

JOB REPORT

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Project No. MO-1-R-1. Date: August 15, 1959

Project Name: Oyster Investigation, Galveston Bay

Period Covered: January, 1958 - June, 1959. Job No. B-3

Survey of the Abundance and Condition of Market Oysters

Objectives: To determine the changes in abundance and condition of the market oysters on the major reefs in Galveston Bay.

Procedures: Dredge and tong samples were taken at monthly intervals at one station. These were collected as part of Job B-2 and were supplemented at times by additional samples for market counts only. Market oysters were measured to the nearest centimeter and reported as number per standard (one bushel) dredge.

Condition indices were determined on certain samples. Ten oysters were selected as representative of each sample, and condition factor, shell factor and present solids were determined by standard methods.

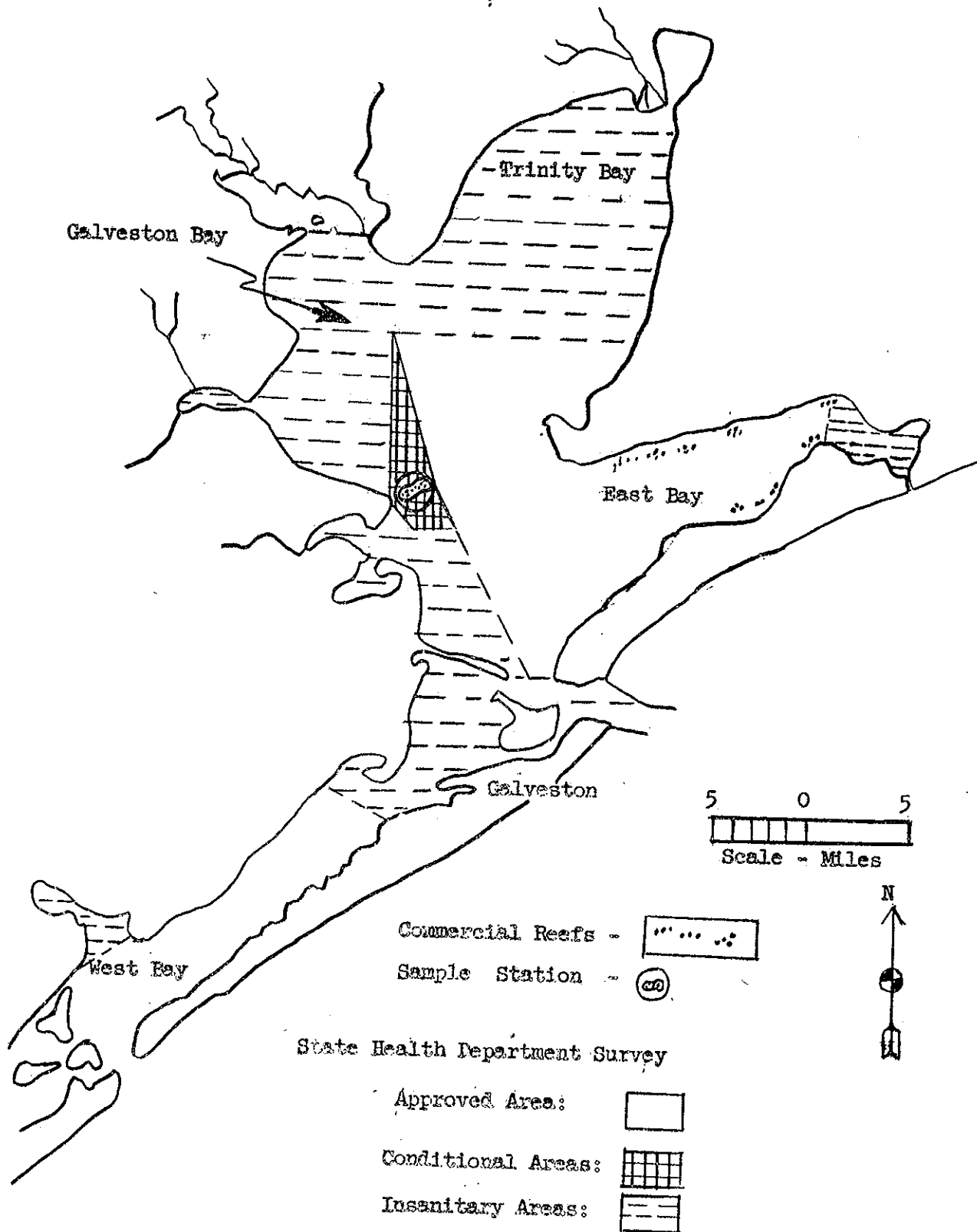
Findings: Figure I shows the location of the sampling station (Todd's Dump) in relation to the reefs harvested commercially during the 1958-59 season. Todd's Dump was the only reef in Galveston Bay worked by the commercial oystermen. Smaller, scattered reefs in East Bay supported the remainder of the industry. Other reefs were available but oystermen evidently found that too much culling was required to gather the market crop. Such reefs received only occasional attention.

Table I summarizes the number of market oysters per standard dredge obtained each month at Todd's Dump. The figures represent the number of market oysters per uncultured bushel, and therefore indicate the relative density of the market population available for harvest. Most of the samples were taken in deep water (6 to 12 feet) in Southwest Pass. Occasional samples were tonged in the shallow water (3 feet) along the reef crest.

The average number of market oysters per dredge during the period January through November, 1958 was 25.0. During, and after, the 1958-59 oyster season (November to April) the average number was 10.7. This decline can be attributed to the effects of harvesting. Since sampling was limited in shallow water changes in density can not be determined, but the population was intensively fished and the density probably showed a similar decline.

Galveston Bay was closed to dredging during the 1957-58 season to allow the population a chance to recover from the 1957 flood. TONGING was permitted in Galveston Bay and East Bay, and most of the harvest

FIGURE I
Commercial Oyster Reefs - 1958-59



during this period was confined to the shallow water. Few tongs worked in water over six feet in depth and most preferred depths of three to four feet. Since tongs were plentiful and the season was long (September to May) the oyster population in the shallow areas was intensively fished. Shallow water samples in November, 1958 were averaged from five dredge hauls and can be considered representative of the oyster population. The low market count reflected the harvesting during the prior season. Oysters in the deeper waters were unmolested and were more abundant.

During the 1958-59 season both Galveston Bay and East Bay were opened to dredging in waters over three feet in depth. Galveston Bay was opened in November and East Bay in December. Fishing intensity on Todd's Dump decreased after East Bay was opened. In spite of the fact that most of the oyster markets were located in the Seabrook and Galveston areas, the boats preferred to make the long haul to East Bay to harvest oysters. East Bay had hitherto been closed to dredging because the water depth was generally less than six feet in depth. (State law prohibits dredging in waters less than six feet unless the Game and Fish Commission considers such dredging to be beneficial). The oyster population in East Bay has been relatively unexploited in past years since the oysters were usually too scattered to make tonging efficient. New grounds were in effect opened to the industry by the Commission's proclamation permitting dredging and provided considerable incentive for harvesting.

Table II summarizes the average condition indices of market oysters on Todd's Dump. Condition factor was determined by the method devised by A.E. Hopkins. It is the ratio of the cavity volume of the shell to the dry weight of the meat. The higher the factor, the better the oyster. Percent solids was obtained by dividing the wet, drained weight of the oyster meat into the dry weight. Shell factor is the ratio of the total volume of the shell to the volume of the valves. When the cavity volume is small, the shell factor approaches 1.0. As the cavity volume increases the shell factor approaches, and may exceed, 2.0. A high factor indicates that the shell cavity is large and, consequently, the oyster has more potential meat yield. It does not necessarily indicate quality at the time of sampling but is a record of past, peak condition.

During the peak harvest months in 1958 and 1959, oysters were only in fair condition. The present solids never exceeded 20% as good quality oysters usually do. Best condition was observed in April in both years but in neither case did quality approach that of the oysters in drought years. The shell factor remained almost constant throughout the survey. A similar factor was noted during the drought years also.

Low salinity was probably a chief factor in contributing to the poorer quality of the oysters. Certainly, market oysters sold from Galveston Bay and East Bay did not have the salty flavor so desired. Late in the season saltier-flavored oysters from Matagorda Bay were shipped in to the local markets. Chesapeake Bay and Louisiana oysters also competed with the local crop.

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Date Approved

29 Sept. 1959

TABLE I

Number of Market Oysters per Standard (1 Bushel) Dredge
Todd's Dump, 1958-59

Month	Number of Oysters		Maximum Length Cm.
	Deep Water	Shallow Water	
1958			
Jan.	27	-	13
Feb.	20	-	12
March	32	-	17
April	32	-	15
May	18	-	13
June	31	-	15
July	21	-	15
August	-	25	12
Sept.	15	-	12
Oct.	-	-	-
Nov.	23	12	12
Dec.	-	-	-
1959			
Jan.	11	-	13
Feb.	-	-	-
March	-	-	-
April	11	-	14
May	10	-	10
June	-	-	-

TABLE II

Average Oyster Condition
Todd's Dump, 1958-59

Month	Condition Factor	Percent Solids	Shell Factor
1958			
Feb.	7.3 (Fair)	17.4	1.5
March	8.6 (Good)	14.9	1.5
April	9.3 (Good)	17.0	1.4
May	5.8 (Fair)	13.5	1.5
June	6.4 (Fair)	13.9	1.5
July	5.0 (Fair)	14.0	1.4
Aug.	-	-	-
Sept.	3.4 (Poor)	10.2	1.6
Oct.	-	-	-
Nov.	7.9 (Fair)	17.0	1.4
Dec.	-	-	-
1959			
April	9.2 (Good)	15.7	1.4