

Job Report

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Project Name: Survey of the Oyster Fishery in Area MO-2

Period Covered: September 1, 1960 to August 15, 1961 Job No. B-2c

Dermocystidium marinum Survey of the Oyster Reefs in Area MO-2

Abstract: Dermocystidium marinum incidence recordings have been made of reefs in Aransas, Copano, Corpus Christi, San Antonio, Espiritu Santo, Matagorda, and East Matagorda Bays. The fungus has been found in all the bays listed, with the exception of Corpus Christi Bay. Incidence recordings have been slightly lower during the 1960-1961 survey than those taken the previous survey year of 1959-1960.

Objective: To record the incidence of D. marinum in known areas of infection and to locate new areas of infection as an aid in determining the causes of oyster mortalities.

Procedure: This job was originally established as a survey of the oyster reefs in Aransas and Copano Bays only. Other bay areas were to be checked by the area biologists and reported in their job completion reports. This plan was changed in April 1961 to include Matagorda Bay, San Antonio Bay, Espiritu Santo Bay, and Corpus Christi Bay. Monthly samples in those locations were taken by the area biologists and sent to the Marine Laboratory in Rockport for examination.

Culture methods and the examination of oyster tissue were based on Ray's technique. Sections of heart, mantle, and anal tissue were cultured in dextrose-enriched fluid thioglycollate media containing a penicillin-streptomycin solution. Standard type culture tubes with screw-on caps were filled with approximately 10 cc. of the media and autoclaved. It was found that in keeping the culture media with anti-biotics added for a period of time, the anti-biotics became weakened. Better results were obtained when the anti-biotics were added to the sterile culture just before the tissue sections were placed in it. This decreased bacteria spoilage considerably. The tissue in culture was incubated at room temperature for 72 hours or longer. Prior to microscopic examination, the tissue sections were flattened on standard 1" by 3" glass microscope slides and stained with a solution of Lugol's Iodine.

Incidence of infection was classed into four groups: none, light, moderate, and heavy. Light infections were given a value of 1, moderate infections a value of 2, and heavy infections a value of 3. Tissue sections in which no infections were found were rated as 0. By dividing the total sample value by the number of oysters per sample, usually ten oysters per sample, the weighted incidence was obtained. The range in weighted incidence from an uninfected sample to a heavily infected sample would be from 0.0 to 3.0.

Findings: Table 1 shows the weighted incidence of infection for all sample stations for each monthly sample. Figures 1-3 show the locations of each sample station in the various bays.

Matagorda Bay was found to have a light incidence of infection and no observed mortality attributable to the fungus. San Antonio Bay has had considerable mortality in the upper areas from fresh water. Mosquito Point Reef was severely depleted by flood water from the Guadalupe River in June 1961. Prior to this kill, the bay experienced similar difficulties in December 1960, when heavy rains kept the river at flood stage for several weeks. No mortality has been directly attributed to D. marinum; however, the incidence has increased in the areas over that found in last year's survey (Project Report MO-R-2), and the possibility of mortality from the fungus is present.

Aransas Bay had no observed mortality from the fungus, and the weighted incidence has been lower than that found in the two previous surveys beginning in 1958 (Project Reports MO-R-1 and MO-R-2). This bay was closed to oystering in December 1959 after a high mortality attributed to D. marinum had done considerable damage. It is anticipated that the bay will be reopened in the fall of 1961 if conditions remain favorable.

Corpus Christi Bay experienced an oyster kill sometime in 1960. When the kill actually occurred is not known, but tests are now underway to determine the cause of the kill and if the bay can be re-established as an oystering area. A check for D. marinum showed negative on all reefs.

Comments: Heavy rains during the fall of 1960 and the spring of 1961 have maintained low salinities in the San Antonio - Espiritu Santo Bay area and are believed responsible for the low incidence ratings recorded for the samples taken from that area. The decrease in Aransas Bay incidence recordings is apparently attributed to the influx of fresh water into the Aransas Bay system through the Intracoastal Channel from San Antonio Bay. Low salinities caused mortality in some areas such as Copano Bay and the upper portion of San Antonio Bay. Copano Reef, in Copano Bay, was used as a sample station until January 1961, when the fresh water entering the bay from the Mission River eventually killed the entire population on the reef. This station was moved to Lap Reef, located near the junction of Copano and Aransas Bays (Figure 1).

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Table 1

Dermocystidium marinum Incidence for the Lower Coast

<u>Name of Reef</u>	<u>Location</u>	<u>Date</u>	<u>Weighted Incidence</u>
Pintail Reef	Aransas Bay	10/3/60	.6
"	"	1/9/61	0.0
"	"	4/19/61	.6
"	"	5/21/61	.5
"	"	6/20/61	.2
"	"	7/17/61	.2
"	"	8/22/61	0.0
Paul's Mott Reef	Aransas Bay	10/3/60	1.9
"	"	1/9/61	1.0
"	"	4/19/61	1.2
"	"	5/21/61	1.2
"	"	6/20/61	1.4
"	"	7/17/61	1.0
"	"	8/22/61	1.5
Long Reef	Aransas Bay	10/3/60	1.5
"	"	1/9/61	1.0
"	"	4/19/61	1.8
"	"	5/21/61	2.3
"	"	6/20/61	1.2
"	"	7/17/61	1.4
"	"	8/22/61	1.5
Half Moon Reef	Aransas Bay	10/3/60	1.9
"	"	1/9/61	0.0
"	"	4/19/61	.5
"	"	5/21/61	.8
"	"	6/20/61	1.1
"	"	7/17/61	.7
"	"	8/22/61	1.7
Copano Reef	Copano Bay	10/3/60	0.0
Lap Reef	Copano Bay	4/19/61	0.0
"	"	5/21/61	.5
"	"	6/20/61	.4
"	"	7/17/61	.4
"	"	8/22/61	.9
Chicken Foot Reef	San Antonio Bay	4/10/61	0.0
"	"	5/23/61	.1
"	"	6/19/61	0.0
"	"	7/20/61	.3
"	"	8/8/61	.2

Table 1 (Cont'd)

<u>Name of Reef</u>	<u>Location</u>	<u>Date</u>	<u>Weighted Incidence</u>
Panther Point Reef	San Antonio Bay	4/10/61	0.0
"	"	5/23/61	.9
"	"	6/19/61	0.0
"	"	7/20/61	.1
"	"	8/8/61	.5
Mosquito Point Reef	San Antonio Bay	4/10/61	0.0
"	"	5/23/61	.1
"	"	6/19/61	0.0
"	"	7/20/61	0.0
"	"	8/8/61	0.0
Josephine Reef	Espiritu Santo Bay	4/10/61	.4
"	"	5/23/61	.5
"	"	6/19/61	.6
"	"	7/20/61	.9
"	"	8/8/61	.1
State Mat - East	Matagorda Bay	4/10/61	0.0
"	"	5/24/61	.8
State Mat - West	Matagorda Bay	4/10/61	.3
"	"	5/24/61	.4
"	"	7/17/61	.5
"	"	8/16/61	.6
Middle Reef	Matagorda Bay	5/24/61	1.3
"	"	7/17/61	0.0
"	"	8/16/61	.8
General Survey of All Reefs	Corpus Christi Bay	5/25/61	0.0

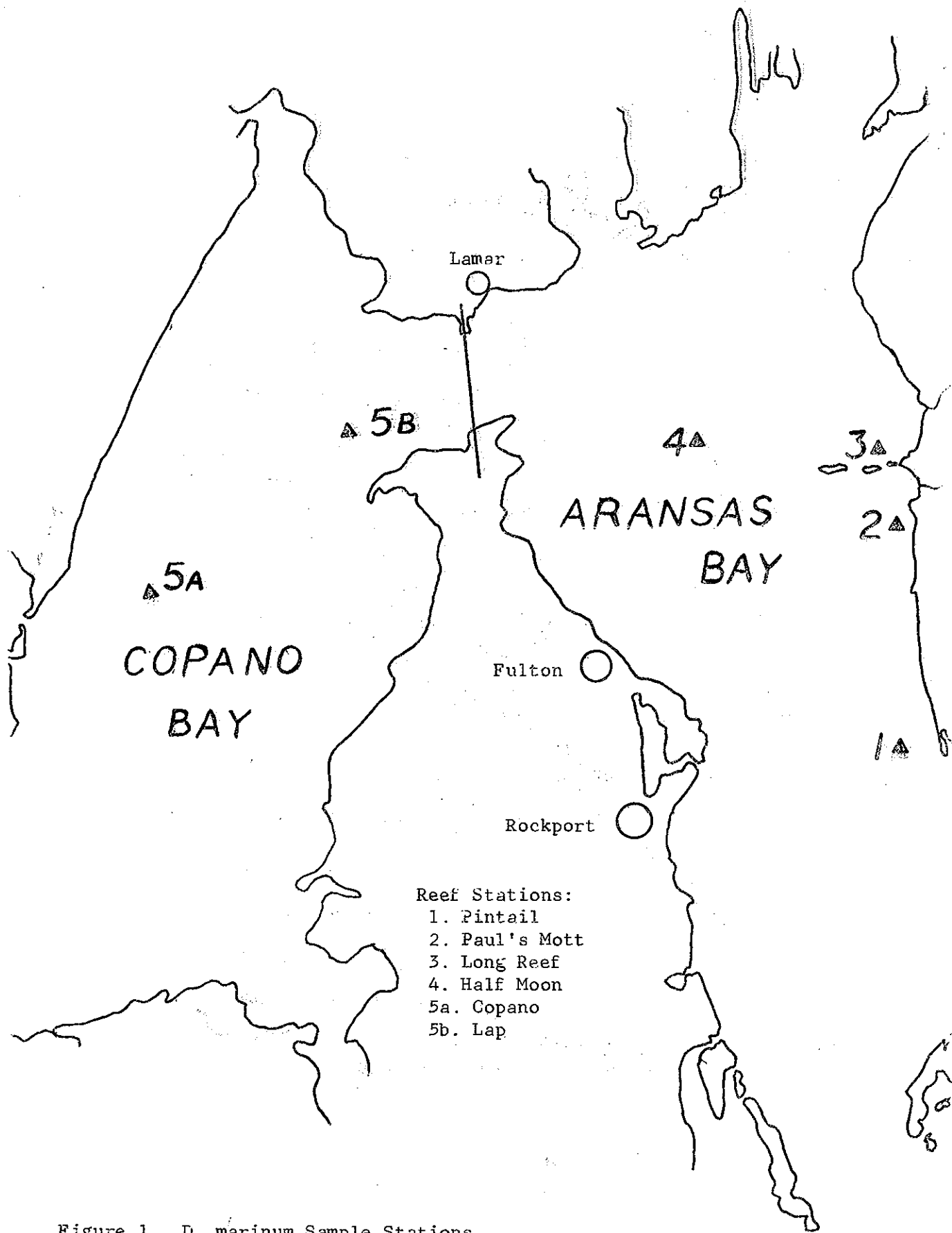
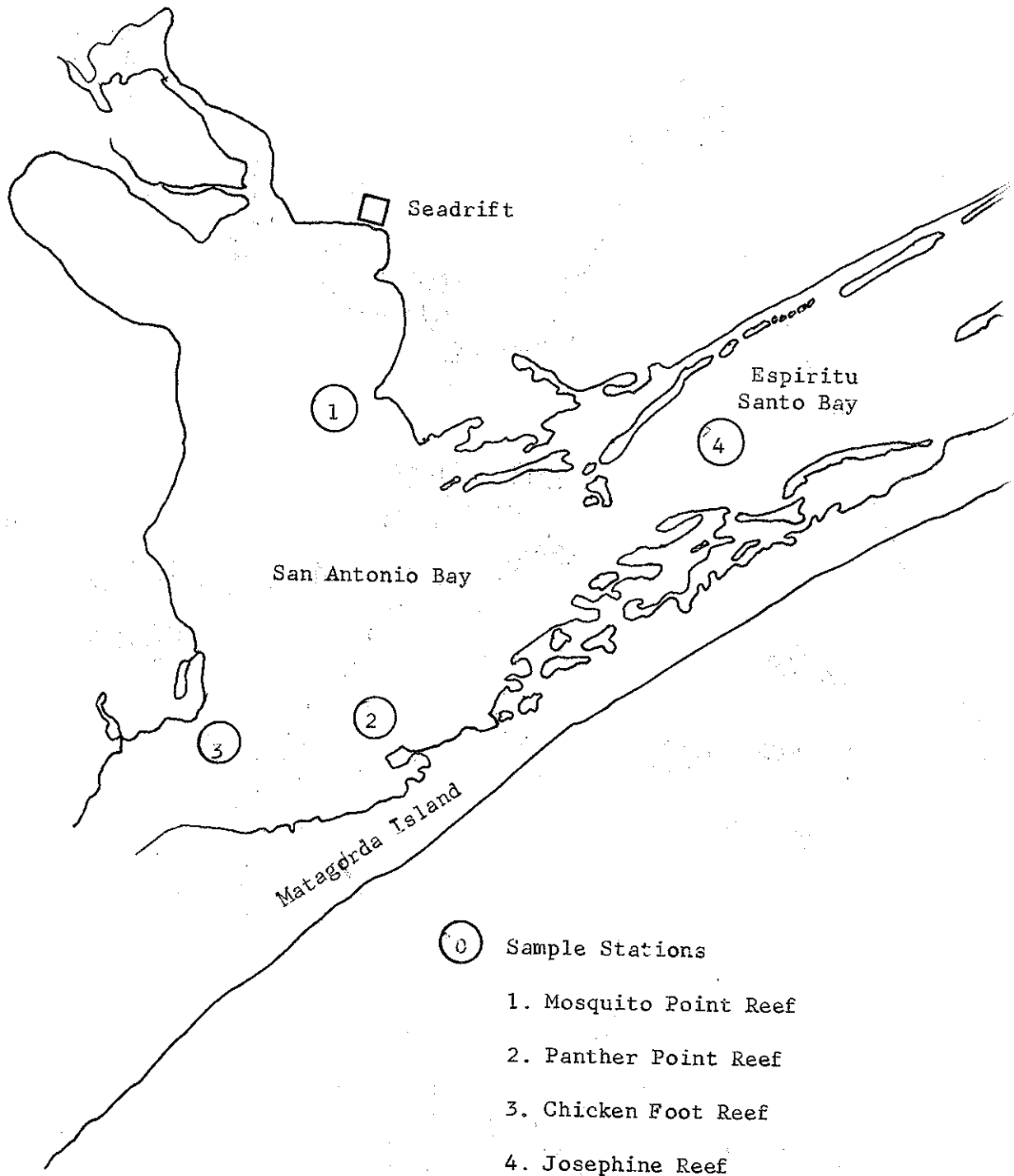


Figure 1. D. marinum Sample Stations



- Sample Stations
1. Mosquito Point Reef
 2. Panther Point Reef
 3. Chicken Foot Reef
 4. Josephine Reef

Figure 2. D. marinum Sample Stations
San Antonio and Espiritu Santo Bays

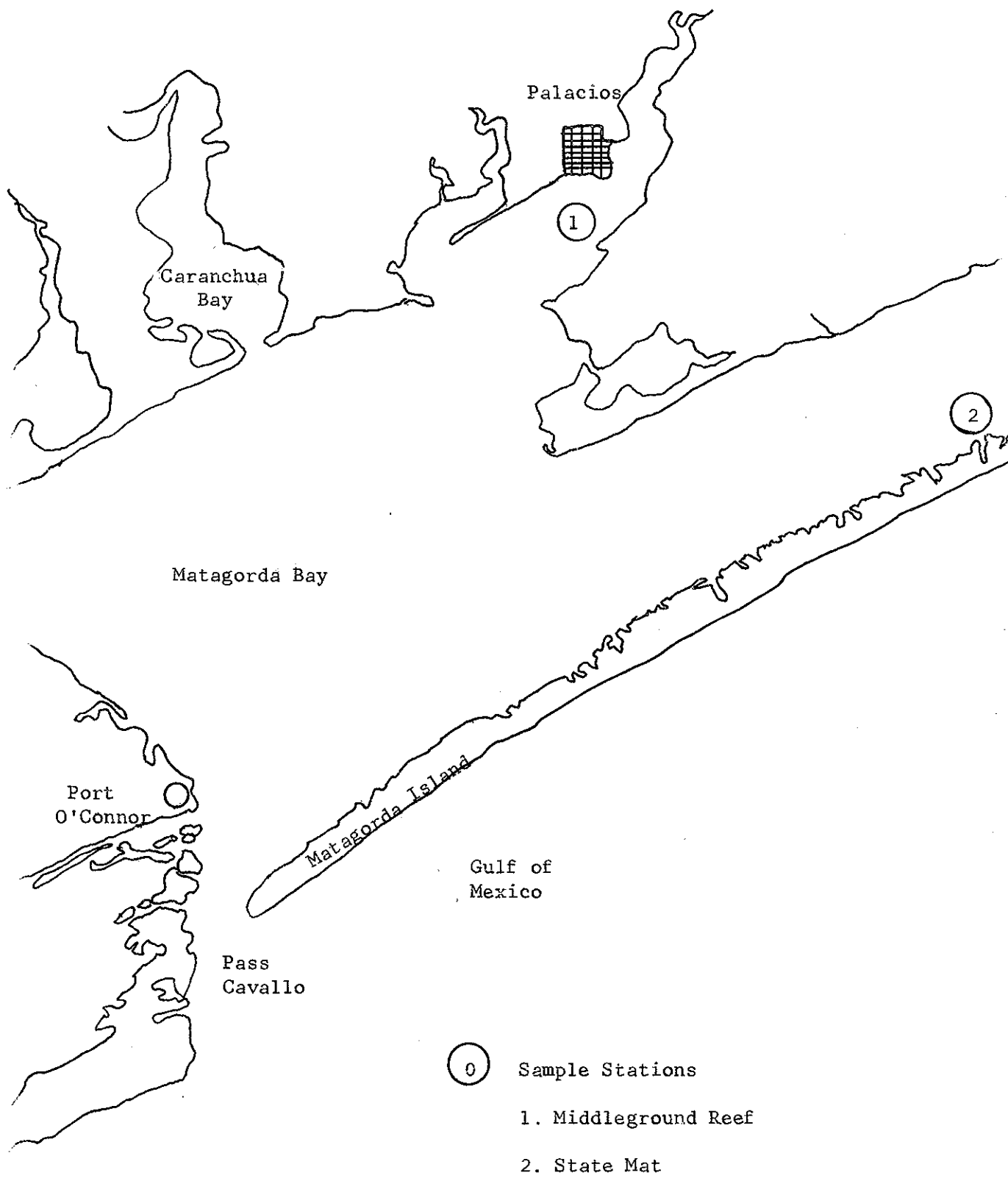


Figure 3. D. marinum Sample Stations - Matagorda Bay

