling (LDWF unpubl. data), are available for the fishing years 1994-2001. 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	0.0011
2	0.0372
3	0.2616
4	0.7780
5 and over	1.0

Ages of
Females?

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

Indicate which numbers are Z' on 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.

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 a 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.

*What actions must be taken to get sufficient information.
What and how much information is sufficient?*

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). Commercial landings prior to 1991 was obtained from NMFS's General Canvass Landing Program, from 1991 through 1998 landings was collected through the LDWF's Monthly Dealer Reports and from 1999 to present LDWF's Commercial Reporting Requirement "Trip Tickets" program is utilized to gather this type of data. Recreational landings was obtained through the NMFS's Marine Recreational Fishery Statistics Survey. Harvest increased in the early 1990's, as the commercial 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. Legislation allowing the use of hoop nets in freshwater areas for taking mullet was legalized in 1999. The law required that no leads be used on the hoop nets, no harvest or possess of mullet from between the hours of official sunset and official sunrise, and mullet caught in the freshwater areas of the state could not be possessed by commercial fishermen in the saltwater areas of the state. Three legislative acts were passed in 2001: Act 51 defined certain portion of the Intracoastal waterway, from the overhead power lines at the Interharbor Navigation Canal east to the Rigolets, in Orleans Parish as saltwater and freshwater for the purposes of possessing regulated gear and allows the harvest of mullet in that area in addition to a portion of Lake Pontchartrain located south and east of the I-10 bridge as long as commercial fishing operations in these waters will not interfere with normal commercial traffic; Act 116 statutorily created a mullet task force to advise LDWF on certain issues; and Act 147 adopted a three-strikes and you are out penalty system within the commercial mullet fishery: first conviction, one year permit suspension, second conviction two years suspension, third conviction lifetime permit ban.

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) from 1996 through 2001 of the seventeen years examined (1987-2002) but the 2002 CPUE is back to the level prior to 1996. 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 five 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 30% to 37%. An M of 0.6 would indicate a more lightly fished stock with yield being 67% to 88% of maximum and with SPR being 61% to 73% (Table 5.4).

*What does this mean in layman's terms? } Found it
overfished? Underfished? Time for new regulations? } below, threats!*

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. *Where would this come from?*

Is LDWF working toward a better estimate of M?

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 over-harvest.

Recruitment mechanisms are poorly defined for the species. Mullet are ^{suspected} recorded to spawn beyond the shelf break in the central Gulf of Mexico. No genetically distinct stocks have been identified within the Gulf. ^(distinction?) 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.

Is LDWF doing this?

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. *See above.*

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.

Perhaps you should indicate/explain what LDWF is doing to ~~the~~ fill some of the holes in the mullet data and to better understand population dynamics.

Table 5.3 Regression Output from the Estimation of Disappearance Rates

1994

Regression Output:

Constant 18.5503
 Std Err of Y Est 0.4624425
 R Squared 0.9702872
 No. of Observations 8
 Degrees of Freedom 6

X Coefficient(s) = z (?) -0.99882
 Std Err of Coef. 0.0713564

1996

Regression Output:

Constant 18.566267
 Std Err of Y Est 0.156
 R Squared 0.9959516
 No. of Observations 7
 Degrees of Freedom 5

X Coefficient(s) -1.033969
 Std Err of Coef. 0.0294812

1998

Regression Output:

Constant 18.855665
 Std Err of Y Est 0.4101676
 R Squared 0.9778915
 No. of Observations 7
 Degrees of Freedom 5

X Coefficient(s) -1.152746
 Std Err of Coef. 0.0775144

2000

Regression Output:

Constant 17.448049
 Std Err of Y Est 0.6605562
 R Squared 0.911813
 No. of Observations 7
 Degrees of Freedom 5

X Coefficient(s) -0.897566
 Std Err of Coef. 0.1248334

1995

Regression Output:

Constant 19.224847
 Std Err of Y Est 0.2586424
 R Squared 0.989781
 No. of Observations 7
 Degrees of Freedom 5

X Coefficient(s) -1.07565
 Std Err of Coef. 0.0488788

1997

Regression Output:

Constant 18.432739
 Std Err of Y Est 0.1661209
 R Squared 0.9953224
 No. of Observations 7
 Degrees of Freedom 5

X Coefficient(s) -1.024001
 Std Err of Coef. 0.0313939

1999

Regression Output:

Constant 18.114605
 Std Err of Y Est 0.5090718
 R Squared 0.95371
 No. of Observations 7
 Degrees of Freedom 5

X Coefficient(s) -0.976449
 Std Err of Coef. 0.0962055

2001

Regression Output:

Constant 19.668877
 Std Err of Y Est 0.4369422
 R Squared 0.9765425
 No. of Observations 7
 Degrees of Freedom 5

X Coefficient(s) -1.191336
 Std Err of Coef. 0.0825743

Is this z ?

Sheepshead were lightly exploited until the early to mid-1980s when commercial harvest began to increase (Figure 5.3). 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 eight years from a high of 3.7 million pounds in 1993 to 1.7 million pounds in 2001. Fishery dependent commercial data prior to 1991 was obtained from NMFS's General Canvass Landing Program, from 1991 through 1998 it was collected by the Louisiana Department of Wildlife and Fisheries' (LDWF) Monthly Dealer Reports and from 1999 to present LDWF's Commercial Reporting Requirement "Trip Tickets" program is utilized to gather this type of data.

Harvest from the recreational fishery obtained through the NMFS's MRFSS fluctuated from a low of 0.4 million pounds in 1981 to a high of 1.5 million pounds in 1997. Recreational harvest for the years examined (1981-2001) were equal to those of the commercial fishery until 1987 when the commercial fishery began to expand (Figure 5.4). 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 5.5 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 than the years 1983, 1992, 1993, 1995, 1996, and 1997. Fisheries dependent recreational landings data is collected through the NMFS's MRFSS and currently collected by LDWF Biologists.

Catch-per-effort data from the Department's, fishery-independent trammel net (750' x 6' - 1 5/8" inner, 6" outer wall) and small mesh bag seine (50' - 1/4" delta mesh) samples were calculated as follows:

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

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 1986-2002. 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 October-December only. This allowed the use of 2002 data through December. 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 2002 ranks among the low CPUE years of 1990, 1991, 1996 through 1998, and 2001. Mean CPUE in trammel nets for 2002 fell below the high years of 2000 and 2001, but ranked the six highest for the seventeen 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 legal commercial gear to harvest

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 estimate 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 et al. (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. (1990) from fish harvested in Louisiana was used in this assessment. The equation is as follows:

$$W = (1.14 * 10^{-5}) FL^{3.05}$$

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

5.2 Natural Mortality

Natural mortality^(M) 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^(F) 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. The current assessment uses yield-per-recruit and SPR analysis to estimate the impact of fishing on spawning potential.

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 Nieland ~~et al.~~ (1993) were used to estimate spawning potential. The equation is as follows:

and Wilson

$$BF = 49,249 * \text{Age} + 530,052$$

Total weight was a slightly better predictor of BF.

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), $F_{20\%SPR}$ (fishing mortality that produces 20% SPR), $F_{30\%SPR}$ (fishing mortality that produces 30% SPR), and estimates of F from Section 5.3.

5.5 Conservation Standards

Next Page

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, ^{species} ~~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 by Act 1316 in 1995 may have reduced harvest even further as evidenced from 1996-1999; however, landings are increasing, and approaching 1995 landing level. Commercial landings prior to 1991 ^{were} ~~was~~ obtained from the National Marine Fisheries Service's (NMFS) General Canvass Landing Program, from 1991 through 1998 it was collected by the Louisiana Department of Wildlife and Fisheries' (LDWF) Monthly Dealer Reports and from 1999 to present LDWF's "Trip Tickets" program is utilized to gather this type of data.

Harvest from the recreational fishery collected through the NMFS's Marine Recreational Fishery Statistics Survey fluctuated, between 0.5 and 2.7 million pounds, for the years prior to regulation (1981-1988), and 0.4 to 2.7 million pounds post-regulations (Figure 5.2). Recreational harvest since regulations were implemented in 1989 have remained relatively stable through 1995. Recent harvest (1996-2000) shows an increasing trend. 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 (1981-2001), 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, 1998, 1999, 2000, and 2001. Fisheries dependent recreational landings data ^{are} ~~is~~ collected through the NMFS's Marine Recreational Fisheries Statistical Survey and currently collected by LDWF Biologists.

Catch-per-effort data from the Department's, fishery-independent trammel net (750' x 6' - 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 1986-2002. 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, 1999 and 2000. 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, 1999, 2000, 2001, and 2002.

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 legal commercial gear to harvest black drum was limited to trawl, set lines and hook and line. This set of regulations had the effect of reducing the harvest of black drum by this segment of the commercial fishing industry.

It might be instructive to indicate how the commercial harvest is divided among these years.

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 44%. An M of 0.15 or 0.2 would indicate a more lightly fished stock with yield being 66% to 45% of maximum and with SPR being 57% to 66% respectively (Table 5.1).

Current regulations are as follows: 16 inches minimum total length and 5 fish per person daily bag and possession limit with not more than one exceeding 27 inches for recreationally harvested black drum. For commercially harvested black drum there is a 16 inch minimum total length and an annual harvest quota of 3.25 million pounds for black drum measuring 16-27 inches

So what, in layman's terms, is the status of BD in Louisiana waters? Might regulations be adjusted to increase/decrease harvest?

total length and annual harvest of 300,000 fish measuring longer than 27 inches total length with the fishing year beginning September 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.

↑ How would this be done? ↑

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. *Is LDNF studying this?*

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~~ ^{Current} programs should be assessed for adequacy with respect to their ability to evaluate stock status, and modified or enhanced to optimize their capabilities.

Are you suggesting that LDNF ramp up its sampling efforts? If so, you might want to state such.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<h1>June 2003</h1>						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

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	21	\$11,039.59		30	\$10,159.24	\$6,216.42		
Mar., 2000	19	\$9,873.21		31	\$6,709.07	\$3,555.40		
Apr., 2000	12	\$7,897.70		17	\$2,932.41	\$1,512.54		
May, 2000	7	\$5,039.46	\$293.60	20	\$7,062.23	\$3,164.00		
June, 2000	16	\$14,566.88		18	\$5,766.59	\$1,852.12		
Total FY 2000	194	\$111,367.29	\$6,186.15	266	\$58,777.65	\$26,309.61	76%	137%
FISCAL YEAR 2000-01								
July, 2000	2	\$865.01		14	\$1,948.03	\$154.01		
Aug., 2000	20	\$15,837.60		17	\$3,302.27	\$1,063.92		
Sept., 2000	12	\$3,562.26		23	\$8,718.21	\$1,351.41		
Oct., 2000	18	\$122,696.24		29	\$7,457.98	\$490.16		
Nov., 2000	13	\$15,851.30		22	\$4,038.50	\$309.30		
Dec., 2000	40	\$30,234.92		24	\$7,189.98	\$462.13		
Jan., 2001	28	\$15,923.38		25	\$7,611.66	\$833.60		
Feb., 2001	35	\$20,181.39		30	\$18,568.12	\$1,917.82		
Mar., 2001	8	\$5,956.83		37	\$15,724.02	\$753.86		
Apr., 2001	20	\$24,145.82		22	\$4,856.39	\$225.93		
May 2001	4	\$1,677.36		20	\$3,700.77	\$313.58		
June 2001	3	\$932.20		31	\$8,433.81	\$346.90		
Total FY 2001	203	\$257,864.31	\$0.00	294	\$91,549.74	\$8,222.62	39%	145%
FISCAL YEAR 2001-02								
July, 2001	4	\$4,290.29		25	\$6,328.36	\$293.54		
Aug., 2001	6	\$9,452.69		18	\$2,984.52			
Sept., 2001	0	\$175.00		25	\$4,157.32	\$66.29		
Oct., 2001	15	\$6,439.06		18	\$3,174.66	\$67.32		
Nov., 2001	15	\$5,913.63		24	\$3,932.41	\$194.66		
Dec., 2001	36	\$21,868.88		20	\$5,384.19	\$502.17		
Jan., 2002	56	\$27,650.44		38	\$11,100.99	\$1,008.09		
Feb., 2002	27	\$14,211.31	\$620.55	37	\$20,017.87	\$861.63		
Mar., 2002	8	\$6,765.68		36	\$10,061.89	\$419.16		
Apr., 2002	20	\$11,296.19		19	\$2,196.02	\$49.33		
May, 2002	3	\$30,852.57	\$11,887.80	27	\$8,265.67	\$538.72		
June, 2002	3	\$8,636.08		23	\$3,418.15	\$87.91		
Total FY 2002	193	\$147,551.82	\$12,508.35	310	\$81,022.05	\$4,088.82	58%	161%
FISCAL YEAR 2002-03								
July, 2002	8	\$6,915.26		20	\$3,308.14	\$111.90		
Aug., 2002	12	\$11,943.66		24	\$4,010.98	\$47.33		
Sept., 2002	6	\$1,944.83		19	\$4,624.36	\$85.25		
Oct., 2002	24	\$12,167.99		25	\$7,131.20	\$442.95		
Nov., 2002	21	\$11,013.41		27	\$8,688.51	\$624.99		
Dec., 2002	32	\$15,763.99		23	\$7,660.18	\$689.95		

Jan.,2003
Feb.,2003
Mar., 2003
Apr., 2003
May, 2003
June, 2003

58 \$32,391.55

22 \$7,149.09 \$562.34

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CIVIL RESTITUTION ACTIVITY REPORT
 CURRENT MONTH
 01/01/2003 TO 01/31/2003

	# CASES	AMOUNT
ORIG RESTITUTION VALUES ENTERED	58	\$32,191.55
HEARING COSTS ASSESSED	5	\$200.00
SALE OF CONFISCATED COMMODS	0	\$0.00
SALES EXCEEDING RESTITUTION	0	\$0.00

RESTITUTION ASSESSED	58	\$32,391.55
PAYMENTS	15	\$6,745.69-
PAYMENTS AFTER PAST DUE NOTICE	2	\$200.00-
PAYMENTS AFTER REVOKED NOTICE	5	\$203.40-
PAYMENTS FROM COLLECTION EFFORT	0	\$0.00
PAYMENTS FROM HRG COST ASSESSED	0	\$0.00
DISCOUNTS FOR TIMELY PAYMENTS	12	\$562.34-
OVERPAYMENTS	2	\$0.47
REFUND OF OVERPAYMENT	2	\$104.36
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	0	\$0.00
ASSESSMENTS WITHDRAWN	0	\$0.00
ADJUDICATION ADJUSTMENTS	1	\$0.50-
FOUND NOT RESPONSIBLE	0	\$0.00
DISMISSED BY D.A.	0	\$0.00
CASES VOIDED BY ENFORCEMENT	0	\$0.00
OVERTURNED ON APPEAL	0	\$0.00
DISMISSED BY ADMIN LAW	0	\$0.00

FOOTNOTE:

FORFEIT OF CONFISCATED COMMODS	0	\$0.00
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LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CIVIL RESTITUTION ACTIVITY REPORT
 FISCAL YEAR TO DATE
 07/01/2002 TO 01/31/2003

	# CASES	AMOUNT
ORIG RESTITUTION VALUES ENTERED	161	\$91,690.69
HEARING COSTS ASSESSED	15	\$450.00
SALE OF CONFISCATED COMMODS	0	\$0.00
SALES EXCEEDING RESTITUTION	0	\$0.00
=====		
RESTITUTION ASSESSED	161	\$92,140.69
PAYMENTS	72	\$30,019.76-
PAYMENTS AFTER PAST DUE NOTICE	11	\$2,595.48-
PAYMENTS AFTER REVOKED NOTICE	20	\$6,000.24-
PAYMENTS FROM COLLECTION EFFORT	9	\$3,731.98-
PAYMENTS FROM HRG COST ASSESSED	20	\$525.00-
DISCOUNTS FOR TIMELY PAYMENTS	54	\$2,564.71-
OVERPAYMENTS	4	\$0.79
REFUND OF OVERPAYMENT	3	\$110.74
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	7	\$390.89-
ASSESSMENTS WITHDRAWN	0	\$0.00
ADJUDICATION ADJUSTMENTS	4	\$8,149.10-
FOUND NOT RESPONSIBLE	8	\$3,270.48-
DISMISSED BY D.A.	0	\$0.00
CASES VOIDED BY ENFORCEMENT	0	\$0.00
OVERTURNED ON APPEAL	0	\$0.00
DISMISSED BY ADMIN LAW	1	\$118.26-

 FOOTNOTE:

FORFEIT OF CONFISCATED COMMODS	0	\$0.00
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LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CIVIL RESTITUTION ACTIVITY REPORT
 INCEPTION TO DATE
 01/31/2003

	# CASES	AMOUNT
ORIG RESTITUTION VALUES ENTERED	4,551	\$3,193,929.23
HEARING COSTS ASSESSED	355	\$9,425.00
SALE OF CONFISCATED COMMODS	331	\$269,865.45-
SALES EXCEEDING RESTITUTION	138	\$58,209.82
=====		
RESTITUTION ASSESSED	4,551	\$2,991,698.60
PAYMENTS	3,044	\$656,552.02-
PAYMENTS AFTER PAST DUE NOTICE	35	\$7,348.99-
PAYMENTS AFTER REVOKED NOTICE	77	\$25,566.19-
PAYMENTS FROM COLLECTION EFFORT	38	\$27,046.22-
PAYMENTS FROM HRG COST ASSESSED	189	\$4,925.00-
DISCOUNTS FOR TIMELY PAYMENTS	2,136	\$258,958.58-
OVERPAYMENTS	119	\$92.73
REFUND OF OVERPAYMENT	61	\$11,783.32
APPLIED CONFISCATED COMMODS	17	\$44,255.65-
APPLIED EXCEEDING BALANCE DUE	5	\$6,780.54
REFUND OF CONFISCATED COMMOD.	8	\$45,896.70
RETURNED CHECKS	1	\$61.75
MISC. ADJUSTMENTS		
DEBITS	3	\$55.00
CREDITS	13	\$10.22-
REASSESSMENTS		
DEBITS	21	\$6,881.15
CREDITS	63	\$36,913.30-
WRITE-OFFS	990	\$1,065,145.70-
ASSESSMENTS WITHDRAWN	7	\$1,794.95-
ADJUDICATION ADJUSTMENTS	29	\$20,549.90-
FOUND NOT RESPONSIBLE	91	\$169,056.29-
DISMISSED BY D.A.	0	\$0.00
CASES VOIDED BY ENFORCEMENT	2	\$559.32-
OVERTURNED ON APPEAL	1	\$524.54-
DISMISSED BY ADMIN LAW	1	\$118.26-
=====		
** TOTAL OUTSTANDING	358	\$743,924.66

 FOOTNOTE:

FORFEIT OF CONFISCATED COMMODS	38	\$106,941.70 *
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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	\$2,962.65
61 - 90 DAYS	1	\$254.65
91 - 120 DAYS	3	\$3,261.25
121 - 150 DAYS	7	\$2,502.95
151 - 180 DAYS	7	\$945.25
181 - 365 DAYS	33	\$44,222.54
OVER ONE YEAR	109	\$97,898.31
OVER TWO YEARS	154	\$119,606.57
OVER THREE YEARS	824	\$562,854.22
=====		
** TOTAL AGING	1,141	\$834,508.39

AGING OF OUTSTANDING CASES

COLLECTIONS WITH AGENCY:		
CAN NOT BE INVOICED	0	\$0.00
CURRENT	52	\$29,044.31
1 - 30 DAYS	25	\$12,762.92
31 - 90 DAYS	16	\$7,266.26
91 - 180 DAYS	14	\$17,033.27
181 - 365 DAYS	31	\$59,650.43
OVER ONE YEAR	126	\$129,338.97

COLLECTIONS WITH PRIVATE COLLECTIONS FIRM:		
1 - 90 DAYS	0	\$0.00
91 - 180 DAYS	0	\$0.00
181 - 365 DAYS	0	\$0.00
OVER ONE YEAR	92	\$414,062.96

AMOUNT UNDER PROTEST:		
1 - 180 DAYS	0	\$0.00
181 - 365 DAYS	1	\$549.54
OVER ONE YEAR	1	\$74,216.00
=====		

** TOTAL AGING	358	\$743,924.66
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LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CLASS I ACTIVITY REPORT
 CURRENT MONTH
 01/01/2003-01/31/2003

	# CASES	AMOUNT
FINES	347	\$20,600.00
HEARING COSTS		
DEBITS	1,102	\$27,575.00
CREDITS	4	\$100.00-
LATE CHARGES		
DEBITS	0	\$0.00
CREDITS	0	\$0.00
		=====
TOTAL DUE		\$48,075.00

=====

PAID IN FULL	283	\$17,681.00-
PARTIAL PAYMENTS	14	\$665.00-
ATTORNEY GENERAL COLLECTIONS	0	\$0.00
ATTORNEY GENERAL FEES	0	\$0.00
WRITE-OFFS	0	\$0.00
OVERPAYMENTS	1	\$75.00
REFUNDS	3	\$107.50
RETURNED CHECKS	1	\$75.00
MISC CHANGES		
DEBITS	1	\$20.00
CREDITS	0	\$0.00
ADJUSTMENTS TO VIOLATION		
DEBITS	1	\$50.00
CREDITS	1	\$0.00
VOIDS	12	\$600.00-
NOT GUILTY	13	\$700.00-
DISMISSED BY ADMIN LAW	2	\$100.00-
DISMISSED BY ENFORCEMENT	1	\$50.00-
GUILTY/FINE WAIVED	0	\$0.00
OVERTURNED ON APPEAL	0	\$0.00

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CLASS I ACTIVITY REPORT
 FISCAL YEAR TO DATE
 07/01/2002-01/31/2003

	# CASES	AMOUNT
FINES	4,124	\$227,460.00
HEARING COSTS		
DEBITS	2,344	\$58,650.00
CREDITS	19	\$800.00-
LATE CHARGES		
DEBITS	435	\$3,316.00
CREDITS	0	\$0.00
		=====
TOTAL DUE		\$288,626.00

PAID IN FULL	3,427	\$196,280.00-
PARTIAL PAYMENTS	88	\$4,035.00-
ATTORNEY GENERAL COLLECTIONS	0	\$0.00
ATTORNEY GENERAL FEES	0	\$0.00
WRITE-OFFS	0	\$0.00
OVERPAYMENTS	4	\$79.50
REFUNDS	53	\$1,487.00
RETURNED CHECKS	2	\$150.00
MISC CHANGES		
DEBITS	1	\$20.00
CREDITS	1	\$0.00
ADJUSTMENTS TO VIOLATION		
DEBITS	27	\$1,600.00
CREDITS	6	\$250.00-
VOIDS	161	\$8,200.00-
NOT GUILTY	31	\$1,600.00-
DISMISSED BY ADMIN LAW	24	\$1,200.00-
DISMISSED BY ENFORCEMENT	12	\$600.00-
GUILTY/FINE WAIVED	1	\$50.00-
OVERTURNED ON APPEAL	0	\$0.00

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES
 CLASS I ACTIVITY REPORT
 INCEPTION TO DATE
 01/31/2003

	# CASES	AMOUNT
FINES	102,456	\$5,227,017.07
HEARING COSTS		
DEBITS	27,055	\$676,587.80
CREDITS	20	\$10,166.00-
LATE CHARGES		
DEBITS	532	\$4,068.50
CREDITS	0	\$0.00
		=====
TOTAL DUE		\$5,897,507.37

		=====
PAID IN FULL	61,231	\$3,240,742.49-
PARTIAL PAYMENTS	1,554	\$71,014.25-
ATTORNEY GENERAL COLLECTIONS	16	\$690.00-
ATTORNEY GENERAL FEES	33	\$345.00-
WRITE-OFFS	11,921	\$695,077.50-
OVERPAYMENTS	181	\$4,126.78
REFUNDS	315	\$14,204.81
RETURNED CHECKS	72	\$3,750.00
MISC CHANGES		
DEBITS	69	\$1,095.00
CREDITS	170	\$141.88-
ADJUSTMENTS TO VIOLATION		
DEBITS	225	\$13,250.00
CREDITS	39	\$2,250.00-
VOIDS	5,335	\$268,300.00-
NOT GUILTY	1,204	\$61,200.00-
DISMISSED BY ADMIN LAW	203	\$10,250.00-
DISMISSED BY ENFORCEMENT	38	\$1,900.00-
GUILTY/FINE WAIVED	156	\$7,850.00-
OVERTURNED ON APPEAL	0	\$0.00
		=====
TOTAL OUTSTANDING		\$1,574,172.84

AGING OF OUTSTANDING CASES FROM CITATION DATE

COLLECTIONS WITH AGENCY:

CURRENT	160	\$9,200.00
1 - 30 DAYS	132	\$8,550.00
31 - 90 DAYS	433	\$26,825.00
91 - 180 DAYS	909	\$63,380.00
181 - 365 DAYS	1,695	\$124,645.00
OVER ONE YEAR	18,916	\$1,326,072.84

COLLECTIONS WITH DEPT OF REVENUE:

1 - 90 DAYS	0	\$0.00
91 - 180 DAYS	0	\$0.00
181 - 365 DAYS	0	\$0.00
OVER ONE YEAR	199	\$15,275.00

AMOUNT UNDER PROTEST:

1 - 180 DAYS	0	\$0.00
181 - 365 DAYS	0	\$0.00
OVER ONE YEAR	3	\$225.00

=====

** TOTAL AGING	22,447	\$1,574,172.84
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AGING OF OUTSTANDING CASES FROM HEARING DATE

PREHEARING	879	\$53,900.00
0 - 90 DAYS	546	\$40,280.00
91 - 180 DAYS	898	\$60,375.00
181 - 270 DAYS	991	\$75,785.00
271 - 365 DAYS	460	\$37,610.00
OVER ONE YEAR	18,673	\$1,306,222.84

=====

** TOTAL AGING	22,447	\$1,574,172.84
----------------	--------	----------------



Plaquemines Oyster Association, Inc.

P.O. Box 438
Port Sulphur, LA 70083

December 10, 2002

The Chairman of the Wild Life and
Fisheries Commission
P. O. Box 98000
Baton Rouge, La. 70898

Dear Chairman:

I represent the Plaquemines Oyster Association in Plaquemines Parish. I would like to request that for the February Wild Life and Fisheries Commission meeting could the following topic be discussed. The topic is "The Enforcement of Louisiana Standard Measurement for Oysters". Please let me know if I may attend the meeting and discuss this topic with the commission. I have some issues that must be brought out and dealt with in regards to this subject.

Please let me know if you can put this request on the February agenda for the meeting. My cell phone number is (504)554-3389. My home number is (985)657-7344 and my fax number is (985) 657-5541.

Thank you for your consideration,

JAKOV JURISIC'
PRESIDENT
PLAQUEMINES OYSTER ASSOCIATION

REC'D

DEC 23 2002

OFFICE OF WILDLIFE
ASSISTANT SECRETARY

Louisiana Department of Wildlife and Fisheries

NEWS RELEASE

James H. Jenkins Jr.
Secretary



CONTACT
225/765-2925

2003-023

1/30/03

L.W.F.C. TO MEET FEBRUARY 6

The next regular public meeting of the Louisiana Wildlife and Fisheries Commission has been scheduled by the commission for 10:00 a.m. on Thursday, February 6. It will be held at the Wildlife and Fisheries Building, located at 2000 Quail Drive in Baton Rouge. The agenda is as follows:

1. Roll Call
2. Approval of Minutes of January 9, 2003
3. Delta Waterfowl Proposal
4. Enforcement and Aviation Reports/January
5. Approval of Atchafalaya Delta WMA Lease Renewal
6. Wildlife Division Report on Waterfowl
7. Consideration of Offshore Territorial Sea Shrimp Closure
8. Presentation of Stock Assessments for Black Drum, Striped Mullet, Southern Flounder and Sheepshead
9. Set June 2003 Meeting Date
10. Public Comments
11. Adjournment

EDITORS: For more information, contact Thomas Gresham at 225/765-2923
(gresham_tp@wlf.state.la.us).

12/5
1-30-03

January 29, 2003

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 6, 2003, at the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA.

1. Roll Call
2. Approval of Minutes of January 9, 2003
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4. Enforcement & Aviation Reports/January
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9. Set June 2003 Meeting Date
10. Public Comments
11. Adjournment

 * P. 01 *
 * TRANSACTION REPORT *
 * JAN-29-03 WED 03:21 PM *
 * DATE START RECEIVER TX TIME PAGES TYPE NOTE M# DP *
 * JAN-29 03:20 PM SEAFOOD MKTG BOARD 1' 10" 2 SEND OK 287 *
 * TOTAL : 1M 10S PAGES: 2 *

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 29, 2003

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 6, 2003, in the Louisiana Room at the
 Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA.

The following items will be discussed:

Added by Henry Mouton
1/29/2003 - 11:20 AM

State of Louisiana



Delta Waterfowl
Proposal

Contacted Mr. Falterman
for approval - Mr.
Denmon out of state

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

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

January 29, 2003

MEMORANDUM

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The following items will be discussed:

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2. Approval of Minutes of January 9, 2003

COMMISSIONER MOUTON

3. Delta Waterfowl Proposal

WINTON VIDRINE

4. Enforcement & Aviation Reports/January

OFFICE OF WILDLIFE

5. Approval of Atchafalaya Delta WMA Lease Renewal
6. Wildlife Division Report on Waterfowl

OFFICE OF FISHERIES

7. Consideration of Offshore Territorial Sea Shrimp Closure

Page 2
Commission Meeting
January 29, 2003

8. Presentation of Stock Assessments for Black Drum, Striped Mullet, Southern Flounder and Sheepshead

9. Set June 2003 Meeting Date

10. Public Comments

JHJ:sch

cc: Jim Patton
Phil Bowman
John Roussel
Craig Lamendola
Don Puckett
Dennis Kropog
Ewell Smith
Division Chiefs
Marianne Burke

C O V E R



FAX

S H E E T

To: Terry Denmon
Fax #: 318-361-5036
Subject: Agenda
Date: January 24, 2003
Pages: 3, including this cover sheet.

COMMENTS:

Please call me after you have reviewed the attached agenda for the February Commission Meeting. 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

, 2003

MEMORANDUM

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

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WINTON VIDRINE

3. Enforcement & Aviation Reports/January

OFFICE OF WILDLIFE

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OFFICE OF FISHERIES

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Page 2
Commission Meeting
, 2003

8. Set June 2003 Meeting Date
9. Public Comments

JHJ:sch

cc: Jim Patton
Phil Bowman
John Roussel
Craig Lamendola
Don Puckett
Dennis Kropog
Ewell Smith
Division Chiefs
Marianne Burke

Hawkins, Susan

From: Roussel, John E
Sent: Tuesday, January 21, 2003 11:57 AM
To: Foote, Karen
Cc: Abbott, Janet; Bourgeois, Martin; Pausina, Randy; Shepard, Joey; Porch, Pat; Hawkins, Susan
Subject: RE: February Commission agenda items- Marine Fisheries

OK

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

From: Foote, Karen
Sent: Tuesday, January 21, 2003 10:09 AM
To: Roussel, John E
Cc: Abbott, Janet; Bourgeois, Martin; Pausina, Randy; Shepard, Joey; Porch, Pat; Hawkins, Susan
Subject: February Commission agenda items- Marine Fisheries

With your approval, Marine Fisheries requests that we place the following items on the February agenda:

Consideration of Offshore Territorial Sea Shrimp Closure- Marty Bourgeois

Presentation of Stock Assessments for Black Drum, Striped Mullet, Southern Flounder and Sheepshead- Joey Shepard

Hawkins, Susan

From: Foote, Karen
Sent: Tuesday, January 21, 2003 10:09 AM
To: Rousset, John E
Cc: Abbott, Janet; Bourgeois, Martin; Pausina, Randy; Shepard, Joey; Porch, Pat; Hawkins, Susan
Subject: February Commission agenda items- Marine Fisheries

With your approval, Marine Fisheries requests that we place the following items on the February agenda:

Consideration of Offshore Territorial Sea Shrimp Closure- Marty Bourgeois

Presentation of Stock Assessments for Black Drum, Striped Mullet, Southern Flounder and Sheepshead- Joey Shepard

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 6, 2003

MEMORANDUM

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

FROM: James H. Jenkins, Jr., Secretary

SUBJECT: Commission Meeting Agenda - February 6, 2003

Please write on the bottom of this memo and return to Susan Hawkins by Friday, January 17th any agenda items your office may have for the **Thursday, February 6th** 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 6th. 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
Brandt Savoie
Ewell Smith
Marianne Burke

*Forward
Fisheries
will have no
items on the
agenda
Lloyd G. H.
1/17/03*

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 6, 2003

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JHJ/sch

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Don Puckett
Winton Vidrine ✓
Tommy Prickett
Bennie Fontenot
Karen Foote
Wynnette Kees
Brandt Savoie
Ewell Smith
Marianne Burke

Conf. Report
W.V.

State of Louisiana



To: Susan A.

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 6, 2003

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Assistant

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Winton Vidrine
Tommy Prickett ✓
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Wynnette Kees
Brandt Savoie
Ewell Smith
Marianne Burke

Division Report - Waterfowl

State of Louisiana



James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
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(225) 765-2800

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

January 6, 2003

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Don Puckett
Winton Vidrine
Tommy Prickett
Bennie Fontenot
Karen Foote
Wynnette Kees
Brandt Savoie
Ewell Smith
Marianne Burke ✓

Nothing for Public Information
M. Foster

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 6, 2003

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Assistant

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Wynnette Kees
Brandt Savoie ✓
Ewell Smith
Marianne Burke

None
Brandt

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 6, 2003

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TRANSACTION REPORT

P. 01

JAN-06-03 MON 05:08 PM

DATE	START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M#	DP
JAN-06	05:07 PM	SEAFOOD MKTG BOARD	45"	1	SEND	OK	270	

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State of Louisiana



James H. Jenkins, Jr.
Secretary

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

M.J. "Mike" Foster, Jr.
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January 6, 2003

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