GALVESTON

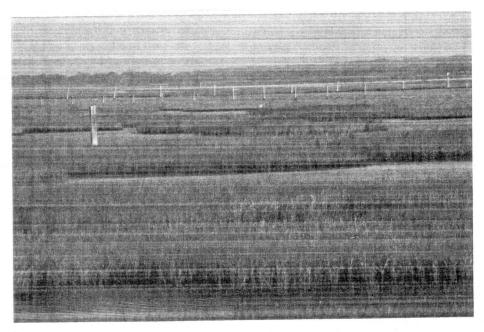
## THE GALVESTON BAY COMPLEX AND THE "EDGE EFFECT"

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Ecologists recognize that a transitional zone between two or more diverse communities contains many species of organisms from each of the overlapping communities and, in addition, species which are characteristic of and often restricted to the zone. The increased variety and density of species in a transitional zone is known as the "edge effect".

An estuary may be considered a zone of transition between fresh water and marine ecosystems. The Galveston Bay complex is such a zone and is important to commercial fisheries, to the structural stability of the geographic area, and to the biological productivity of the area. The most important commercial role of the complex is its function as a nursery area for about 80% of the young of marine species that constitute the marine fisheries industry of the Texas coast.

Consideration of the edge effect is particularly appropriate for the Galveston Bay complex, in view of its uniqueness as a discrete system. Life cycles of marine species of other Gulf coast states are remarkably similar to those of the Texas coast, but none of these states has such a discrete unit as the Galveston Bay complex. The broad deltaic region of the Mississippi and its vast estuaries can, by size alone, tolerate some water development projects without a measurable loss of production. This is not the case with the Galveston Bay complex. Galveston Bay is a sensitive and fragile ecological system.



The edge is also observable in shoreline shallows. It is here where the greatest diversity of species occurs and where the greatest population densities of animals and plants are to be found. It is here that juvenile shrimp of commercial importance find optimum conditions for feeding and developing. There is little doubt that various sizes of commercially important species of shrimp serve as an important food source for a variety of freshwater, marine, and estuarine species of fishes that frequent these shallow waters when feeding and developing.

However, the commercially important species of shrimp follow an annual cycle of emigration and immigration in relation to the Galveston Bay complex, because the Complex serves only as a nursery area where immature and juvenile animals have access to optimum salinities, water flow, and nutrients. The open water of the Gulf of Mexico provides the spawning habitat for these shrimp.

To maintain this important supply of nutrients to fishes, it may be necessary for the commercially important species of shrimp to be replaced by other species when the former emigrate to the open waters of the Gulf. Such replacement may be served by the various species of grass shrimp (Palaemonetes) found in these waters. The grass shrimps are represented by freshwater, estuarine, and marine species. Because of the prominence of grass shrimp in the diet of numerous sport fishes of the Gulf coast, including the redfish and trout, and because of the assumed importance of grass shrimp in the food web of the Galveston Bay complex, a detailed account of the physioecology of Palaemonetes pugio was issued by Wood in 1967. (Contr. Mar. Sci., 12.54079)

The opinions of the contributors do not necessarily reflect the opinions of the Galveston Bay Foundation.

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# BAY FOUNDATION

## SOUNDINGS

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## A MESSAGE FROM THE CHAIR

by James B. Blackburn, Jr.

## THE GALVESTON BAY NATIONAL ESTUARY PROGRAM

Since the Galveston Bay Foundation was formed, a major event has taken place that offers tremendous hope for the protection of the Galveston Bay system. Section 320 of the federal Water Quality Act of 1987 created the National Estuary Program (NEP) and specifically identified Galveston Bay as an estuary of national concern. This designation acknowledges the threatened nature of the Galveston Bay system and establishes a process for studying and protecting the bay.

The Galveston Bay National Estuary Program was formally initiated by Governor Clements, who appointed the Texas Water Commission to convene a so-called Management Conference. Primary funding for the Management Conference is provided by the U.S. Environmental Protection Agency, which also establishes federal regulations guiding the program. Over a five-year period, the Management Conference is to develop a Comprehensive Conservation and Management Plan (CCMP) for Galveston Bay.

The structure of the Management Conference is complicated, with several layers of committees with varying responsibilities. A Galveston Bay Public Forum and a Citizens Advisory Steering Committee exist to provide grass-roots input and support for the Galveston Bay NEP. A Scientific and Technical Advisory Committee will aid in the development of technical studies and proposals and in the critique of technical data and proposals. The Local Governments Advisory Committee will provide input from counties

and cities around the Bay. The Management Committee will be responsible for the day-to-day activities of the Conference, including defining and ranking the problems of the estuary and developing management strategy and plans. Finally, the Policy Committee will oversee all aspects of the Management Conference, including reviewing and approving other committee recommendations.

"Without the . . . involvement of [GBF] members, this important opportunity for Bay improvement could fail."

The Galveston Bay NEP is just beginning, and the dynamics of the relationships between the committees are only now unfolding. A concern of many veterans of past management efforts, such as the Coastal Zone Management Program and Section 208 Water Quality Planning, is that little actual improvement of the Bay will occur during the period required to start up the Management Con-

ference, agree on priorities, contract for studies, review studies and act on those studies.

Indeed, a legitimate fear is that nothing but studies will result from this Management Conference. Without the active involvement of all Galveston Bay Foundation members, this important opportunity for Bay improvement could fail. It is up to all of us to become involved to make sure that this important effort will not fall by the wayside.

(See page 5 for a mail-in coupon.)

## ARMAND BAYOU AND CHRISTMAS BAY

An immediate opportunity for the Galveston Bay NEP to demonstrate its willingness and intent to protect portions of Galveston Bay has been seized upon through the development of a proposal to set aside Christmas Bay and Armand Bayou for special protection. Last month, EPA announced that a one-time action demonstration grant was being

(please see page 5)

