

NOTES ON THE OYSTER FISHERY OUTLOOK IN GALVESTON BAY

Oyster fishermen and dealers are vitally interested in two elements of the Galveston Bay oyster population. These are: the quantity of oysters available for harvesting and the quality of the oyster meats. Large quantities of good quality oysters throughout the season mean money for fisherman and dealer alike. Few oysters or poor quality meats may mean ruin for both.

Many physical, biological, chemical and economic factors are involved in determining the quantity and quality of the oyster stocks. It is the responsibility of the Parks and Wildlife Department to collect information on such factors essential for the proper management of the oyster resource. Since almost all oysters are taken from public reefs, regulation of the harvest season and the means and methods of taking oysters must come from legislative action. Hopefully, information gathered by the Parks & Wildlife Department will be considered in the formulation of legislation to protect and/or promote this valuable resource.

Among several factors determining the quantity and quality of the oyster crop, salinity - or salt content - of the bay water ranks high. Severe flooding on the riversheds can, and has, caused almost complete destruction of oysters within a bay. Fresh water kills are usually

sudden, often drastic, and therefore obvious. The rivers flood, the bay becomes muddy, the water fresh, and in a few days or a few weeks the oysters die. Recovery of oyster stocks following a flood may be rapid.

On the other hand, an increase in salinity occurs gradually, damage to the oyster stocks is not sudden and only indirectly related to the rising salt content. So the effects may not be noticed immediately. Nevertheless above normal salinity can, and has, been as damaging to the oyster crop as too much fresh water. Recovery may be slow, or may not occur at all.

If oysters were to be placed in very salty water they might live for a long time without showing any ill effects. They are highly adaptable animals capable of withstanding wide variations in environmental conditions. Indirect effects of high salinity can, however, be deadly.

Predators, such as the oyster drill or conch and the stone crab, thrive in saltier waters and are capable of destroying most, if not all, the oysters on a particular reef. By feeding on spat, they can prevent the establishment of a harvestable oyster population.

Shell boring animals, such as certain clams and sponges, also prefer the saltier waters and in such an environment will penetrate and weaken the oyster shells, interfere with oyster growth and decrease the condition of the oyster meat. They may also make the oyster more susceptible to predation.

Ordinarily, spring flooding on the Galveston Bay watershed, if not severe or prolonged, acts as a control measure against the predators and borers with little or no damage to the oysters. Spring freshets have been beneficial for the overall oyster population within a bay. In drought years, spring freshets may not occur and this control measure is eliminated. Predators increase in number and spread further up the bay attacking more oysters and decreasing the available harvest.

More serious than predation, however, are oyster diseases and parasites. Like people, oysters are subject to a number of "ills" caused by viruses, bacteria and parasites. Few oysters on the Gulf coast live to be more than 8 to 10 years old. Each and every year, a certain percentage of the oyster population dies from disease. Sometimes only the young oysters are affected but most often it is the older market or near market size oysters that die. Deaths occur more commonly in summer and early fall and may not be noticed at all during the oyster season.

A fungus parasite commonly infects oysters all along the Gulf and South Atlantic coasts. It has been present in Galveston Bay for many years and, depending upon environmental factors, can cause an annual loss of 20 to 80 % of the market oysters. Another disease - called "Aransas Bay disease" because it was first detected in Aransas Bay oysters - has been found to kill 90% or more of the total oyster population within a few months. Fortunately, this disease has not been found in Galveston Bay oysters.

Studies of several groups of oysters in Galveston Bay over a period of years, including both wet and dry years, showed that about 20% of the small seed oysters died before reaching a size of 3 inches. Before reaching  $3\frac{1}{2}$  inches, 40% had died; 55% died before reaching 4 inches and 60% died before reaching 5 inches. Thus changing the legal size limit from  $3\frac{1}{2}$  inches to 3 inches permitted fishermen to harvest a number of oysters which would otherwise have been lost to disease, or predation, or both.

The quantity of oysters reaching market size will vary from year to year and from reef to reef. For example, groups of Trinity Bay oysters were moved to Red Fish Reef in mid-Galveston Bay in 1971 and 1972. These oysters were so-called "disease-free"; that is, testing had shown no infection by the fungus parasite. During 1971 about 17% of these oysters died before reaching market size. But in 1972 about 30% of a similar group of oysters died before reaching the 3 inch limit.

In other studies at Hanna Reef using older oysters, deaths averaged slightly more than 50% in 1971 but jumped to 80% or more in 1972. At the same time 65% of some one-year old oysters died before reaching legal size.

To compensate for losses due to predation, diseases and other negative factors, continual restocking of the oyster population is necessary. On public reefs, such restocking depends entirely upon the abundance and survival of oyster spat. The quantity of spat which set and survive one year will determine what the oyster harvest will be during the following year or two. Adequate setting year after year is necessary to provide adequate harvests year after year.

In Galveston Bay, unfortunately, spat setting has fluctuated widely but in general has shown a definite downward trend. Setting on the major reefs in 1972 was particularly poor. Reasons for the poor sets are not clear.

During the same period the fungus disease has become well-established across Red Fish Bar and has begun to infect oysters in upper Trinity Bay. Oyster drills have increased in numbers along the lower portions of Red Fish Reef and appear to be spreading over the reef. The presence of a large number of small drills last fall indicated a successful spawn and an increasing predation problem on the reefs. If these trends continue, the prospect for future oyster harvests in Galveston Bay are not good.

While oyster stocks appear to be decreasing, fishing pressure remains high. Competition between local and out-of-state fishermen for the oysters will increase. Local fishermen would probably like to eliminate, or at least restrict, the harvest by out-of-state fishermen. This is beyond the authority of the Parks and Wildlife Department and, perhaps, can not be accomplished by legislative action. If changes

*Bob, I suggest  
this conflict  
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to soft-pedal  
this Island*

in legislation are contemplated, it should be remembered that underfishing a resource is no more proper than overfishing. Ways to expand the resource rather than restrict the harvest should be considered.

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Leland Roberts

R. P. Hofstetter

DATE: April 6, 1973

Sea Grant Educational Program on Law Enforcement in Galveston,  
April 3, 1973

As requested, I attended the Sea Grant program on law enforcement at the Rosenberg Library on April 3, 1973 from 7:30 PM - 10:30 PM. Law Enforcement Supervisor Carl Covert and District Chief Bobby Miles represented the Law Enforcement Division to answer questions posed by five panel members representing the commercial fishing interests. Questions from the audience were written and handed to one of the panel members.

Antagonism towards Game Wardens was evident (and to be expected) but Carl Covert handled the situation very well. Much of the antagonism appeared to stem from questions as to whether wardens could board and search a documented vessel without permission or inspect a fish house without the owner's permission. There was also discussion about the interpretation of the laws by the wardens, about whether or not wardens have arrest "quotas" and whether wardens were trying to exert pressure to get certain bills passed in the legislature by threats to restrict fishing. (The one example given was the threat by an un-named warden to close the Houston Ship Channel to shrimping if a certain bill (not named) did not pass). Such things happen all the time and, I think, are fostered by lack of communication between the Department and the industry. Meetings such as this one are therefore useful to give the fishermen a chance to meet with Game Wardens under more or less informal conditions.

Almost all of the panel members expressed dissatisfaction with the shrimp law and wanted to know how to change portions of it. This demonstrates a lack of organization among a large segment of the fishermen. Any changes in legislation should have been proposed to their representatives before the legislature convened.

Of interest to me was the ill-feelings towards the Louisiana fishermen. This is, of course, perennial. Wardens were accused of showing favoritism towards the Louisiana fishermen. If this had been a meeting of Louisiana fishermen, wardens would have been accused of favoring Texas fishermen. There were complaints that wardens made the fishermen dump their undersized oysters

in the ICW, or on mud bottom. There was criticism of the sale of undersized oysters. The most recent incident involved the closing of the bay by the State Health Department on a Saturday. Some fishermen claimed they worked all that day and then found they couldn't sell their oysters to any oyster house. They felt the Health Department should have done a better job of notifying the fishermen rather than just the dealers. The indefinite closure of the bay was also a sore point. Some felt the Health Department did not recognize problems fishermen faced. They did not know whether to rig for shrimping rather than oystering, get their boats hauled-out now or wait in hopes that the bay would be opened quickly.

Considerable criticism was voiced about the closed and open water boundaries set by the State Health Department. The fishermen suggested markers on each closed reef so that there would be no doubt as to where the line ran. This probably resulted from the arrest of a number of boats fishing in polluted water in Trinity Bay last season. The problem with markers is that they need to be heavy and almost permanent. Buoys do not remain in one place very long. Pilings can be knocked down.

One other complaint was the disruption of shrimping in the bay due to abandoned or unmarked crab pots. One fisherman said he had complained to the Corps of Engineers and an inspector was going to be assigned by the Corps to check on the pots. According to regulations, crab pots must have a permit from the Corps. (This has come up in the past and nothing has been done. Complaints about unmarked obstructions in the Gulf were also heard. These included abandoned well sites.

A marine extension agent will be assigned to Galveston County under the Sea Grant extension program and he may provide a means of better communications among all people concerned with the fishing industry.



AGRICULTURAL EXTENSION SERVICE  
of  
TEXAS A & M UNIVERSITY

5115 Highway 3  
Dickinson, Texas 77539  
April 4, 1973

Mr. Bob Hofstetter, Biologist  
Parks and Wildlife Department  
105 San Jacinto  
La Porte, Texas 77571

Dear Mr. Hofstetter:

I want to thank you for your participation in the Sea Grant program of last night, April 3. The attendance was as expected and we think the program went off very well.

Thanks again.

Sincerely,

A handwritten signature in cursive script that reads "Joe W. Doby".

Joe W. Doby  
County Extension Agent  
Galveston County

JWD:fh





AGRICULTURAL EXTENSION SERVICE  
of  
TEXAS A & M UNIVERSITY

5115 Highway 3  
Dickinson, Texas 77539  
March 23, 1973

TO: All interested persons  
SUBJECT: Sea Grant Meeting  
FROM: Joe W. Doby

We would like to apologize for the postponement of the Sea Grant educational program on law enforcement. Due to some mix-ups, we were unable to get speakers on the original scheduled night of March 21. We are pleased to announce that this program has been rescheduled with the same speakers and the same panel.

The new date for this County Sea Grant Committee sponsored educational program on law enforcement is Tuesday, April 3, 7:30 p.m. Rosenberg Library.

Carl Covert, Regional Law Enforcement Supervisor, and Bobby Miles, District Law Enforcement Officer, Texas Parks and Wildlife, will be on the program. A panel of people representing several part of the County and several areas of the fishing industry will present questions to the speakers. This panel will be: Ronnie Hornbeck, G. W. McNeir, and E. H. "Skippy" Ruttiger, Jr., all of Galveston; Bill Elevins, San Leon; and H. O. Johnson, Crystal Beach. If you have questions you would like to ask of the speakers, please contact one of the panel members. In order to have a more orderly meeting, no questions will be taken from the floor; however, written questions may be handed to the panel. Biologists from the Texas Parks and Wildlife will also be available to answer any questions. A member of the state staff will also be on the program.

This program is another in a series of the Texas Agricultural Extension Service program concerning the commercial fishing industry. These meetings are open to anyone regardless of race, color, or religion. Feel free to invite anyone you think might be interested, but who failed to receive a copy of this letter. We are always glad to add anyone's name to our mailing list. All they have to do is write, call us, or attend one of our meetings and their name will be added.

We hope to see you at the meeting, and again, we apologize for the postponement.

Sincerely,

*Joe W. Doby*

Joe W. Doby  
County Extension Agent  
Galveston County



JWD:fh