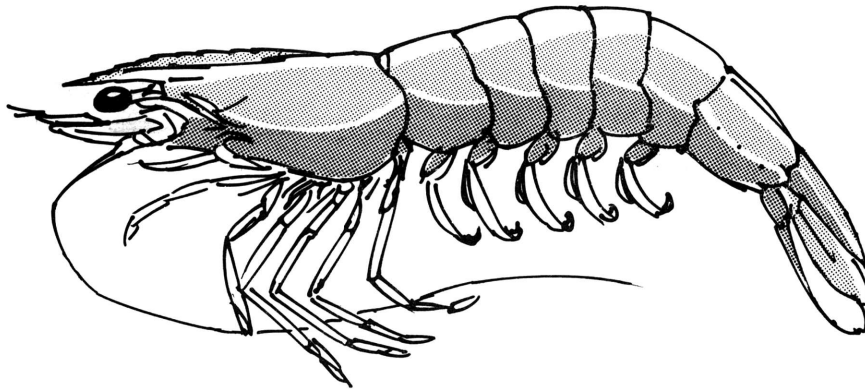

TEXAS SHRIMP FISHERY MANAGEMENT PLAN

**Fishery Management Plan Series
Number 2**

ECONOMIC IMPACT STATEMENT



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**ECONOMIC IMPACT ANALYSIS OF THE
TEXAS SHRIMP FISHERY MANAGEMENT PLAN**

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INTRODUCTION

The Sixty-ninth Texas Legislature delegated authority to the Texas Parks and Wildlife Commission to regulate the shrimp fishery in Texas in 1985. However, before existing regulations are changed, the Department is required to prepare a Shrimp Fishery Management Plan and Economic Impact Statement in accordance with Chapter 77 of the Parks and Wildlife Code. This document is the required economic impact statement. It includes a brief discussion on the current economic status of the shrimp industry, and projects the economic impacts of the proposed policy recommendations in the Shrimp Management Plan. The Shrimp Management Plan recommendations follow statutory guidance within Texas Parks and Wildlife Code Ann. §77.007 (Vernon Supp. 1988). The economic impact statement addresses each of the Plan's recommendations regarding projected impacts on the economy of the shrimp industry and the State.

Management of the Texas shrimp fishery is difficult due to the life-cycle characteristics of the three species being actively managed (brown, pink, and white shrimp), and the resultant diverse nature of the participants in the fishery. During their life cycle, shrimp are both estuarine- and Gulf-dependent. This has led to commercial food and bait fisheries in the bays, a food fishery in the gulf, and a recreational fishery for both food and bait. Additionally, the three species of shrimp important to the Texas fishery occur in waters under jurisdiction of five gulf states and the governments of the United States and Mexico.

The shrimp fishery, the largest contributor to commercial seafood landings in Texas, contributed 84 percent by weight and 93 percent by value of the total commercial landings from 1977 to 1986. Although variable, the total pounds of shrimp landed in Texas has remained relatively constant since the mid-sixties. For example, annual commercial shrimp landings averaged about 78 million pounds per year for the last twenty years, and during that time landings never dropped below 66 or exceeded 98 million lbs. Recreational landings will not significantly impact total landings as they are estimated to contribute only 1 percent of the total shrimp landings in Texas annually.

Although, the total pounds of shrimp harvested in the last twenty years has remained fairly constant, the number of shrimp landed has increased. The current trend (to harvest increasing numbers of shrimp) could eventually impact the fishery. In fact, the white shrimp fishery in Texas is exhibiting downward trends at this time. Although variable, Texas Parks and Wildlife bag seine data for white shrimp (the best measure of recruitment), have generally been declining since 1982. The bay trawl data from the same Texas Parks and Wildlife resource monitoring program has also declined each year since 1982.

The shrimp fishery has been described as an over-capitalized industry (too many boats) for many years. While fleet size has

averaged around 7000 boats from 1979-1987, there are significant changes in the composition of the fleet. The largest portion of the decrease occurred in part-time commercial bay boats. Out of state vessels have increased, with the majority of the increase accounted for by commercial Gulf vessels. Since, part-time vessels decreased, but other full-time vessels have taken their place, there is an indication that effort has actually increased. However, this increase in effort has not led to an increase in the total pounds landed.

Since 1979, prices received at the dock by fishermen have increased. Brown, pink, and white shrimp prices have increased from 1977 to 1986 by about 60 percent, while total ex-vessel value has increased over the same period by about 54 percent. These increases have not been sufficient to offset the increased number of shrimpers and the harvest of smaller shrimp. This is especially true when one considers the increase in full-time commercial vessels in the fishery.

IMPACTS OF PROPOSED SHRIMP MANAGEMENT PLAN RECOMMENDATIONS

The recommendations in the Shrimp Management Plan represent approaches or policies to manage the fishery in the future. The recommendations may lead to changes in the long run in several areas of the industry. The desired effect is to create a more economically efficient and profitable shrimp industry. Improvements associated with management and increasing efficiency in the shrimping industry will aid in maximizing the economic benefits to the shrimping industry and the state while simultaneously ensuring the long run protection of the resource. The estimated economic impacts of each of the plan's recommendations are as follows:

RECOMMENDATION 1 - STATUTORY AUTHORITY: Implementation of Chapter 77 Parks and Wildlife Code may lead to fundamental changes in shrimp management by incorporating socioeconomic factors into the decision-making process. However, change should only take place at a rate that minimizes disruption in the shrimp fishery and provides for an orderly transition from statutory authority to management by the Texas Parks and Wildlife Department. A process of clarifying and simplifying existing regulations should be a high priority under the proposed Shrimp Fishery Management Plan.

Economic Impact: Through the clarification and simplification of existing regulations and through orderly transition from statutory to regulatory authority social and economic disruptions to the shrimp fishery will be minimized. Costs to the shrimping industry will be minimized with an orderly and well-planned transition from management by statute to management by regulation. Improved efficiency will increase economic benefits to the industry and the state.

RECOMMENDATION 2 - JOINT MANAGEMENT: The Texas Parks and Wildlife Department will continue to work with other groups to coordinate shrimp management. Upon adoption of this Plan the Texas Parks and Wildlife Department staff will work to incorporate management actions and recommendations based upon the Plan into Gulf of Mexico Fishery Management Council, MEXUS-Gulf and Gulf States Marine Fisheries Commission actions. This coordinated effort can provide for more effective management of the shrimp resources of Texas and the Gulf.

As the specifics of the Plan are to be developed by the adoption of rules and regulations by the Texas Parks and Wildlife Commission, and because it is vital to have the continued input of all individuals and groups interested in the shrimp resources of Texas, an advisory committee consisting of persons from the shrimp industry and individuals and groups interested in the shrimp resources of Texas shall be selected by the Chairman of the Texas Parks and Wildlife Commission for the purpose of advising, with the Texas Parks and Wildlife Department staff, on the preparation and formulation of each and every rule and regulation necessary to carry out the Shrimp Plan prior to the presentation of said rules and regulations to the Commission for its action.

Economic Impact: Through continued joint management efforts with the Gulf of Mexico Fishery Management Council, Gulf States Marine Fisheries Commission, MEXUS - Gulf work groups and other marine advisory groups, Texas Parks and Wildlife Department will help to insure protection of the resource and the continued social benefits received attributable to the resource. Through more coordinated and efficient joint management product waste can be minimized, product quality to the consumer maintained, and resource protection achieved.

RECOMMENDATION 3 - BAG AND POSSESSION LIMIT: If other management tools that reduce waste, enhance law enforcement and meet the goal of controlling harvest and allocating catch can be successfully implemented in the shrimp fishery, the use of bag limits should be reduced or eliminated. Management tools other than bag limits, that reduce waste of the resource and enhance law enforcement should be the primary management tools.

There is evidence that the bait shrimp license is being abused. The 50 percent live shrimp requirement for bait shrimp and the live box requirement were initially successful in reducing the number of bait licenses sold but the bait shrimp license is not solely used to provide bait. A means other than the 50 percent live and live box requirements needs to be developed to provide for the legitimate needs for bait.

Restrictions on heading shrimp in inside waters should be eliminated in the absence of a bag or count limit. Heading in bays would allow more flexibility for fishermen to react to market situations. It could provide a higher quality product because headed shrimp deteriorate less than whole shrimp.

Economic Impact: Elimination of bag limits and replacement with management tools that reduce waste and enhance law enforcement will enhance the resource and reduce the costs of law enforcement. Reduction of mortality associated with the release of shrimp due to bag limits will increase the economic benefits to the state and industry participants. Finding a means other than the 50 percent live shrimp and live box requirement would reduce the costs associated with enforcement and costs to the industry. A revision of the current law, which prohibits heading in inside waters, will increase the economic benefits to the state and the industry. Fishermen can increase economic benefits by reacting to the current market situations, consumers will benefit through a higher quality product, and waste due to deterioration should be reduced.

RECOMMENDATION 4 - SIZE (COUNT) LIMITS: If other management tools that reduce waste or enhance law enforcement can be successfully implemented, the use of size limits should be eliminated because they generally lead to waste of the resource.

Economic Impact: The elimination of size limits would reduce waste of the resource. This increase in utilization should lead to greater economic benefits to the state and the industry, also law enforcement costs to the state will be reduced. If waste were reduced by five percent during the size (count) limit restriction period (15 August - 31 October) for the bay systems the annual average increase in ex-vessel value would be approximately \$500,000 based on the ex-vessel values for each bay system 1984-1986. Costs to the state and the industry could occur if the resource is not adequately protected from over harvest by other means.

RECOMMENDATION 5 - TIME PERIODS: Restricting the harvest of shrimp to specific time periods (including, but not limited to, certain times during the day, or certain months [periods] during the year), along with area closures (where an area can be a portion of a bay system or the Gulf of Mexico, a bay system, the Gulf of Mexico, or the entire state including Gulf waters) are the primary means for managing the Texas shrimp fishery, especially if bag limits are removed.

Exceptions to closed time periods should be eliminated unless it can be demonstrated that the value of the target species exceeds the loss in value of non-target species.

The time of day when seasons open and close should be standardized. Current inconsistencies cause confusion and are difficult to enforce.

Economic Impact: Time period restrictions help protect the resource from overharvest. The timing of seasons and their associated closures should aid in distribution of the economic benefits to all participants in the industry. The short run costs to harvesters and industry participants will be minimized through timely closing and seasonal closures of areas. Eliminating exceptions to closed time periods should eliminate waste of non-target species through the practice of discarding by-catch, thus protecting both target and non-target species from overharvest ensuring the economic benefits to the state will be maintained in the future. Standardization of time of day opening and closing will decrease costs to the state of enforcement and reduce penalties to the industry participants. Fishermen will incur short run costs during seasonal closures. These costs will include the opportunity costs of not fishing during closure periods and costs associated with finding and participating in alternative income producing activities. The revenues generated through other income producing activities may outweigh the possible short run costs.

RECOMMENDATION 6 - CLOSED AREAS: Area closures, as well as specific time period restrictions, should be the primary management tools for managing the Texas shrimp fishery if they can successfully be used to reduce waste and enhance law enforcement. Areas closed to shrimping should continue to be based on the life history of shrimp, especially as it relates to growth. The boundaries of closed areas should be clearly identified to assist fishermen in recognizing closed areas, and to enhance law enforcement.

Economic Impact: The resource can be protected via closures insuring economic benefits to the state and the industry in the future. The economic benefits of area closures through law enforcement and resource protection may outweigh the short run costs to fishermen when an area closure occurs. Additionally, clearly identified boundaries will reduce the total costs associated with law enforcement as well as the operating costs of harvesters; therefore, economic benefits to the industry will increase.

RECOMMENDATION 7 - MEANS AND METHODS: If regulation of means and methods can successfully regulate the catch of individual fishermen, they should be used instead of bag limits and size limits. Regulations on means and methods should be standardized where practical and designed to reduce waste and enhance law enforcement.

Economic Impact: The use of regulation of means and methods instead of bag limits and size limits will reduce waste and therefore increase the economic benefits to the state. The costs to individual shrimpers may increase depending on the means and methods chosen. Standardization of gear and dimensions should aid law enforcement as well as reducing the inconsistencies and confusion that result from current regulations.

RECOMMENDATION 8 - LICENSES: The licensing and fee system should be as simple as possible. It should be designed to produce revenue to pay for management and recover economic rent associated with the removal of the State's resources.

Economic Impact: Through simplification of the licensing system, and having the state collect full value for allowing the harvest of its resources, the economic costs of administering licenses will be reduced and the economic benefits to the industry and the state can be maximized. The cost of individual licenses may increase.

RECOMMENDATION 9 - PENALTIES AND COMPLIANCE: Penalties for violating regulations should be increased, especially for violations of the recommended primary management tools of area closures, time periods, and means and methods. Higher penalties could include increased fines, higher classification of violations, reduction in the number of violations required for license revocation or suspension, and more consistent penalties for violations. The civil restitution and license revocation and suspension provisions of current law should be continued.

Economic Impact: Penalty increases will reduce the incentives for violators to illegally remove shrimp by increasing the costs to illegally fish. Compliance with the current laws and regulations will maximize economic benefits from the biological system and aid in maintaining the viability of the resource.

RECOMMENDATION 10 - ALLOCATION: The necessary data should be obtained to assess the feasibility of implementing a limited entry program into the Texas shrimp fishery to achieve optimum yield.

Economic Impact: Assessing the feasibility of a limited entry program for the Texas shrimp fishery will cost the state and industry in the short run. Ultimately, the benefits to the state and the industry of obtaining the information should lead to greater economic and managerial efficiencies.

RECOMMENDATION 11 - STOCKING: Stocking in public waters to enhance natural populations should be used when necessary to supplement natural recruitment when sufficient research has demonstrated its efficacy.

Economic Impact: Supplementing natural recruitment through stocking may add assurance that the appropriate stock levels can be maintained. Stocking programs will lead to greater costs for the state and the participants in the fishery. If stock levels are maintained or harvest levels can be raised significantly as a result of stocking, economic benefits will increase over the long run.

RECOMMENDATION 12 - MARICULTURE DEVELOPMENT: The Texas Parks and Wildlife Department should continue to monitor the development of mariculture techniques and the commercial production of penaeid shrimp.

Economic Impact: Through monitoring the development of mariculture techniques, developments that may aid in increasing the economic benefits from the fishery will be identified.

RECOMMENDATION 13 - HABITAT MAINTENANCE, RESTORATION, AND ENHANCEMENT: The long-term viability of the shrimp fishery depends on maintenance and enhancement of shrimp habitat. The Texas Parks and Wildlife Department should continue to aggressively protect and enhance shrimp habitat and water quality via all available resource protection agencies and programs.

Economic Impact: Protection or enhancement of habitat will guarantee adequate stocks of the resource in the future, thus ensuring stability and continued economic benefits to the shrimp fishery and the state.

RECOMMENDATION 14 - FISHERY INDEPENDENT MONITORING: The present monitoring program should be maintained or enhanced to meet Legislative mandates and to continue to determine trends in population abundance and stability, movement, growth, mortality and the impacts of environmental influences.

Economic Impact: Monitoring of stocks, habitat, and environment aids in decision making to maintain and enhance the resource. Enhancement of current monitoring programs will increase costs. Resource maintenance and enhancement will ensure economic benefits for the future.

RECOMMENDATION 15 - FISHERY DEPENDENT MONITORING: The present monitoring program should be enhanced to meet Legislative mandates and to continue to determine fishery harvest trends, economics and impacts of sociological influences.

Economic Impact: Enhancement of current monitoring programs to determine harvest trends, economics, and sociological influences will increase the economic benefits of management and increase the costs associated with monitoring the status of the fishery. The increased monitoring will allow for more timely and efficient decisions.

RECOMMENDATION 16 - ASSESSMENT AND EVALUATION: Continued assessment and evaluation are necessary to meet Legislative mandates and to address data needs reviewed in this plan.

Economic Impact: Continued assessment and evaluation will improve the scientific knowledge of the shrimp fishery in Texas. While increasing the costs of monitoring and evaluation, the efficiency in management gains will lead to maximum economic benefits from the resource.

RECOMMENDATION 17 - COMMUNICATION AND EDUCATION: The Texas Parks and Wildlife Department should continue to maintain a high level of interdepartmental, industrial and interagency communication to more fully benefit from the free flow of information concerning penaeid shrimp research, adverse environmental conditions and changes in economic and societal goals.

Economic Impact: Continued and improved communication and education will improve management of the resource. Managerial improvements will increase stability of the economic benefits of the industry.

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