

AMENDMENT NUMBER 4
TO
THE FISHERY MANAGEMENT PLAN
FOR THE
SHRIMP FISHERY OF THE GULF OF MEXICO
UNITED STATES WATERS

INCLUDES ENVIRONMENTAL ASSESSMENT
AND REGULATORY IMPACT REVIEW

AUGUST, 1988

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
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I. Introduction

A fishery management plan for the shrimp fishery in the Gulf of Mexico was prepared by the Gulf of Mexico Fishery Management Council and was implemented as federal regulation on May 15, 1981. The principal thrust of the plan was to enhance yield in volume and value by deferring harvest of small shrimp to provide for growth. This was achieved by establishing a cooperative Tortugas shrimp sanctuary with the State of Florida to close to shrimp trawling an area where small pink shrimp comprise the majority of the population most of the time. A cooperative 45-day seasonal closure was established with the State of Texas to protect small brown shrimp emigrating from bay nursery areas. An area of Florida Bay was zoned seasonally for either shrimp or stone crab fishing to avoid gear conflict.

Amendment No. 1 provided the Regional Director of NMFS with the authority after conferring with the Council to adjust by regulatory amendment the size of the Tortugas sanctuary or extent of the Texas closure or to eliminate either closure for one year.

Amendment No. 2 updated catch and economic data in the FMP, and Amendment No. 3 resolved another shrimp-stone crab gear conflict on the west central Florida coast.

Amendment No. 4 identifies additional problems which have developed in the fishery and revises the objectives of the FMP accordingly. The annual review process for the Tortugas sanctuary is simplified, and the Council and Regional Director review for the Texas closure is extended to February 1st. White shrimp taken in the EEZ are to be landed in accord with a state's size possession regulations to provide consistency and facility of enforcement with the State of Louisiana. This latter action is to be implemented at such time when Louisiana provides for an incidental catch of undersized white shrimp in the fishery for seabobs.

II. Description and Utilization Patterns

U.S. commercial landings of Gulf shrimp from 1980 to 1986 ranged from a record of 304 million pounds (live weight) in 1986 to 198 million pounds in 1983. The seven-year average was 244 million pounds. The exvessel value of landings in 1986 was \$600 million.

All U.S. shrimp landings for the five-year period 1981-1985 averaged 306 million pounds.

Supply cannot meet the demand, and imports have made up the difference. Each year since 1982 imports have set a new record, reaching 400 million pounds in 1986.

Gulf shrimp abundance continues to be the result of recruitment, largely controlled by environmental driving forces. In recent years the development of a strong inshore (bay) fishery on juvenile shrimp, whose growth potential has not been reached, has resulted in lower recruitment to the offshore fishery and lessened the potential for increasing yield by deferring harvest in offshore waters. In 1986 some 62 million brown shrimp at a size of 90 to 150 tails per pound were taken in Texas bays between April 1 and May 15 before the opening of the bay season. Texas law provides for a limited daily vessel catch for bait purposes.

III. Issues To Be Addressed

1. There have been economic and social changes and changes in fishing patterns since implementation of the FMP.
2. The FMP objectives need revision due to introduction of new problems in the fishery.
3. The annual review process should be streamlined and criteria for change of regulations do not address some issues.
4. Regulations of some states are inconsistent with FMP regulations.
5. Shrimp trawls continue to catch and drown endangered species of sea turtles.

IV. Proposed Action

1. Additional problems which affect management of the Gulf shrimp fishery are identified in this amendment.
2. An objective is revised to include minimizing surface as well as underwater obstructions to shrimp vessels.
3. The annual review process for the Tortugas shrimp sanctuary is revised to eliminate the requirement for annual publication of an intent not to modify the extent of the sanctuary.
4. The annual review process for the seasonal closure to shrimping off Texas is revised to add criteria and provide additional time for review.
5. White shrimp taken in the EEZ are to be landed in accord with a state's size possession regulations.
6. Expansion of the sea turtle educational and headstart programs where appropriate are recommended.

ACTION 1: PROBLEMS IN THE FISHERY

Section 8.3 is revised as follows:

8.3 Problems in the Fishery

The Council has identified the following problems associated with the fishery and the present management regime has prepared the plan objectives where possible to address and alleviate them. In a free access fishery a management regime to maximize protein yield and economic return to the fisherman is of importance.

1. Conflict among user groups as to area and size at which shrimp are to be harvested.
2. Discard of shrimp through the wasteful practice of culling.

3. The continuing decline in the quality and quantity of estuarine and associated inland habitats.
4. Conflicts with other fisheries such as the stone crab fishery in southern Florida, the groundfish fishery of the north central Gulf, and the Gulf's reef fish fishery.
5. Incidental capture of sea turtles.
6. Loss of gear and trawling grounds due to man-made obstructions.
7. Partial lack of basic data needed for management.
8. Increasing catch of small shrimp in inshore waters.
9. Pulse fishing resulting from seasonal closure.
10. Loss of access to productive shrimp fishing grounds off Mexico.
11. Possible loss of shrimp to Mexico through transboundary migration.
12. Competition in shrimp sizes targeted by management with prevalent sizes produced by foreign mariculture operations.
13. Inconsistency in some state and federal regulations.
14. Excessive fishing effort employed in the fishery.
15. Limited enforcement capabilities.

Rationale: One former objective regarding the lack of comprehensive, coordinated, and easily ascertainable management authorities has been deleted. Problems numbered eight through 15 are added as being presently applicable to the fishery. Loss of trawlable area is broadened to include surface as well as underwater obstructions.

ACTION 2: SPECIFIC MANAGEMENT OBJECTIVES

Section 8.4.1 Specific Management Objectives is revised as follows:

8.4.1 Specific Management Objectives

The following are the specific management objectives of this plan and are proposed to the appropriate authorities in charge of Gulf of Mexico shrimp resources. These objectives are to:

1. Optimize the yield from shrimp recruited to the fishery.
2. Encourage habitat protection measures to prevent undue loss of shrimp habitat.
3. Coordinate the development of shrimp management measures by the Gulf of Mexico Fishery Management Council with the shrimp management programs of the several states, where feasible.

4. Promote consistency with the Endangered Species Act and the Marine Mammal Protection Act.
5. Minimize the incidental capture of finfish by shrimpers, when appropriate.
6. Minimize conflicts between shrimp and stone crab fishermen.
7. Minimize adverse effects of obstructions to shrimp trawling.
8. Provide for a statistical reporting system.

Rationale: Objective 7 previously addressed only underwater obstructions. Surface obstructions such as unlighted platforms or buoys are now included because they present a hazard to fishing activities.

ACTION 3: TORTUGAS SHRIMP SANCTUARY

Section 8.5.1.1, Measure 1, paragraphs 4 through 7 are revised as follows:

NMFS will monitor the Tortugas shrimp fishery and advise the Regional Director and Council of the findings by July 15th of each year. The Council may utilize its Scientific and Statistical Committee and Advisory Panel to review and advise on the findings.

The Regional Director shall have the authority, after consultation with the Council, to implement action to revise this management measure through the Regulatory Amendment process. Criteria to be considered in reaching the decision to amend the regulations include:

1. Changes in pounds of shrimp caught and/or gross and/or net exvessel value to the industry resulting from the closure.
2. Adverse effects from an increase in fishing pressure in other areas as a result of the closure which causes a decrease in catch per unit of effort.
3. Identification of areas (a) within the sanctuary containing an abundance of shrimp of harvestable size, or (b) outside the sanctuary containing shrimp populations too small for harvest.
4. Adverse effects from stress on support facilities for the shrimp fleet because of fleet migration resulting from the closure.
5. Any other information determined by the Regional Director to be relevant.

The Regional Director may, after determining that benefits may be increased or adverse impacts be decreased, take either of the following actions to achieve the goals and objectives of the Shrimp Fishery Management Plan consistent with the National Standards and other applicable federal laws. The first action is considered to be less drastic and may be employed where a lesser degree of change is required.

1. Modify by no more than ten percent the geographical scope of the extent of the Tortugas shrimp sanctuary in the EEZ of the Gulf of Mexico south of latitude 26° North.
2. Eliminate the closure of the EEZ off Florida for one season.

If the Regional Director decides that either of the above actions is necessary, he shall by August 15th publish in the FEDERAL REGISTER his intent to take such action, the proposed effective date, and the duration of such action.

Rationale: Studies conducted on the Tortugas grounds over the past 35 years consistently show that the sanctuary protects small shrimp which will eventually recruit to the fishery. The need for the annual review process of the same data and for publication of intent not to modify the sanctuary is unnecessary. A monitoring report provided annually by NMFS should be sufficient to trigger action when conditions change in the fishery. This action reduces the annual assessment to a monitoring process and eliminates the requirement that the Regional Director annually publish his intent to take no action. Criterion one is revised to redefine the dollars received as gross and/or net exvessel value to the industry, to consider profitability to the operating vessels as well as total potential yield.

Expected Economic Impact: The elimination of publication of intent to take no action to revise the sanctuary will eliminate some paperwork and publication costs to NMFS. Consideration of vessel returns from the existing sanctuary framework would provide Council and NMFS with a better understanding of the economic impact of adjusting the sanctuary. In that this consideration leads to better decisions, this action is expected to have a positive but unquantifiable economic effect.

Rejected Alternative: No Action

Rationale: An annual assessment of biological, ecological, and sociological data would continue to be required. After review by the Regional Director and recommendation by the Council, the Regional Director would continue to be required to publish notice of his intent to take action or not to take action, a costly and time consuming exercise.

Expected Economic Impact: Unnecessary paperwork and publication costs would continue to occur. Full evaluation of economic impact to individual fishermen would not be specified.

ACTION 4: COOPERATIVE SEASONAL CLOSURE TO SHRIMPING OFF TEXAS

Section 8.5.1.1, Measure 2, paragraphs 1 through 5 are revised as follows:

Measure 2: Establish with the State of Texas a cooperative closure of the Gulf waters under Texas jurisdiction and the adjacent U.S. EEZ when a substantial portion of the brown shrimp in these waters weighs less than a count of 65 tails to the pound (39 heads-on shrimp to the pound). The U.S. Department of Commerce will close the EEZ, and the time of closing should correspond to the closure by Texas of its Gulf waters. Closure normally occurs June 1st to July 15th; however, the effects of climatic variation on shrimp

growth may necessitate flexibility in the closing and opening dates to provide for a closure of no more than 60 days. Provision is to be made to allow taking of royal red shrimp beyond the 100 fathom contour (where brown shrimp do not occur).

NMFS will monitor biological, economic, ecological, and sociological data collected through implementation of the plan and provided by other surveys and research. NMFS will assess both the adverse impacts and benefits derived from the seasonal closure in the EEZ and advise the Regional Director and the Council of the findings by December 15th. The Council may use its Scientific and Statistical Committee and Advisory Panel to review and advise on the findings.

The Regional Director shall have the authority, after consultation with the Council, to implement action to revise this management measure through the Regulatory Amendment process. Criteria to be considered in reaching the decision to amend the regulations include:

1. Changes in pounds of shrimp caught and/or gross and/or net exvessel value to the industry resulting from the closure on a state by state basis.
2. Adverse effects from an increase in fishing pressure as a result of the closure which causes a decrease in catch per unit effort.
3. Adverse effects from stress on support facilities for the shrimp fleet because of fleet migration or any other changes in work patterns resulting from the closure.
4. Any other information determined by the Regional Director to be relevant.

The Regional Director may, after determining that benefits may be increased or adverse impacts be decreased, take either of the following actions to achieve the goals and objectives of the Shrimp Fishery Management Plan consistent with the National Standards and other applicable Federal laws. The first action is considered to be less drastic and may be employed where a lesser degree of change is required.

1. Modify the geographical scope of the extent of the seasonal closure of the EEZ off Texas west of a line beginning at latitude $29^{\circ} 32' 06.784''$ north, longitude $93^{\circ} 47' 41.699''$ west, drawn in the general direction of 166.6° true and ending at the seaward limit of the EEZ at latitude $26^{\circ} 11' 24''$ north, longitude $92^{\circ} 53' 00''$ west. (This line is an extension of the boundary of Texas and Louisiana through the territorial sea into the EEZ.)
2. Eliminate the closure of the EEZ off Texas for one season.

The Regional Director shall by February 1st of the following year publish his intent to take action as provided in 1 and 2 above or not to take action.

Rationale: This action revises the date by which the NMFS assessment of the fishery is due from December 1st to December 15th. This allows a needed

additional two week period for NMFS to complete the report. The date by which the Regional Director must publish intent to revise or not to revise is moved from January 15th to February 1st. This permits the Council sufficient time to convene its Scientific and Statistical Committee and Advisory Panels and to meet in January to develop a recommendation. The Regional Director is also given time to review the recommendation, determine the course of action, and publish the notice.

Criterion one is revised to redefine the dollars received as gross and/or net exvessel value to the industry. This would allow consideration of the profitability to the operating vessels as well as total potential yield.

Criteria 2 and 3 are revised to assure that the impact on the Texas shrimp fleet is considered as well as the impact in other areas.

Expected Economic Impact: The proposed change extends the time for review and decision-making to a more realistic schedule at no change in costs. Revision of criteria to be considered to include economic impacts to individual vessels and to Texas as well as other states will increase the effectiveness of the current framework provisions at little or no additional administrative costs. To the extent that this economic information is incorporated into the decision-making process, positive economic impacts are expected.

Rejected Alternative: No Action

Rationale: Without a change in dates NMFS, the Council, and Regional Director would continue to be locked in a near impossible time frame to develop, review, and act on the report. The Christmas holiday season within the review period creates a delay in convening the Advisory Panel and Scientific and Statistical Committee until early January.

The wording of the criteria to be considered in review has been interpreted as being limited to consideration of only overall total yield to the fishery, disregarding the impact on the individual fishermen.

Expected Economic Impacts: Current costs would remain unchanged; however, the results of the evaluation would suffer from rushed preparation and insufficient analysis. Since value types would not be specified, there would likely be less economic information available on which to base decisions which could result in unidentified economic impacts.

ACTION 5: COORDINATION OF STATE AND FEDERAL REGULATIONS

Section 8.5.1.3 is revised by adding a new measure 5A as follows:

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Measure 5A: White shrimp taken in the EEZ and transported into a respective state shall be in accordance with that state's landing and possession laws with respect to size. This action to be implemented when Louisiana law provides for a bycatch of undersize white shrimp in the seabob fishery.

Rationale: The fishery for white shrimp in Louisiana is important (Table 1). In September of 1984 Louisiana established a minimum size of 100 shrimp to the pound which is difficult to enforce at dockside when there are no size limits in the EEZ. Shrimp smaller than 100 count have low value and have not achieved growth potential. Fishing such small shrimp results in growth overfishing.

Yield per recruit analysis recently developed by NMFS SEFC Galveston Laboratory suggests that yield can be enhanced by delay of the harvest of these small white shrimp until May, if natural mortality rates are low. In 1985, there were approximately 2 million pounds of shrimp smaller than Louisiana's minimum count size taken from state waters (Areas 12-17) and another 1.7 million pounds taken from adjacent federal waters for a total of 3.7 million pounds. With an average value of \$0.43 per pound, the yield would be \$1.59 million. If deferred harvest increased yield by 19-37 percent to a larger and more valuable shrimp (\$0.85 per pound), the yield would be 4.4-5.0 million pounds at \$3.7-4.25 million or an increase of 700 thousand to 1.3 million pounds at a value of \$595 thousand to \$1.1 million. Mortality rates are not exact and recruitment and growth will vary depending on environmental conditions. In the example used, a mortality rate of 0.03 was used and the spread of gain is from using different sizes of shrimp at commencement of the model in November. In this simulation, fishermen could have gained up to an additional 1.3 million pounds of shrimp valued at \$1.1 million by deferring harvest from January until May.

Most of the small white shrimp occur within Louisiana's three-mile territorial waters; however, dockside enforcement is difficult if fishermen claim the catch was made legally in federal waters. This enforcement difficulty prompted the Louisiana Department of Wildlife and Fisheries to request that the minimum count size limit apply to shrimp taken in federal waters and landed in Louisiana.

In December and January small white shrimp are driven by cold fronts from the inshore water to warmer waters offshore. While Louisiana protects these very small shrimp within its territorial waters, the presence of unprotected small shrimp in the EEZ has made Louisiana law ineffective. Shrimp legally taken in federal waters in accord with the Shrimp FMP may be landed regardless of conflicting state regulations.

In 1986 and 1987 Louisiana issued 57 citations for taking undersized shrimp where fishermen were caught in the act of catching them in Louisiana waters. This does not include the instances where enforcement officers encountered undersize shrimp on the dock or on a boat not in the act of fishing.

As explained in the FMP, the use of a minimum size limit for shrimp in mixed stocks can be wasteful when it results in culling, i.e., the retention of larger individuals and discard of the smaller, dead individuals. However, a minimum size limit can be effective if it prevents fishing mortality on small shrimp. Small white shrimp occur in schools and would constitute a directed fishery rather than an unwanted bycatch during this period. It is unlikely that they would be culled and discarded in a fishery directed at larger shrimp. Large shrimp are uncommon inshore in December and January in the areas where the small white shrimp are found.

Florida, Alabama, and Mississippi have minimum size counts of 47, 68, and 68 respectively, for whole white shrimp taken from their waters. Smaller shrimp taken elsewhere may be legally landed in these states. Few small white shrimp occur in federal waters off these states, however. For example, in 1985 of the 1.7 million pounds of white shrimp 100 count or smaller taken in the EEZ all

but about 30,000 pounds came from Statistical Areas 12 through 17 (Louisiana). Because these states have size regulations which apply only to shrimp taken in their waters, the possession consistency would apply only to fishermen possessing or landing shrimp in Louisiana.

Texas has no size counts but closes its Gulf waters out to seven fathoms from December 16 through February 1 to protect these shrimp.

This action would permit Louisiana to enforce its minimum 100 count size possession limit at the dock. It would also provide some flexibility in the federal regulations in the event that the Louisiana Legislature saw fit to change this law next year. Additionally, Louisiana has two exceptions to white shrimp size limit: it does not apply to bait shrimp nor to any shrimp taken during the spring season. The other Gulf states' size limit regulations apply only to shrimp taken in their jurisdiction and possession of smaller shrimp taken elsewhere is allowed. However, this alternative would allow the other Gulf states the flexibility to enforce their size limits on all shrimp landed in their jurisdictions if they changed their regulations to do so.

Fishermen in western Louisiana advise that seabobs, a small species of shrimp, are frequently mixed with small white shrimp resulting in a mixed catch which is difficult to separate. (Seabobs are harvested at an average size of about 120 count and constitute a locally important fishery [Table 2].) Although seabobs are usually a directed fishery with modified trawls, a mix of small white shrimp is not uncommon (Figure 1). Seabobs are usually taken close to shore but may be found in substantial numbers in channels offshore as far as seven miles.

By allowing a limited bycatch of undersized white shrimp in a trawl fishery for seabobs, the disruption of the seabob fishery could be reduced or avoided. The implementation of this measure is reserved until Louisiana establishes regulations to provide for such bycatch.

Louisiana Department of Wildlife and Fisheries statistics reveal the issuance of 49,920 shrimp gear licenses in 1987, all of which would have access to the white shrimp fishery. Of these, 8,265 licenses were issued to vessels 26 feet or more in length which have the potential to participate in the near shore Gulf fishery for seabobs.

Expected Economic Impact:

As an example of the economic impact of this measure, in 1985 there were 1.7 million pounds of white shrimp of 100 count or smaller caught in the EEZ and landed. The value was 35 to 50 cents per pound or \$600,000 to \$850,000 depending on size. The extent to which this was a directed fishery is not known nor is it known what amount of these shrimp will continue to be caught but discarded.

If directed fishing and fishing mortality for these small shrimp is decreased and natural mortality is low, this measure could result in an increased yield per recruit. This would apply not only to EEZ waters but to Louisiana territorial waters as well by more effective enforcement. Approximately two million pounds of white shrimp smaller than 100 count valued from \$700,000 to \$1.0 million were landed from Louisiana waters in 1985. The effect of this

proposed action would be to reduce the catch of these small shrimp and increase a later catch of larger, more valuable shrimp which survive.

The number of fishing craft involved in landing these shrimp is unknown. Whether foregoing the \$1.3 to \$1.85 million worth of shrimp greater than 100 count from state and federal waters will result in a corresponding or greater increase in the catch of larger shrimp later on is unknown but is the presumption. Benefits from the current state regulation would be enhanced since their enforcement would be more effective in protecting the small shrimp in state waters.

Summary: The following list itemizes the additional information requested by the Regional Director in his letter of rejection of the previous submission of Shrimp Amendment 4.

1. Landings: Louisiana white shrimp landings 1957-1986 are shown in Table 1; 53 million pounds (headless) were landed in 1986. There were 12.7 and 4.5 million pounds of seabobs landed in 1986 and 1987 (Table 2).
2. Participants: The Louisiana Department of Wildlife and Fisheries license statistics reveal the issuance of 49,920 shrimp gear licenses in 1987, all of which would have access to the white shrimp fishery. Of these, 8,265 licensed boats 26 feet or more in length have the potential to participate in the near shore fishery for seabobs.
3. Number of Cases Dropped: During the calendar years 1986 and 1987, a total of 57 citations were issued for undersized shrimp and over 80 percent of these were either nol pros or no further action was taken. The 57 citations were in instances where the fisherman was actually caught in the act of taking undersized shrimp in Louisiana waters. In other instances where enforcement agents encountered undersized shrimp on a dock or on a boat that was not engaged in fishing, no citation could be issued and no record of such instances was maintained.
4. Culling Capability: Culling 120 count white shrimp from a mixed catch of seabobs of the same size would be tedious and labor intensive. Therefore, this action would be implemented after Louisiana establishes a provision for bycatch of small white shrimp in the fishery for seabobs.
5. Financial Impact on Seabob Fishery: If implementation of this action occurs after Louisiana has provided for a bycatch, there would be no impact on the seabob fishery. Over the last five years, the average annual value of the Louisiana seabob fishery is \$3.1 million (Table 2).
6. Same Information for Other States: Because other Gulf states do not have possession or landing regulations for size of shrimp taken beyond their jurisdiction, fishermen landing in those states would be unaffected, and enforcement efforts by those states would remain unaffected.
7. Cost Benefits: Yield per recruit plots on small, overwintering white shrimp simulated by the SEFC indicated an increase in yield at low winter natural mortality rates of 0.07 and 0.03 by postponing fishing until May. If, however, the natural mortality rate is 0.15, a better yield is obtained by fishing in January (see 8 below).

8. **Increase in Catch and Revenue:** If the natural mortality rates are low (as they are thought to be) increased yield could be up to 1.3 million pounds valued at \$1.1 million.
9. **Impact of Deferring Catch:** By deferring harvest 3 months, the potential yield to the fisherman would be increased 37 percent in volume and 73 percent in value, which far exceeds any reasonable discount rate.
10. **Effect on Operating Practices, Costs, Culling, and Market Demands:** Catches of small white shrimp generally occur in December and January when there are few inshore shrimping opportunities other than seabobs. Some larger brown shrimp may be taken offshore by larger vessels. An allowable bycatch of small white shrimp would not disrupt the fishery for seabobs. Market demand for small shrimp is being partially met by imports of pond-raised shrimp from China albeit at some unknown cost to domestic fishermen.
11. **Effects on Directed Fishing for White Shrimp and Seabobs, Financial Situation of Those Affected:** Because there are few available shrimp during December and January, small white shrimp constitute the predominance of the shrimp taken during this period. Most vessels are small, owner-operated boats with few other shrimp fishing alternatives other than seabobs at this time. However, they would have the opportunity to participate in the deferred and enhanced harvest in May.

Rejected Alternative 1: Set a minimum size limit of 100 whole shrimp to the pound for white shrimp taken in the EEZ.

Rationale: This option would have been consistent with Louisiana's law except for the exclusion of shrimp taken for bait or during the spring open season. It would have been inconsistent with the other states; though because the size is smaller, it would not change the current practices there. The effect of a specified count would provide less flexibility in the event a state were to change its law to be incompatible.

Expected Economic Impacts: This action would achieve the same results as the preferred option but would provide less flexibility. It could result in additional costs in further amendment to the FMP if Louisiana or other states revised their count laws.

Rejected Alternative 2: No action, i.e., no minimum size limit for white shrimp.

Rationale: With no change, the fishery for small white shrimp over 100 count would continue in the EEZ off Louisiana (legally) and in Louisiana waters (illegally). At-sea enforcement of Louisiana's law is difficult, and the area of capture is almost impossible to prove at the dock. If the catch of 3.7 M of white shrimp over 100 count can be deferred until they return to inshore waters at a larger and more valuable size, substantial gains in yield would be accomplished.

Expected Economic Impact: Louisiana would continue to face difficulties in enforcement. Small white shrimp, perhaps up to 3.7 M (\$1,295,000 to

\$1,850,000) would be landed with the claim that they were caught in the EEZ at some cost to increased, later landings of larger individuals.

Rejected Alternative 3: Establish a cooperative seasonal closure of state and federal waters where and when small shrimp are present.

Rationale: This action would protect small shrimp by establishing a closure of inshore waters of the EEZ during some winter period. Larger shrimp of other species would not be available in the closed area. Louisiana regulations would differ but would be compatible, however.

Expected Economic Impact: Evaluating the economic impact of this alternative would require a detailed analysis of the underlying biological production factors as well as identification of the number and degree of fishing craft impacted. This has not been done. Since Louisiana officials indicate that Louisiana's regulations are not compatible with this management approach and are not likely to be changed to become so, it is not necessary to conduct a detailed analysis of a non-feasible alternative.

Figure 1

Source: NMFS SEFC

WHITE SHRIMP - SEABOB ANALYSIS

OFFSHORE

AREAS 15 - 17

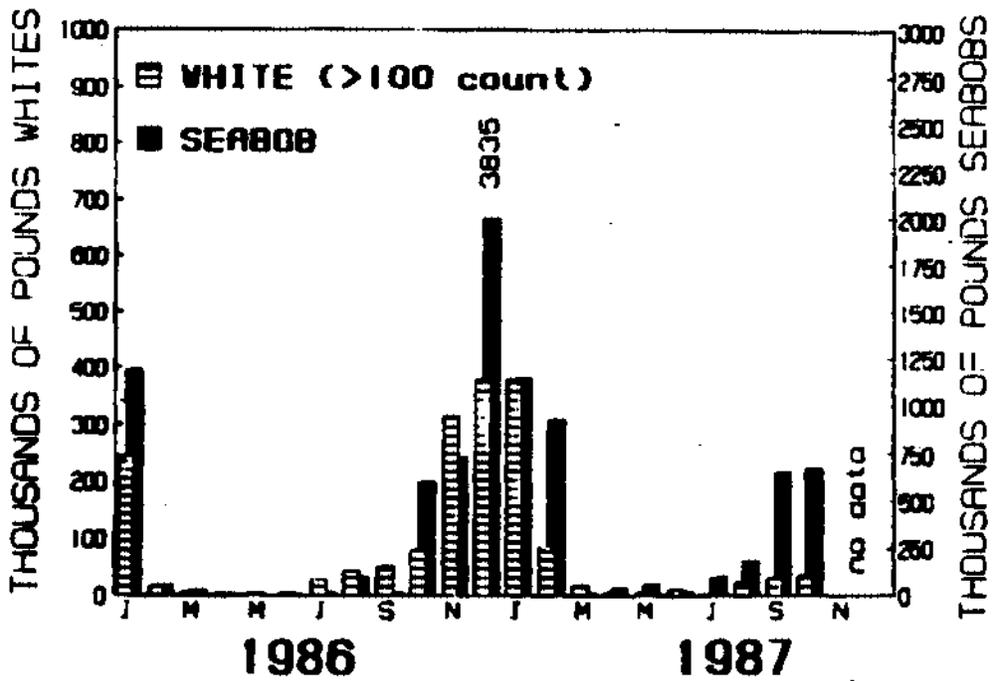
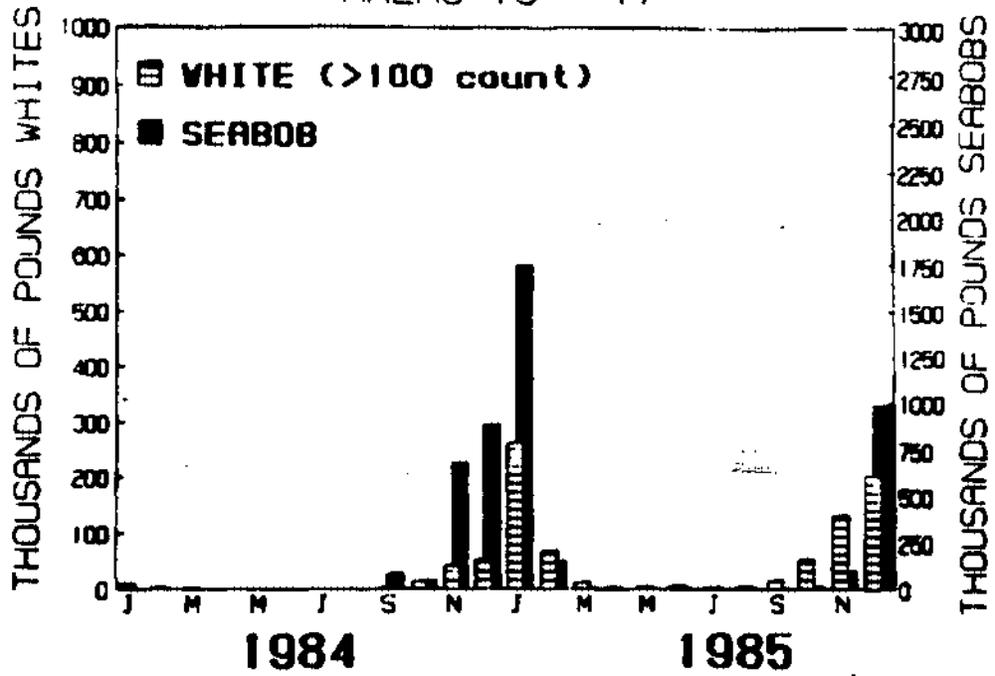


Table 1
Shrimp Catch (heads-off) in millions of pounds and millions of dollars

Year	Louisiana						All Species		Northern Gulf	
	Brown			White			Catch	Value	Catch	Value
	Total	Off	In	Total	Off	In				
1957	11			7						
1958	11			16						
1959	17	10	7	17	11	6	36			
1960	19	10	9	18	11	7	39	17	112	52
1961	10	5	5	6	4	2	18	9	55	28
1962	8	3	5	15	8	7	26	14	64	42
1963	18	8	10	38	22	16	57	22	110	51
1964	10	6	5	31	20	11	41	21	95	50
1965	19	9	10	23	16	8	43	22	116	109
1966	21	12	9	22	14	8	44	28	103	74
1967	33	18	16	18	11	7	51	27	130	81
1968	29	13	16	17	10	7	47	29	114	82
1969	27	11	16	30	18	12	57	37	118	92
1970	32	16	16	31	18	12	64	41	136	
1971	35	16	19	31	19	12	66	51	134	111
1972	34	17	17	26	18	8	62	60	132	147
1973	23	11	12	19	14	6	45	58	105	153
1974	23	11	12	19	12	7	46	44	107	123
1975	19	9	10	17	13	5	41	55	100	162
1976	41	21	20	26	19	7	67	122	129	265
1977	50	30	20	32	21	11	85	132	164	289
1978	52	33	18	33	26	7	87	154	155	318
1979	41	27	14	22	17	5	68	195	125	386
1980	28	19	10	32	24	8	68	145	133	343
1981	47	29	19	35	24	11	87	181	171	405
1982	40	19	22	27	19	8	70	191	130	417
1983	32	13	19	26	18	8	62	181	120	391
1984	44	19	25	35	24	11	83	195	162	431
1985	47	25	22	43	30	13	95	198	167	406
1986	55	32	23	53	35	17	116	293	193	566

Table 2

Year	Louisiana Seabob Landings and Values (Source Landing (Heads on) Lbs.	Dollar Value	WAFB, Price
1961	1,463,595	150,377	0.25
1962	1,901,588	126,030	0.17
1963	689,594	61,294	0.39
1964	280,764	61,517	0.23
1965	566,206	109,417	0.19
1966	414,979	101,345	0.24
1967	181,868	40,840	0.23
1968	525,823	132,933	0.23
1969	472,979	92,523	0.23
1970	1,980,480	280,068	0.14
1971	267,135	30,535	0.11
1972	1,191,450	431,910	0.31
1973	2,202,513	1,405,837	0.64
1974	3,440,071	1,410,555	0.41
1975	3,978,835	1,592,227	0.40
1976	734,264	229,452	0.31
1977	4,955,100	1,348,674	0.27
1978	3,787,160	1,097,244	0.29
1979	5,870,495	3,691,000	0.63
1980	9,951,199	13,422,477	1.35
1981	6,268,226	2,751,052	0.44
1982	3,621,975	2,053,712	0.57
1983	4,727,354	2,119,563	0.45
1984	6,448,112	2,441,863	0.38
1985	6,738,932	2,512,975	0.38
1986	12,708,149	5,139,282	0.41
1987	4,462,241	3,432,801	0.77

ACTION 6: ENDANGERED SPECIES PROTECTION

Section 8.5.1.4 Measure 7 is revised as follows:

Measure 7: The Council recommends that NMFS develop and implement an educational program to inform the shrimp industry of the following:

1. Current status of the sea turtle populations which are identified by the Endangered Species Act on its endangered or threatened list.
2. Known locations in U.S. waters frequented by sea turtle species described above.
3. Proper methods of resuscitation and return to the sea of incidentally captured sea turtles.
4. Shrimp trawling procedures to reduce the catch and mortality of sea turtles.
5. Potential penalties for violation of the Endangered Species Act.

The Council also recommends an expansion of the sea turtle head start and research programs under NMFS, where appropriate, with federal and private participation and funding in compliance with ESA, the goal being to remove sea turtles from the endangered or threatened species list. Funding of this program should be through participation by governmental and shrimp industry entities, domestic or foreign, and any other industries who negatively impact the ability to remove these species from the endangered or threatened species lists as identified by the ESA.

Rationale: All of the sea turtles that inhabit the United States Gulf of Mexico are listed either as threatened or endangered and must be protected. The shrimp fishermen, therefore, need to be informed of the necessity of following good conservation practices in relation to this species.

NOAA has implemented measures intended to reduce catch and mortality of endangered and threatened sea turtles in the shrimp fishery. This action is taken under the provisions of ESA and would supersede any less restrictive measures which could be implemented under the Magnuson Act. The Council is concerned that factors other than shrimp fishing will continue to contribute to the decline of endangered and threatened populations of sea turtles in the Gulf. The above recommendations are intended to enhance action by NOAA and support the shrimp industry in activities to restore sea turtle populations.

Expected Economic Impact: A suitable increase in the educational program could cost \$100,000 per year. If additional turtle eggs become available from Mexico and if the scientific community endorsed an expansion of the existing head start program, the number of turtles released might be doubled at a public and private cost of about \$200,000 per year. Benefits would be in the reestablishment of an endangered species.

Rejected Alternative 1: Limit trawl duration to 90 minutes or less on vessels not equipped with TEDs in areas where sea turtles frequently occur.

Rationale: NOAA action to require gear modification under ESA supersedes Council authority for less restrictive measures under the Magnuson Act.

Expected Economic Impact: The efficiency of trawl fishing would be reduced by some unknown amount at a cost to the vessel operation.

ACTION 7: OBSTRUCTIONS TO SHRIMP TRAWLING

Section 8.5.1.7 Measure 10 is revised to read as follows:

Measure 10: The Gulf of Mexico Fishery Management Council will attempt to reduce, where feasible, the loss of offshore trawlable bottom and hazards to trawl vessels by establishing within GMFMC, a committee to monitor and review construction of offshore reefs and surface obstructions, with attention to the needs of the reef fish and shrimp user groups.

Rationale: In the Gulf shrimp fishery, there is a considerable loss of gear and time associated with trawls becoming entangled on artificial underwater obstructions. The adverse effect of these obstructions must be minimized in a way consistent with other national interests. Placement of unlighted surface structures creates a hazard to night operation of vessels.

This action broadens the Council's interest to advising the appropriate agencies regarding the presence or placement of unmarked or hazardous surface or subsurface obstructions in navigable waters.

Expected Economic Impact: Only a slight increase in administrative costs is expected in Council operation with a slight loss in overall staff efficiency due to reordering of priorities necessary to cope with the additional workload. Elimination of trawl obstructions and hazards to navigation would enhance vessel efficiency and safety to some unknown degree.

V. Environmental Consequences

Physical Environment

The actions proposed in this amendment have no adverse impact on the physical environment.

Fishery Resource and Human Environment

The effect of these actions is to simplify and clarify procedures for regulatory amendment of the principal management measures, i.e., the Tortugas shrimp sanctuary and the cooperative seasonal closure off Texas. The establishment of a white shrimp size consistency provides compatibility with Louisiana law and reduces the effect of growth overfishing.

Effect on Endangered Species and Marine Mammals

NMFS has determined that this action will not have any adverse impact on threatened or endangered species or marine mammals. On October 1, 1987, NOAA's final regulations became effective which require use of trawling efficiency devices (TEDs) on shrimp trawls in U.S. waters when and where sea turtles are expected to occur. This action was taken under the ESA which

provides more extensive authority than exists under the Magnuson Act for these species. The actions proposed as part of this amendment are compatible with those implemented under ESA and would enhance recovery of the endangered species of sea turtles, if enacted.

Effect on Wetlands

The proposed action will have no effect on any flood plains, wetlands, trails, or rivers.

VI. Shrimp Habitat

Recognizing that all species are dependent on the quantity and quality of their essential habitats, it is the policy of the Gulf Fishery Management Council to:

Protect, restore, and improve habitats upon which commercial and recreational marine fisheries depend, to increase their extent and to improve their productive capacity for the benefit of present and future generations. (For purposes of this policy, habitat is defined to include all those things physical, chemical, and biological that are necessary to the productivity of the species being managed).

This policy shall be supported by three policy objectives which are to:

- (1) Maintain the current quantity and productive capacity of habitats supporting important commercial and recreational fisheries, including their food base.

(This objective may be accomplished through the recommendation of no loss and minimization of environmental degradation of existing habitat).

- (2) Restore and rehabilitate the productive capacity of habitats which have already been degraded.
- (3) Create and develop productive habitats where increased fishery productivity will benefit society.

The Council shall assume an aggressive role in the protection and enhancement of habitats important to marine and anadromous fish. It shall actively enter federal decision-making processes where proposed actions may otherwise compromise the productivity of fishery resources of concern to the Council.

The habitat requirements of shrimp and the Council's habitat and protection policy were originally described in Sections 4.5 and 8.5.1.2 of the FMP as revised November, 1981.

The weakest link in the life cycle of shrimp is the estuarine phase of growth. Natural and man-induced alterations of the fragile environment have removed much of the area that would be considered suitable shrimp habitat. Natural wetland losses result from forces such as erosion, sea level rises, subsidence, and accretion. According to Lindall, et al. (1979), the major man-induced activities that impact environmental gradients in the estuarine zone are:

1. construction and maintenance of navigation channels;
2. discharges from wastewater plants and industries;
3. dredge and fill for land use development;
4. agricultural runoff;
5. ditching, draining, or impounding wetlands;
6. oil spills;
7. thermal discharges;
8. mining, particularly for phosphate and petroleum;
9. entrainment and impingement from electric generating stations;
10. dams;
11. marinas;
12. alteration of freshwater inflows to estuaries;
13. saltwater intrusion; and
14. non-point-source discharges of contaminants.

The amount of remaining wetlands suitable for shrimp production in the Gulf of Mexico has not been quantified. However, Alexander, et al. (1986) estimated that only about 5.2 million acres of salt marsh, fresh marsh, and swamp wetlands remain. This represents about 46 percent of the wetlands of these types that remain in the conterminous United States. The overall rate of wetland losses similarly is not known since adequate mapping programs and baseline data are not available. However, Alexander, et al. (1986) estimated that for the last 25 years, coastal wetlands have been depleted at an average rate of 20,000 acres per year. This rate may be even higher in the Gulf of Mexico. For example, Gagliano (1984) has estimated that natural and man-induced forces contribute to a yearly land loss, including marsh, of more than 50 square miles per year.

Natural wetland losses are difficult to control since often major environmental manipulations are required, for example, diverting Mississippi River flows over marshes that are deteriorating. Other options relate to mitigation of wetland losses by restoration, generation, or enhancement of habitat (Lindall, et al., 1979). Mitigation, however, often is not desirable since some of the mitigation technologies are still poorly understood. Wetland creation technology is an emerging science that requires more development before it can be routinely applied (Mager and Thayer, 1986). As technology improves and mitigation options expand, the Gulf of Mexico Fishery Management Council (GMFMC) will use its authorities to stimulate the incorporation of appropriate mitigation as a management tool when habitat losses cannot otherwise be avoided.

Man-induced wetland losses also are difficult to quantify, but can be controlled by state and/or federal regulatory agencies. The Environmental Protection Agency (EPA), for example, has responsibility to regulate wastewater discharges and the Corps of Engineers (COE) manages a program which regulates physical wetland alterations (dredging, filling, impounding, etc.). The amount of shrimp habitat affected by EPA's program is unknown, but data on the effect of the COE's regulatory program in the Southeast are available (Mager and Hardy, in press). Mager and Keppner (1987) have provided data which show that a sample of 6,354 permit applications and COE projects between 1981 and 1986 proposed the alteration of almost 278,000 acres of wetlands in the Southeast.

Mager and Thayer (1986) have analyzed five years of data on the COE's program and provided proposed alterations by state, by habitat type, and by the type of alterations involved (Tables 3 and 4). For the Gulf States, almost 174,000 acres of wetland losses were proposed by more than 4,000 projects. This provides an indication of the significance of the COE's program and the cumulative effect of wetland losses.

Environmental agencies such as the National Marine Fisheries Service (NMFS), the Fish and Wildlife Service, and the EPA analyze projects proposing wetland alterations for potential impacts to resources under their purview. This is similar to the function of the GMFMC's Habitat Committee. These recommendations are submitted to the COE where they are included in a public interest review which determines whether or not a permit would be issued for a given alteration. NMFS data reveal that their recommendations on more than 4,000 projects in the Gulf States would have resulted in the conservation of about 128,000 acres of wetlands and the restoration and generation of more than 109,000 acres of wetlands (Mager and Thayer, 1986).

It is evident that the conservation of shrimp habitat relies heavily on whether the recommendations of agencies such as the NMFS and the GMFMC's Habitat Committee are incorporated into permitting decisions. Mager (in press) surveyed 857 projects where permits had been issued by COE Districts in the Southeast to find out if NMFS recommendations had been incorporated by the COE into issued permits. While treatment varied by district, NMFS recommendations were fully accepted 50 percent, partially accepted 24 percent, and rejected 26 percent of the time. In terms of habitat, 22,054 acres of wetlands were proposed for alteration by the 857 projects, the NMFS accepted alterations in 9,061 acres, and the COE issued permits to alter 11,617 acres or 2,556 acres more than NMFS had recommended.

In view of the above, it is evident that the continued cumulative loss of wetlands should be minimized by giving greater weight to wetland values in the COE public interest reviews. The GMFMC will use its authorities through its Habitat Committee, to support state and federal environmental agencies in their habitat conservation efforts and will directly engage the regulatory agencies on significant actions which affect shrimp habitat. The goal is to insure that shrimp habitat losses are kept to the minimum and that efforts for appropriate mitigation strategies are supported.

The quantitative effects of habitat loss and degradation on shrimp production are unknown; however, information is available on the kind of environment necessary for shrimp survival (Idyll, et al., 1967). Turner (1977) observed that the yield of shrimp in Louisiana's estuaries is directly related to the acreage of marsh, while that from the northeastern Gulf of Mexico is directly related to the acreage of marsh and submerged grassbeds. He found no relationship between yields and estuarine water surface, average water depth, or volume. His findings concur with the observations of Barrett and Gillespie (1973) that annual brown shrimp production in Louisiana is correlated with the acreage of marsh with water above 10 ppt salinity, but not with acres of estuarine water above 10 ppt salinity. These findings suggest that the brown, white, and pink shrimp yields in the U.S. Gulf of Mexico depend on the survival of the estuarine marshes, and grassbeds in their natural state. These areas not only provide postlarval, juvenile, and subadult shrimp with food and

protection from predation, but they help to maintain an essential gradient between fresh and salt water.

Smooth cordgrass, Spartina alterniflora, an emergent intertidal grass, provides important habitat for juvenile brown shrimp (Zimmerman, et al., 1984). Thus, shoreline development which displaces this vegetation affects production.

Costello, et al., (1986) found early juvenile pink shrimp in Florida Bay to be most abundant in shoal grass (Halodule wrightii) beds and less abundant in turtle grass (Thalassia testudinum). Shoal grass grows in an estuarine habitat while turtle grass occurs in higher seawater salinities. Thus, water management which alters salinity patterns could cause displacement of one sea grass by another that is less favorable as a habitat for pink shrimp. There is some evidence that Everglades water management may have contributed to the recent replacement of shoal grass by turtle grass in areas of Florida Bay.

Table 3. - Number of proposed projects and acres of habitat by state involved in MMS habitat conservation efforts from 1961 through 1965. Numbers in parentheses refer to columns discussed in text.

State	No. of permit applications	Acres proposed by applicants			Acres MMS accepted or did not object to			Potential acreage conserved			Mitigation recommended by MMS				
		Dredge (2)	Fill (3)	Drain (4)	Impound (5)	Dredge (6)	Fill (7)	Drain (8)	Impound (9)	Dredge (10)	Fill (11)	Drain (12)	Impound (13)	Restore acreage (14)	Generate acreage (15)
LA	1,229	78,557.3	36,513.6	5,139.9	37,563.8	24,558.2	7,939.3	168.5	6,274.3	46,899.1	28,574.2	4,979.4	31,289.5	92,471.8	10,914.3
TX	684	3,541.9	3,916.3	8.1	9,186.8	2,817.8	488.9	0	987.4	1,524.1	3,227.4	8.1	8,196.4	3,904.8	557.2
MS	94	128.3	386.6	5.8	6.3	81.4	265.7	0	0	58.9	148.9	5.8	6.3	6.2	37.4
AL	286	823.5	523.9	0	1.9	225.6	53.8	0	0	196.9	488.9	0	1.9	40.1	7.1
FL	1,886	2,733.1	2,878.8	8.5	275.1	1,916.3	926.1	8.2	5.8	818.8	1,944.7	8.3	269.3	475.4	765.1
GA	194	625.6	411.5	0	69.2	94.4	189.9	0	0.2	531.2	381.6	0	69.8	34.1	213.0
SC	576	848.5	419.3	0	6,345.9	333.6	183.4	0	12.5	518.9	315.9	0	4,333.6	68.8	41.1
NC	547	1,133.6	612.8	788.8	873.9	869.8	435.1	388.8	68.4	264.6	176.9	888.8	685.5	491.4	85.0
PA	62	64.7	188.2	0	188.8	18.1	13.3	0	0	48.6	164.9	0	188.8	147.7	11.5
VT	7	88.4	88.7	0	0	45.4	35.5	0	0	35.8	13.2	0	0	0	134.5
Total	5,385	68,226.9	45,892.8	5,845.5	52,222.1	38,138.8	18,552.3	668.7	7,348.6	58,888.1	35,388.6	5,388.8	44,873.5	97,639.5	12,766.2

From Meyer and Thejzer, 1966

Table 9. Acres of habitat by habitat type involved in NPS habitat conservation efforts from 1961 through 1983.

	ACRES				ACRES				ACRES				TOTAL	PERCENT	
	Drainage	FILL	Drain	Impound	Drainage	FILL	Drain	Impound	Drainage	FILL	Drain	Impound			
Blank															
Bigrock	74.3	219.2	0.1	30.4	24.7	58.1	0.1	0	49.6	131.1	0	30.4	56.4	6.4	
Blue															
Bigrock	49.0	233.0	0	43.7	14.9	117.2	0	0	34.1	133.8	0	43.7	27.5	10.1	
Red bigrock	60.4	793.4	0.1	205.6	3.4	12.7	0.1	0	56.8	382.7	0	205.6	222.1	159.4	
Salicragram	81.2	306.3	0.4	1,396.7	33.6	71.7	0	0	47.6	232.8	0.4	1,396.7	364.1	1,351.1	
Freshwater marsh	740.2	2,405.0	380.0	6,431.9	373.3	1,011.9	0	3,734.0	366.9	1,393.1	380.0	1,397.9	31,741.9	1,113.5	
Freshwater unvegetated	170.0	66.8	0	0	189.2	68.9	0	0	0.8	-2.1	0	0	1.3	29.5	
Freshwater submerged vegetation	129.6	174.0	12.6	136.4	41.8	90.4	0	0	87.8	83.4	12.6	136.4	102.7	509.4	
Wetland swamp	376.4	1,291.3	887.7	952.0	176.2	381.4	437.0	219.9	230.2	909.9	430.7	732.1	2,337.0	84.1	
Black water marsh	212.0	136.0	0.4	1,059.0	21.7	45.9	0	0	190.3	110.1	0.4	1,059.0	98.0	43.1	
Other water marsh	328.9	2,151.0	309.6	4,313.9	239.2	873.3	0	26.4	266.7	1,273.3	309.6	4,487.3	3,670.4	893.3	
Coarctogram Salicragram	354.9	1,439.7	11.8	3,220.6	109.3	306.7	0	34.1	249.4	1,133.0	11.8	3,186.7	2,344.0	1,583.6	
Coarctogram	602.7	2,222.8	4,223.0	7,499.9	279.1	914.9	0	16.3	323.6	1,287.9	4,223.0	7,443.4	26,167.2	1,177.9	
Smaligram	137.3	34.8	0	0.2	10.0	2.9	0	0	147.3	31.9	0	0.2	13.8	63.8	
Haloptila	1.3	0.2	0	0	1.3	0.2	0	0	0	0	0	0	0.3	0	
Widogram	68.8	148.0	4.1	145.0	40.8	70.6	0	0	28.0	77.4	4.1	145.0	1,321.8	531.7	
Novogram	8.2	12.0	0	0	3.4	0	0	0	4.8	12.0	0	0	0.8	2.9	
Turtogram	33.2	28.7	0	1.2	10.9	9.3	0	0	44.3	19.4	0	1.2	1.9	128.7	
Saligram	1.7	0.2	0	0	1.3	0	0	0	0.4	0.2	0	0	0.4	0.6	
Algae	140.8	703.6	0	278.7	20.2	8.0	0	0	120.6	695.6	0	278.7	5.4	4.7	
Clay	38.9	3.8	0	0	34.7	0.1	0	0	4.2	3.7	0	0	0	0	
Red	70,889.3	30,979.2	4.3	5,073.7	24,885.1	4,768.4	3.4	304.6	43,923.2	26,210.8	0.9	4,371.2	19,618.3	177.1	
Wetland															
Wetland	100.3	360.8	0	19,309.1	53.5	266.9	0	8.3	20.0	93.9	0	19,309.8	13.3	24.4	
Oyster beds	11.6	42.3	0	0	0.9	30.0	0	0	12.7	12.3	0	0	0.9	3.6	
Rock	135.4	221.7	0	0	3.9	7.9	0	0	131.5	213.8	0	0	0.4	63.9	
Sand	4,838.8	1,933.8	1.3	328.4	3,129.3	1,330.5	0	29.8	1,679.4	603.3	1.3	498.8	524.1	74.3	
Shell	23.4	77.7	0	0	3.9	2.9	0	0	19.5	74.8	0	0	0.1	1.4	
Silt	436.6	87.3	0.1	773.1	408.4	89.0	0.1	773.1	28.2	-1.7	0	0	0	0	
Total	30,226.9	43,882.8	3,263.3	32,222.1	30,139.8	10,332.2	440.7	7,349.4	31,088.1	25,240.4	1,384.8	44,871.3	97,639.3	12,766.2	

From Mager and Thayer (1986)

VII. CONCLUSIONS

o Mitigating Measures Related to the Proposed Action

None

o Unavoidable Adverse Effects

None

o Relationship Between Local, Short-Term Users of the Resource and Enhancement of Long-Term Productivity

Compatible federal and state white shrimp regulations will better enable Louisiana to enforce its size limit at the dock, thus discouraging the catch of very small, low value shrimp with high potential for growth. This action defers harvest until the shrimp can provide a higher but unquantifiable yield.

Overall estimated economic impact of preferred alternatives may be summarized as follows:

Action 1 - Problems in the Fishery: No impact.

Action 2 - Specific Management Objectives: No impact.

Action 3 - Tortugas Shrimp Sanctuary: Small decrease in administrative costs and better economic evaluation of framework criteria resulting in better decisions and probable positive economic impact.

Action 4 - Cooperative Seasonal Closure to Shrimping Off Texas: No change in administrative costs but a more thorough economic evaluation in the annual review of the fishery resulting in better decisions and probable positive economic impact.

Action 5 - Coordination of state and federal regulations (size for white shrimp): Loss of \$600,000 to \$850,000 in shrimp from the EEZ with some unknown gain in deferred catch of larger individuals. The deferred gain is expected to exceed the loss. A simulation based on 1985 catch data suggests a gain of \$1.1 million.

Action 6 - Endangered Species Protection: Federal cost of \$100,000 per year for educational program and possible public and private cost of \$200,000 for expanding head start program if and when feasible. Benefit is possible increase in turtle survival having unknown value to society at large.

Action 7 - Obstructions to Shrimp Trawling: Slight cost, possible safety benefits, unquantifiable.

o Effect on Small Businesses

This action, if promulgated, will not have a significant adverse impact on a substantial number of small entities.

The major impact from this proposed action would be on small business entities engaged in harvesting white shrimp off Louisiana. There are approximately 50,000 shrimp gear licenses issued in Louisiana of which approximately 8,000 are for vessels 26 feet or more in length. The latter have the capability of fishing offshore for white shrimp and seabobs. These vessels are typically owner operated and may be valued from \$50,000 to \$500,000.

The effect of Action 5 would be to enhance catch in pounds and value by deferring fishing until shrimp are both larger in size and more valuable. All vessels presumably would have the opportunity to participate in the enhanced yield and therefore share in the benefits of the action.

By reserving implementation of Action 5 until the State of Louisiana provides for a bycatch of small white shrimp in the seabob fishery, no adverse impact on this fishery is expected to occur.

Coastal Zone Management Consistency

Copies of the proposed action were provided to the four Gulf states with coastal management programs. Louisiana, Mississippi, and Florida found the action to be consistent. No response was received from Alabama.

o Irreversible or Irrecoverable Commitment of Resources

None

o Enforcement Costs

The actions proposed in this amendment do not materially alter federal enforcement costs. The compatible size limit for white shrimp should reduce enforcement costs by the State of Louisiana by providing the opportunity for dockside enforcement.

o Vessel Safety

The actions do not impose requirement for use of unsafe (or other) gear nor do they direct fishing effort to periods of adverse weather conditions. A seasonal opening of productive fishing waters off Texas is an attraction to shrimp trawlers and promotes a concentration of vessels along the 400-mile coast line. The brown shrimp fishery is seasonally productive and normally results in an accumulation of fishing vessels during periods of high yield.

Recommendation

Finding of No Significant Environmental Impact

In view of the analysis presented in this document, I have determined that the proposed action in this amendment to the Fishery Management Plan for Gulf Shrimp would not significantly affect the quality of the human environment with specific reference to the criteria contained in NDM 02-10 implementing the National Environmental Policy Act. Accordingly, the preparation of a Supplemental Environmental Impact Statement for this proposed action is not necessary.

Approved: _____
 Title

_____ Date

Responsible Agencies

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Lincoln Center, Suite 881
5401 West Kennedy Boulevard
Tampa, Florida 33609
(813) 228-2815

List of Agencies and Persons Consulted

Gulf of Mexico Fishery Management Council's

- Scientific and Statistical Committee
- Shrimp Advisory Panel

Coastal Zone Management Programs

- Alabama
- Florida
- Louisiana
- Mississippi

National Marine Fisheries Service

- Southeast Fisheries Center
- Fisheries Operations Branch - Southeast Regional Office

Trade Associations:

- Texas Shrimp Association
- Louisiana Shrimp Association
- Concerned Shrimpers of Louisiana
- American Shrimp Processors Association
- Center for Environmental Education

List of Preparers

Gulf of Mexico Fishery Management Council

- Terrance R. Leary, Biologist
- Paul J. Hooker, Ph.D., Economist

National Marine Fisheries Service - Southeast Regional Office

- Andreas Mager, Jr.

Location and Date of Public Hearings

- | | |
|----------|--|
| July 28 | Galveston, Texas, Jury Assembly Room, Courthouse |
| July 29 | Port Arthur, Texas, Justice Court, 525 Lakeshore Drive |
| July 30 | Cameron, Louisiana, Cameron Elementary School |
| August 4 | Houma, Louisiana, Council Meeting Room, Courthouse Annex |
| August 5 | Lafitte, Louisiana, Firemen's Hall |
| August 6 | Biloxi, Mississippi, Assembly Room, Biloxi Cultural Center |

Literature Cited

- Alexander, C. E., M. A. Broutman, and D. W. Field. 1986. An inventory of coastal wetlands of the USA. U.S. National Oceanic and Atmospheric Administration, Washington, D.C. 14 p.
- Costello, T. J., D. M. Allen, and J. H. Hudson. 1986. Distribution, seasonal abundance, and ecology of juvenile northern pink shrimp, *Penaeus duorarum*, in the Florida Bay area. NOAA Technical memorandum NMFS-SEFC-161. June, 1986.
- Gagliano, S. M. 1984. Comments on the socioeconomic and environmental influences of offshore oil and gas activity on the Louisiana coastal zone. U.S. House of Representatives, Committee on Merchant Marine and Fisheries Subcommittee on the Panama Canal-Outer Continental Shelf (OCS). Houma.
- Klima, Edward F. 1987. Personal communication, NMFS, SEFC, Galveston Laboratory, Galveston, Texas.
- Idyll, C. P., D. C. Tabb, and B. Yokel. 1967. The value of estuaries to shrimp. p. 83-90. In J. D. Newsom (ed.) Proceedings of the Marsh and Estuary Management Symposium. Baton Rouge, Louisiana. July 19-20, 1967.
- Lindall, W. N., Jr., A. Mager, Jr., G. W. Thayer, and D. R. Ekberg. 1979. Estuarine habitat mitigation planning in the southeast, p. 129-135. In G. A. Swanson, techn. coord. The mitigation symposium: A national workshop on mitigating losses of fish and wildlife habitats. U.S. Forest Service, Rocky Mountain Forest Range Experimental Station General Technical Report RM-65.

- Mager, Andreas, Jr. In Press. Treatment of National Marine Fisheries Service recommendations by the Corps of Engineers in the southeast region of the United States from 1981 through 1985. Proceedings of the 14th Annual Conference on Wetlands Restoration and Creation. May 14-15, 1987, Tampa, Florida.
- Mager, A., Jr., and G. W. Thayer. 1986. Quantification of National Marine Fisheries Service habitat conservation efforts in the southeast region of the United States from 1981 through 1985. *Marine Fisheries Review*. 48(3):1-8.
- Mager, A., Jr., and E. J. Keppner. 1987. National Marine Fisheries Service habitat conservation efforts in the coastal southeastern United States for 1986. p. 49-70 In N. V. Brodtmann, Jr., (ed.) Fourth Water Quality and Wetlands Management Conference. September 24-25, 1987, New Orleans.
- Mager, A., Jr., and L. H. Hardy. In Press. Proceedings of the National Symposium: Mitigation of Impacts and Losses. October 8-10, 1986, New Orleans, Louisiana.
- Zimmerman, R. J., T. J. Minello, and G. Zamora, Jr. 1984. Selection of vegetated habitat and brown shrimp, Penaeus aztecus, in a Galveston Bay salt marsh. *Fish., Bull. U.S.* 81:325-336.

SUPPLEMENT
TO
AMENDMENT NUMBER 4
TO
THE FISHERY MANAGEMENT PLAN
FOR THE
SHRIMP FISHERY OF THE GULF OF MEXICO
UNITED STATES WATERS

INCLUDES ENVIRONMENTAL ASSESSMENT
AND REGULATORY IMPACT REVIEW

FEBRUARY 1990

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
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813-228-2815

I. Introduction

A fishery management plan for the shrimp fishery in the Gulf of Mexico was prepared by the Gulf of Mexico Fishery Management Council and was implemented as federal regulation on May 15, 1981. The principal thrust of the plan was to enhance yield in volume and value by deferring harvest of small shrimp to provide for growth. This was achieved by establishing a cooperative Tortugas shrimp sanctuary with the State of Florida to close to shrimp trawling an area where small pink shrimp comprise the majority of the population most of the time. A cooperative 45-day seasonal closure was established with the State of Texas to protect small brown shrimp emigrating from bay nursery areas. An area of Florida Bay was zoned seasonally for either shrimp or stone crab fishing to avoid gear conflict.

Amendment No. 1 provided the Regional Director of NMFS with the authority after conferring with the Council to adjust by regulatory amendment the size of the Tortugas sanctuary or extent of the Texas closure or to eliminate either closure for one year.

Amendment No. 2 updated catch and economic data in the FMP, and Amendment No. 3 resolved another shrimp-stone crab gear conflict on the west central Florida coast.

Amendment No. 4 identified additional problems which developed in the fishery and revised the objectives of the FMP accordingly. The annual review process for the Tortugas sanctuary was simplified, and the Council and Regional Director review for the Texas closure was extended to February 1st. White shrimp taken in the EEZ were to be landed in accord with a state's size possession regulations to provide consistency and facility of enforcement with the State of Louisiana. This latter action was to have been implemented at such time when Louisiana provided for an incidental catch of undersized white shrimp in the fishery for seabobs. This proposed action was disapproved with the recommendation that it be resubmitted under the expedited 60-day Secretarial review schedule after Louisiana provided for a bycatch of undersized white shrimp in the directed fishery for seabobs.

II. Description and Utilization Patterns

U.S. commercial landings of Gulf shrimp averaged 255 million pounds (live weight) during the period 1983 to 1987. Landings in 1988 were 226 million pounds down 12 percent from 257 million pounds in 1987. The exvessel value of landings was \$414 million.

All U.S. shrimp landings for the five-year period 1983-1987 averaged 330 million pounds.

Supply cannot meet the demand, and imports have made up the difference. Each year since 1982 imports have set a new record, reaching 504 million pounds in 1988 (NMFS statistics).

Gulf shrimp abundance continues to be the result of recruitment, largely controlled by environmental driving forces. In recent years the development of a strong inshore (bay) fishery on juvenile shrimp, whose growth potential has not been reached, has resulted in lower recruitment

to the offshore fishery and lessened the potential for increasing yield by deferring harvest in offshore waters.

Requirements to modify trawl gear or trawling procedures to protect threatened or endangered species of sea turtles by the Secretary of Commerce under the Endangered Species Act have caused social and economic disruption in the Gulf shrimp fishery.

III. Issue To Be Addressed

Regulations of some states are inconsistent with FMP regulations.

IV. Proposed Action

White shrimp taken in the EEZ and transported into Louisiana are to be landed in accord with Louisiana's size possession regulations when possessed within the jurisdiction of that state.

PROBLEMS IN THE FISHERY

The Council has identified the following problems associated with the fishery and the present management regime has prepared the plan objectives where possible to address and alleviate them.

1. Conflict among user groups as to area and size at which shrimp are to be harvested.
2. Discard of shrimp through the wasteful practice of culling.
3. The continuing decline in the quality and quantity of estuarine and associated inland habitats.
4. Conflicts with other fisheries such as the stone crab fishery in southern Florida, the groundfish fishery of the north central Gulf, and the Gulf's reef fish fishery.
5. Incidental capture of sea turtles.
6. Loss of gear and trawling grounds due to man-made obstructions.
7. Partial lack of basic data needed for management.
8. Increasing catch of small shrimp in inshore waters.
9. Pulse fishing resulting from seasonal closure.
10. Loss of access to productive shrimp fishing grounds off Mexico.
11. Possible loss of shrimp to Mexico through transboundary migration.
12. Competition in shrimp sizes targeted by management with prevalent sizes produced by foreign mariculture operations.
13. Inconsistency in some state and federal regulations.

14. Excessive fishing effort employed in the fishery.
15. Limited enforcement capabilities.

SPECIFIC MANAGEMENT OBJECTIVES

The following are the specific management objectives of this plan.

1. Optimize the yield from shrimp recruited to the fishery.
2. Encourage habitat protection measures to prevent undue loss of shrimp habitat.
3. Coordinate the development of shrimp management measures by the Gulf of Mexico Fishery Management Council with the shrimp management programs of the several states, where feasible.
4. Promote consistency with the Endangered Species Act and the Marine Mammal Protection Act.
5. Minimize the incidental capture of finfish by shrimpers, when appropriate.
6. Minimize conflicts between shrimp and stone crab fishermen.
7. Minimize adverse effects of obstructions to shrimp trawling.
8. Provide for a statistical reporting system.

ACTION: COORDINATION OF STATE AND FEDERAL REGULATIONS

Section 8.5.1.3 is revised by adding a new measure 5A as follows:

Measure 5A: White shrimp taken in the EEZ will be subject to the minimum size landing and possession limits of the State of Louisiana when possessed within the jurisdiction of the State of Louisiana.

Rationale: The fishery for white shrimp in Louisiana is important, ranging from 22 to 53 million pounds in recent years (Table 1). In September 1984, Louisiana established a minimum size of 100 shrimp to the pound which is difficult to enforce at dockside when there are no size limits in the EEZ. Shrimp smaller than 100 count have low value and have not achieved growth potential. Fishing such small shrimp results in growth overfishing.

The 1989 shrimp stock assessment conducted by the Galveston Laboratory of the Southeast Fisheries Center stated, in part, in reference to white shrimp:

"The average size of landed white shrimp has decreased since 1960.

"Growth is temperature dependent. Growth data are sparse for November to February. A dramatic increase in growth of overwintering juveniles occurs with spring warming.

"Best estimates of natural mortality have ranged from .20-.35 cm on a monthly basis, and the midpoint of 0.275 was selected for use in VPA analysis. Due to a shortage of the necessary data, the estimates for the winter months are poor.

"There is growth overfishing in the white shrimp fishery. (Growth overfishing is defined as the condition which exists when the age at entry is less than that which will support maximum yield.)"

Yield per recruit analysis recently developed by NMFS SEFC Galveston Laboratory suggests that yield can be enhanced by delay of the harvest of these small white shrimp until May, if natural mortality rates are low. In 1985, there were approximately 2 million pounds of shrimp smaller than Louisiana's minimum count size taken from state waters (Areas 12-17) and another 1.7 million pounds taken from adjacent federal waters for a total of 3.7 million pounds. With an average value of \$0.43 per pound, the yield would be \$1.59 million. If deferred harvest increased yield by 19-37 percent to a larger and more valuable shrimp (\$0.85 per pound), the yield would be 4.4-5.0 million pounds at \$3.7-4.25 million or an increase of 700 thousand to 1.3 million pounds at a value of \$595 thousand to \$1.1 million. Mortality rates are not exact and recruitment and growth will vary depending on environmental conditions. In the example used, a mortality rate of 0.03 was used and the spread of gain is from using different sizes of shrimp at commencement of the model in November. In this simulation, fishermen could have gained up to an additional 1.3 million pounds of shrimp valued at \$1.1 million by deferring harvest from January until May.

Most of the small white shrimp occur within Louisiana's three-mile territorial waters; however, dockside enforcement is difficult if fishermen claim the catch was made legally in federal waters. This enforcement difficulty prompted the Louisiana Department of Wildlife and Fisheries to request that the minimum count size limit apply to shrimp taken in federal waters and landed in Louisiana.

In December and January small white shrimp are driven by cold fronts from the inshore water to warmer waters offshore. While Louisiana protects these very small shrimp within its territorial waters, the presence of unprotected small shrimp in the EEZ has made Louisiana law ineffective. Shrimp legally taken in federal waters in accord with the Shrimp FMP may be landed regardless of conflicting state regulations.

In 1986 and 1987 Louisiana issued 57 citations for taking undersized shrimp where fishermen were caught in the act of catching them in Louisiana waters. This does not include the instances where enforcement officers encountered undersize shrimp on the dock or on a boat not in the act of fishing.

As explained in the FMP, the use of a minimum size limit for shrimp in mixed stocks can be wasteful when it results in culling, i.e., the retention of larger individuals and discard of the smaller, dead individuals. However, a minimum size limit can be effective if it prevents fishing mortality on small shrimp. Small white shrimp occur in schools and would constitute a directed fishery rather than an unwanted bycatch during this period. It is unlikely that they would be culled and discarded in a fishery directed at larger shrimp. Large shrimp are uncommon inshore in December and January in the areas where the small white shrimp are found.

This proposed action will have no effect on the other four Gulf states.

Florida, Alabama, and Mississippi have minimum size counts of 47, 68, and 68 respectively, for whole white shrimp taken from their waters. Texas has no size counts but closes its Gulf waters out to seven fathoms from December 16 through February 1 to protect these shrimp. Smaller shrimp taken elsewhere may be legally landed in these states. Few small white shrimp occur in federal waters off these states, however. For example, in 1985 of the 1.7 million pounds of white shrimp 100 count or smaller taken in the EEZ all but about 30,000 pounds came from Statistical Areas 12 through 17 (Louisiana).

This action would permit Louisiana to enforce its minimum 100 count size possession limit at the dock. Louisiana has two exceptions to white shrimp size limit: it does not apply to bait shrimp nor to any shrimp taken during the spring season. The other Gulf states' size limit regulations apply only to shrimp taken in their jurisdiction and possession of smaller shrimp taken elsewhere is allowed.

Seabobs, a small species of schooling shrimp, may be mixed with small white shrimp resulting in a mixed catch which is difficult to separate. (Seabobs are harvested at an average size of about 120 count and constitute a locally important fishery [Table 2].) Although seabobs are usually a directed fishery with modified trawls, a mix of small white shrimp is not uncommon. Seabobs are usually taken close to shore but may be found in substantial numbers in channels offshore as far as seven miles.

Because of the possible disruption of the directed fishery for seabobs, the Council requested on submission of Amendment 4 that implementation of the white shrimp size compatibility with Louisiana be implemented at such time as that state made provision for an allowable bycatch of undersized white shrimp in the seabob fishery. NMFS went a step further and rejected this measure pending the action by Louisiana, suggested the size apply only to Louisiana shrimp, and requested additional data.

At the recommendation of the Council, the Louisiana Legislature in 1989 passed a bill which allows a bycatch of up to ten percent in a directed seabob fishery (Exhibit 3 and Exhibit 4).

Louisiana Department of Wildlife and Fisheries statistics reveal the issuance of 49,920 shrimp gear licenses in 1987, all of which would have access to the white shrimp fishery. Of these, 8,265 licenses were issued to vessels 26 feet or more in length which have the potential to participate in the near shore Gulf fishery for seabobs.

Expected Economic Impact:

As an example of the economic impact of this measure, in 1985 there were 1.7 million pounds of white shrimp of 100 count or smaller caught in the EEZ and landed. The value was 35 to 50 cents per pound or \$600,000 to \$850,000 depending on size. The extent to which this was a directed fishery is not known nor is it known what amount of these shrimp will continue to be caught but discarded.

If directed fishing and fishing mortality for these small shrimp is decreased and natural mortality is low, this measure could result in an increased yield per recruit. This would apply not only to EEZ waters but to Louisiana territorial waters as well by more effective enforcement. Approximately two million pounds of white shrimp smaller than 100 count valued from \$700,000 to \$1.0 million were landed from Louisiana waters in 1985. The effect of this proposed action would be to reduce the catch of these small shrimp and increase a later catch of larger, more valuable shrimp which survive.

Specific bycatch rates of small white shrimp in the seabob fishery are not available, but the American Shrimp Processors Association (formerly American Shrimp Cannery and Processors Association) concurs with the 10 percent limit, based on the seabob harvest processed by its member facilities. Therefore, the Council concludes that this action will not have a negative economic impact on participants in the seabob fishery (Exhibit 5).

The number of fishing craft involved in landing these shrimp is unknown. Whether foregoing the \$1.3 to \$1.85 million worth of shrimp greater than 100 count from state and federal waters will result in a corresponding or greater increase in the catch of larger shrimp later on is unknown but is the presumption. Benefits from the current state regulation would be enhanced since their enforcement would be more effective in protecting the small shrimp in state waters.

The Louisiana Department of Wildlife and Fisheries has provided this additional information on economics of the white shrimp fishery and relative importance of the white shrimp and seabob fisheries to Louisiana, information on the size distribution of white shrimp in Louisiana offshore waters and the adjacent EEZ and these numbers have not changed significantly from those in the earlier submission of this amendment, although there are year to year fluctuations. The shrimp fishery is Louisiana's most valuable fishery and Louisiana contributes significantly to the Gulf Shrimp Fishery shrimp having in excess of 50 percent of the total Gulf landings; white shrimp are a major component of Louisiana's shrimp fishery. While white shrimp are landed in Louisiana year round, peak production occurs during late September through early January with a smaller secondary peak occurring during May and early June. Between 1980 and 1986, Louisiana's white shrimp landings ranged from 32 million to 53 million pounds, making up about 44 percent of Louisiana's total shrimp landings. Seabobs are also a component of the Louisiana Shrimp Fishery, however they are of minor importance when compared to brown and white shrimp. Seabob landings from 1980 to 1986 ranged from 3.6 million pounds to 12.4 million pounds or about 3.5 percent of Louisiana's total shrimp landings. From a value prospective, white shrimp make up more than 50 percent of the total value of Louisiana's shrimp crop while seabobs contributed about two percent from 1980 to 1986.

Summary: The following list itemizes the additional information requested by the Regional Director in his letters of rejection of the previous submissions of Shrimp Amendment 4.

1. Landings: Louisiana white shrimp landings 1978-1988 are shown in Exhibit 1; 53 million pounds (headless) were landed in 1986. There were 12.7, 4.5, and 3.1 million pounds of seabobs landed 1986, 1987, and 1988 (Exhibit 2).

which would have access to the white shrimp fishery. Of these, 8,265 licensed boats 26 feet or more in length have the potential to participate in the near shore fishery for seabobs.

3. **Number of Cases Dropped:** During the calendar years 1986 and 1987, a total of 57 citations were issued for undersized shrimp and over 80 percent of these were either nol pros or no further action was taken. The 57 citations were in instances where the fisherman was actually caught in the act of taking undersized shrimp in Louisiana waters. In other instances where enforcement agents encountered undersized shrimp on a dock or on a boat that was not engaged in fishing, no citation could be issued and no record of such instances was maintained.
4. **Culling Capability:** Culling 120 count white shrimp from a mixed catch of seabobs of the same size would be tedious and labor intensive. Therefore, this action is implemented after Louisiana established a provision for 10 percent allowable bycatch of small white shrimp in the directed fishery for seabobs.
5. **Financial Impact on Seabob Fishery:** Because implementation of this action occurs after Louisiana has provided for a bycatch, there is to be no impact on the seabob fishery. Over five recent years, the average annual value of the Louisiana seabob fishery is \$3.2 million (Exhibit 2).
6. At the recommendation of NMFS, this action is to apply only to Louisiana whose law (Exhibit 4) has specified a minimum count size of 100 shrimp to the pound except (a) during the spring open season as specified by Louisiana regulations, (b) when taken under permit for bait as prescribed by Louisiana regulations, or (c) when taken as bycatch not to exceed ten percent in a directed fishery for seabobs, the directed fishery being defined as one in which more than 50 percent of the catch by weight is seabobs.
7. **Cost Benefits:** Yield per recruit plots on small, overwintering white shrimp simulated by the SEFC indicated an increase in yield at low winter natural mortality rates of 0.07 and 0.03 by postponing fishing until May. If, however, the natural mortality rate is 0.15, a better yield is obtained by fishing in January (see 8 below). Because enforcement can be accomplished dockside, costs to the state will be decreased considerably.
8. **Increase in Catch and Revenue:** If the natural mortality rates are low (as they are thought to be) increased yield could be up to 1.3 million pounds valued at \$1.1 million. A short term loss of \$600,000 to \$850,000 could be replaced by the longer term gain of \$1.1 million.
9. **Impact of Deferring Catch:** By deferring harvest 3 months, the potential yield to the fisherman would be increased 37 percent in volume and 73 percent in value, which far exceeds any reasonable discount rate.
10. **Effect on Operating Practices, Costs, Culling, and Market Demand:** Catches of small white shrimp generally occur in December and January when there are few inshore shrimping opportunities other than seabobs. Some larger brown shrimp may be taken farther offshore by larger vessels. An allowable bycatch of small white shrimp will not disrupt the

fishery for seabobs. Market demand for small shrimp is being partially met by imports of pond-raised shrimp from China albeit at some unknown cost to domestic fishermen. Shrimp processors have endorsed the action.

11. Effects on Directed Fishing for White Shrimp and Seabobs, Financial Situation of Those Affected: Because there are few available shrimp during December and January, small white shrimp constitute the predominance of the shrimp taken during this period. Most vessels are small, owner-operated boats with few other shrimp fishing alternatives other than seabobs at this time. However, they would have the opportunity to participate in the deferred and enhanced harvest of white shrimp in May.
12. Costs of culling small white shrimp from larger white shrimp in the fall season in Louisiana waters when count applies, is not known. The requirement already exists under Louisiana law but is unenforceable because of current inconsistency of federal regulations in the EEZ.

Rejected Alternative 1: Set a minimum size limit of 100 whole shrimp to the pound for white shrimp taken in the EEZ.

Rationale: This option would have been consistent with Louisiana's law except for the exclusion of shrimp taken for bait or during the spring open season. It would have been inconsistent with the other states; though because the size is smaller, it would not change the current practices there. The effect of a specified count would provide less flexibility in the event a state were to change its law to be incompatible.

Expected Economic Impacts: This action would achieve the same results as the preferred option but would provide less flexibility. It could result in additional costs in further amendment to the FMP if Louisiana or other states revised their count laws.

Rejected Alternative 2: No action, i.e., no minimum size limit for white shrimp.

Rationale: With no change, the fishery for small white shrimp over 100 count would continue in the EEZ off Louisiana (legally) and in Louisiana waters (illegally). At-sea enforcement of Louisiana's law is difficult, and the area of capture is almost impossible to prove at the dock. If the catch of 3.7 M of white shrimp over 100 count can be deferred until they return to inshore waters at a larger and more valuable size, substantial gains in yield would be accomplished.

Expected Economic Impact: Louisiana would continue to face difficulties in enforcement. Small white shrimp, perhaps up to 3.7 M (\$1,295,000 to \$1,850,000) would be landed with the claim that they were caught in the EEZ at some cost to increased, later landings of larger individuals.

Rejected Alternative 3: Establish a cooperative seasonal closure of state and federal waters where and when small shrimp are present.

Rationale: This action would protect small shrimp by establishing a closure of inshore waters of the EEZ during some winter period. Larger shrimp of other

species would not be available in the closed area. Louisiana regulations would differ but would be compatible, however. The seabob fishery during this period would be lost.

Expected Economic Impact: Evaluating the economic impact of this alternative would require a detailed analysis of the underlying biological production factors as well as identification of the number and degree of fishing craft impacted. This has not been done. Since Louisiana officials indicate that Louisiana's regulations are not compatible with this management approach and are not likely to be changed to become so, it is not necessary to conduct a detailed analysis of a non-feasible alternative.

Rejected Alternative 4: White shrimp taken in the EEZ and transported into a respective state shall be in accordance with that state's landing and possession laws with respect to size.

Rationale: The regulation would apply uniformly throughout the Gulf EEZ and would enhance the landing laws of all five states, if applicable. Since no other Gulf state has possession laws applicable to shrimp taken beyond its jurisdiction, the proposed action would apply only in Louisiana waters. NMFS considers this to be open-ended with respect to these states and recommends that the proposed rule be specific to Louisiana.

Expected Economic Impact: Same as the preferred alternative.

VII. CONCLUSIONS

o Mitigating Measures Related to the Proposed Action

None

o Unavoidable Adverse Effects

None

o Relationship Between Local, Short-Term Users of the Resource and Enhancement of Long-Term Productivity

Compatible federal and state white shrimp regulations will better enable Louisiana to enforce its size limit at the dock, thus discouraging the catch of very small, low value shrimp with high potential for growth. This action defers harvest until the shrimp can provide a higher but unquantifiable yield.

Estimated economic impact of the preferred alternative may be summarized as follows:

Coordination of state and federal regulations (size for white shrimp): Loss of \$600,000 to \$850,000 in shrimp from the EEZ with some unknown gain in deferred catch of larger individuals. The deferred gain is expected to exceed the loss. A simulation based on 1985 catch data suggests a gain of \$1.1 million.

o Effect on Small Businesses

This action, if promulgated, will not have a significant adverse impact on a substantial number of small entities.

The major impact from this proposed action would be on small business entities engaged in harvesting white shrimp off Louisiana. There are approximately 50,000 shrimp gear licenses issued in Louisiana of which approximately 8,000 are for vessels 26 feet or more in length. The latter have the capability of fishing offshore for white shrimp and seabobs. These vessels are typically owner operated and may be valued from \$50,000 to \$500,000.

The effect of the action would be to enhance catch in pounds and value by deferring fishing until shrimp are both larger in size and more valuable. All vessels presumably would have the opportunity to participate in the enhanced yield and therefore share in the benefits of the action.

By implementating the action after the State of Louisiana provided for a bycatch of small white shrimp in the seabob fishery, no adverse impact on this fishery is expected to occur.

Coastal Zone Management Consistency

Copies of the proposed action were provided to Louisiana which found the action to be consistent. No other state will be affected.

o Irreversible or Irretrievable Commitment of Resources

None

o Enforcement Costs

The actions proposed in this amendment do not materially alter federal enforcement costs. The compatible size limit for white shrimp should reduce enforcement costs by the State of Louisiana by providing the opportunity for dockside enforcement.

o Vessel Safety

The actions do not impose requirement for use of unsafe (or other) gear nor do they direct fishing effort to periods of adverse weather conditions.

Recommendation

Finding of No Significant Environmental Impact

In view of the analysis presented in this document, I have determined that the proposed action in this amendment to the Fishery Management Plan for Gulf Shrimp would not significantly affect the quality of the human environment with specific reference to the criteria contained in NDM 02-10 implementing the National Environmental Policy Act. Accordingly, the preparation of a Supplemental Environmental Impact Statement for this proposed action is not necessary.

Approved: _____ Title _____ Date _____

Responsible Agencies

Gulf of Mexico Fishery Management Council
Lincoln Center, Suite 881
5401 West Kennedy Boulevard
Tampa, Florida 33609
813-228-2815

List of Agencies and Persons Consulted

Gulf of Mexico Fishery Management Council's
- Scientific and Statistical Committee
- Shrimp Advisory Panel

Coastal Zone Management Programs
- Louisiana

National Marine Fisheries Service
- Southeast Fisheries Center
- Fisheries Operations Branch - Southeast Regional Office

Trade Associations:
- Texas Shrimp Association
- Louisiana Shrimp Association
- Concerned Shrimpers of Louisiana
- American Shrimp Processors Association
- Center for Environmental Education
- Southeastern Fisheries Association

List of Preparers

Gulf of Mexico Fishery Management Council
- Terrance R. Leary, Biologist
- Paul J. Hooker, Ph.D., Economist
- Antonio B. Lamberte, Ph.D., Economist

Location and Date of Public Hearings

July 28, 1988	Galveston, TX, Jury Assembly Room, Courthouse
July 29, 1988	Port Arthur, TX, Justice Court, 525 Lakeshore Drive
July 30, 1988	Cameron, LA, Cameron Elementary School
August 4, 1988	Houma, LA, Council Meeting Room, Courthouse Annex
August 5, 1988	Lafitte, LA, Firemen's Hall
August 6, 1988	Biloxi, MA, Assembly Room, Biloxi Cultural Center
September 14, 1989	New Orleans, LA, Crowne Plaza Holiday Inn

EXHIBIT I

Louisiana Catch of White Shrimp (Source NMFS Statistics)

(Millions of Pounds)

<u>Year</u>	<u>Total</u>	<u>Offshore</u>	<u>Inshore</u>
1978	33	26	7
1979	22	17	5
1980	32	24	8
1981	35	24	11
1982	27	19	8
1983	26	18	8
1984	35	24	11
1985	43	30	13
1986	53	35	17
1987	40	26	14
1988	34	20	14

EXHIBIT 2

Louisiana Seabob Landings and Values Whole Weight in Millions of Pounds and Millions of Dollars (Source NMFS Statistics)

<u>Year</u>	<u>Weight</u>	<u>Value</u>
1978	3.8	1.1
1979	5.9	3.7
1980	10.0	13.4
1981	6.3	2.8
1982	3.6	2.1
1983	4.7	2.1
1984	6.5	2.4
1985	6.7	2.5
1986	12.7	5.1
1987	4.5	3.4
1988	3.1	2.5

State of Louisiana



DEPARTMENT OF WILDLIFE AND FISHERIES

POST OFFICE BOX 8800

BATON ROUGE, LA. 70898

ARGENTA VAN SICKLE
SECRETARY

BLOOM ROEMER
GOVERNOR

July 11, 1989

Copy C-3
03 JUL 1989 * 003034

Mr. William D. Chauvin, Chairman
Gulf of Mexico Fishery Management Council
5401 W. Kennedy Blvd.
Tampa, Florida 33609

Dear Bill:

For the past several years, Louisiana has been working with the Gulf of Mexico Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) in an effort to get a minimum size count on white shrimp taken in the Exclusive Economic Zone (EEZ) to aid Louisiana in enforcement of its similar regulation. While the Council acted favorably on Louisiana's request, the NMFS rejected the minimum white shrimp count provision of Amendment 4 to the Fishery Management Plan for the Gulf of Mexico Shrimp Fishery. In a December 5, 1988 letter you said the reason given by NMFS for rejecting the white shrimp measure in Amendment 4 was that the measure would create an open-ended deferral to changes in state size count laws that would not be reviewable for conformance with the FMP. You also said that the NMFS suggested that the Council might wish to reconsider and resubmit the white shrimp count portion of the amendment after Louisiana developed a provision for bycatch of small white shrimp in the seabob fishery.

The 1988 regular session of the Louisiana Legislature considered a bill to allow up to a 10% undersized white shrimp catch in a directed seabob fishery. This bill has now been passed by both Houses of the Legislature and signed by the Governor. Louisiana is now requesting the Council resubmit the white shrimp measure of Amendment 4 to NMFS for their consideration.

Mr. William D. Chauvin
Page 1
July 11, 1989

Thanks for your continued assistance.

Sincerely,

Virginia Van Sickle
Virginia Van Sickle, Secretary

WVS:man

cc: La. Wildlife and Fisheries Commission
Mr. Jerry Clark
Mr. William S. "Corky" Perret
Mr. Philip Bowman
Shrimp Task Force

DOC-NAME = HB1497

Regular Session, 1989
HOUSE BILL NO. 1497
BY REPRESENTATIVE PATTI

AN ACT

to amend and reenact R.S. 56:498 relative to shrimp, to provide for limitations on shrimp taken or possessed, and to provide for related matters.

Be it enacted by the Legislature of Louisiana:

Section 1. R.S. 56:498 is hereby amended and reenacted to read as follows:

§498. Size Limit

A. During the spring open season defined in R.S. 56:497(A), there shall be no limitation as to count on any saltwater shrimp taken or held in possession.

B. The possession count on saltwater white shrimp shall average no more than one hundred specimens to the pound. Such count shall apply to the taking or possession of such shrimp aboard a vessel or at the deck or to the possession of such shrimp. When more than fifty percent of the catch by weight is sea bobs, then a maximum allowable by-catch of undersized white shrimp shall be permitted in an amount not to exceed ten percent by weight of the total catch.

C. The restriction as to count provided in R.S. 56:498(B) shall not apply to "sea bobs" (*Alpheopsis kroyeri*), also called "six barbes", which may be taken or sold through commercial channels in any season only in outside waters. There shall be no size limit on belt shrimp taken in the manner prescribed in R.S. 56:497(B).

Section 2. This Act shall become effective upon signature by the governor or, if not signed by the governor, upon expiration of the time for bills to become law without signature by the governor, as provided in Article III, Section 18 of the Constitution of Louisiana.

SPEAKER OF THE HOUSE OF REPRESENTATIVES

PRESIDENT OF THE SENATE

GOVERNOR OF THE STATE OF LOUISIANA

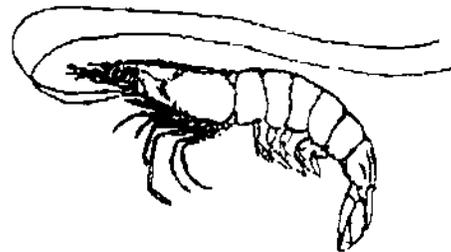
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BN12 HB1497 DATE 06/20/89 TIME 19:27:54
BILL BY PATTI
FISHING/SHRIMP / LIMITS SALTWATER SHRIMP TAKEN OR POSSESSED
17 06/08/89 H Enrolled/signed by House Spk-Senate Pres; taken to Gov for exec approval -HJ 66
16 06/07/89 H Received from Senate without amendments -HJ 43
15 06/07/89 S Read; passed; title adopted; sent to House by vote; YEAS 034 NAYS 000 -SJ 57
14 05/30/89 S Reported w/out Leg Bureau amend(a); read; passed to 3rd reading -SJ 5
13 05/29/89 S Reported favorably; R/S; read & referred to Leg Bureau -SJ 49
12 05/26/89 S Received in Sen;R/S;read 1st & 2nd time by title;referred to NATURAL RESOURCES -SJ 44
11 05/26/89 H Read; amended; passed; title adopted; sent to Senate by vote of YEAS 096 NAYS 001 -HJ 38
10 05/24/89 H House floor amendments adopted -HJ 38
09 05/24/89 H Called from the calendar -HJ 38
08 05/22/89 H Read; returned to calendar subject to call -HJ 23
07 05/21/89 H Read by title; R/S; action deferred -HJ 27
06 05/18/89 H Read; engrossed; passed to 3rd reading - regular calendar -HJ 23
05 05/17/89 H Reported favorably (13-0) (R) -HJ 66

AMERICAN SHRIMP PROCESSORS ASSOCIATION

(Formerly: American Shrimp Canners and Processors Association)

P. O. Box 50774 • New Orleans, LA 70150 • Phone 504-368-1571



*File
100 count*

December 14, 1989

Mr. Jerry Clarke
Louisiana Department of Wildlife and Fisheries
P.O. Box 98000
Baton Rouge, LA 70898-9000

Dear Jerry:

We are writing this letter to express our support for Amendment 4 of the shrimp fishery management plan.

Specifically, we are in agreement that the count size limitation proposed in this amendment for white shrimp will be beneficial to our industry for the reasons given in the rationale of the amendment, particularly that of assisting the state of Louisiana with its enforcement of the state count laws.

Further, we agree that the ten percent by-catch provision for the seabob directed fishery that was adopted by the Louisiana legislature, which allows up to ten percent incidental catch while fishing for seabobs, is appropriate, considering our experience with the seabob harvest processed by our member facilities.

If I can be of any assistance in furthering passage of this amendment, please call on me.

Sincerely,

William D. Chauvin
Executive Director

WDC/pmm