

STATE Texas

DATE January 1, 1952

BAFFIN BAY SURVEY

Quarterly Report

From: October 1, 1951

To: December 31, 1951

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Boat Captain: C. A. Goodman

INTRODUCTION

The quarterly period of October, November, and December, 1951 was spent, as the previous two quarters, in conducting the biological and ecological survey of the Baffin Bay area.

This survey includes such collections as the procuring of water samples for pH, turbidity and salinity determinations, weather data, water temperatures, bottom cores for nutrient determination, water currents and tides, and biological collections such as plankton hauls for planktonic forms, otter and beam trawls and graded sieves for benthic forms and gill nets and trot lines for pelagic forms.

STATUS OF PROJECT AT TIME OF LAST REPORT

The preliminary survey of the areas to be worked had just been completed. Fish tagging operations had begun but had not progressed to the present scale. Permanent station locations had been established. Water samples and bottom cores, along with weather data and water temperatures, had been taken periodically.

AREAS WORKED

The area covered by this investigator includes (1) Baffin Bay in its entirety, which is bordered on the east by Point of Rocks and Penescal reefs, (2) Alazan Bay north to the mouth of Petronella Creek, (3) Laguna de los Olmos west to the north of Los Olmos

Creek, and Cayo del Grullo north to Drum Point.

The water areas of the bays to be worked have been computed as follows at mean high tide:

Baffin Bay	33,560 acres
Alazan Bay	14,631 acres
Cayo del Grullo	7,505 acres
Laguna de los Olmos	3,674 acres
Cayo Infernillo	1,423 acres

Total	60,793 acres
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The location of stations and information concerning them is given here.

Station #1-----Point of Rocks marker at the south most tip of Point of Rocks Reef. Longitude $27^{\circ}16'45''$ N, Latitude $97^{\circ}25'20''$ W. Depth of water 12 feet. Mud bottom.

Station #2-----Piling at edge of bar off Humble Tide Gauge at Point of Rocks. Longitude $27^{\circ}18'35''$ N, Latitude $97^{\circ}26'40''$ W. Depth of water 3 feet. Sand and fine shell bottom.

Station #3-----Marker on farthest offshore rocks of Penescal reef chain. Longitude $27^{\circ}16'15''$ N, Latitude $97^{\circ}27'20''$ W. Depth of water 10 feet. Mud bottom.

Station #4-----Red floating buoy off Miggerhead Reef. Longitude $27^{\circ}15'50''$ N, Latitude $97^{\circ}30'25''$ W. Depth of water 10 feet. Mud bottom.

Station #5-----Channel marker due south of Starvation Point. Longitude $27^{\circ}15'40''$ N, Latitude $97^{\circ}30'$ W. Depth of water 9 feet. Mud bottom.

Station #6-----Piling on edge of bar of 1st fence on Kenedy shore. Longitude $27^{\circ}14'40''$ N, Latitude $97^{\circ}36'$ W. Depth of water 3 feet. Hard sand and fine shell bottom.

Station #7-----Piling near mouth of Petronella Creek in north end of Alazan Bay. Longitude $27^{\circ}22'15''$ N, Latitude $97^{\circ}29'30''$ W. Depth of water 3 feet. Mud bottom.

Station #8-----Piling on edge of flats behind Starvation Point in Alazan Bay. Longitude $27^{\circ}15'15''$ N, Latitude $97^{\circ}32'$ W. Depth of water 3 feet. Mud and sand bottom.

Station #9-----Piling on West end and North side of reef East of Kleberg Point. Longitude 27°16'45" N, Latitude 97°36'05" W. Depth of water 3 feet. Shell and rock bottom.

Station #10-----Piling in middle of Laguna de los Olmos, due south of Williamson's Boat Works. Longitude 27°16'15" N, Latitude 97°42'45" W. Depth of water 3 feet. Mud bottom.

Station #11-----Piling on edge of rocks at mouth of Laguna del los Olmos. Longitude 27°16'50" N, Latitude 97°39'25" W. Depth of water 5 feet. Mud bottom.

Station #12-----Piling at edge of rocks on N.E. shore of Cayo del Grullo northeast of Loyola Beach. Longitude 27°20'10" N, Latitude 97°40'20" W. Depth of water 3 feet. Mud and fine rock bottom.

BIOLOGICAL DATA

Little information was gathered from the plankton samples during this quarter due to the heavy population throughout the area of a ctenophore identified as belonging to the Genus Mnemiopsis. Species is not yet determined.

Very little data has been accumulated during this quarter on the benthic forms of the area. More extensive work on this phase of the investigation will begin as soon as equipment can be devised to take adequate samples.

Although the trammel net is a more efficient sampling device for pelagic forms than the gill net, the use of the trammel net has been discontinued in this area for the following reasons.

Baffin Bay is primarily a drum bay and the gill net is many times more successful than the trammel net in taking this fish. The small red and trout populations of the bay tend to congregate among the rock reefs and on the very shallow flats where navigation is either dangerous or impossible. Trot lines will be used to supplement gill nets on the flats during warmer weather.

The results of gill net operations during this quarter are as follows (800 feet nylon--3 feet depth--5-1/4" stretched mesh).

Total days of gill net set (24 hr. periods)-----	41 days
Total hours of gill net set-----	984 hours
Total boat hours-----	44 hours
Total man hours-----	88 hours
Total hours cleaning and repairing-----	12 hours

Fish taken:

Mullet-----	13
Drum-----	215
Flounder-----	4
Trout-----	4
Redfish-----	1
Sand trout-----	1
Alligator gar-----	14
Miscellaneous-----	16

Tagged fish per net hours-----	.186
Tagged fish per boat hours-----	4.16
Tagged fish per man hours-----	2.08

After the heavy rains of the last quarter, many large mullet were taken in the nets. The average weight was 5 to 7 pounds.

Piles of oyster shells have been found on top the clay bluffs at Drum Point, Starvation Point and on a bluff opposite Loyola Beach on the King Ranch shore. Broken pieces of pottery, bits of flint and arrow heads, and many drum otoliths have also been found indicating that these places may have been Indian camp grounds. Efforts are now underway to locate if possible any dead oyster reefs beneath the mud of the bay bottom.

No attached vegetation has been found in the bays to date.

A check list of the fauna of the Baffin Bay area is now being compiled.

The tendency for drum to move towards the less saline waters has been well demonstrated in this area, although redfish and trout do not seem to follow this practice.

METEOROLOGICAL DATA

Permission has been received from Mr. Austin Gates, of Falfurrias, to activate the old Humble tide gauge house at Riviera Beach, although no instruments have been installed to date.

The installation and operation of the tide gauge instruments should show much regarding the effects of tides in a bay which is so far by water from the open gulf (70 miles to Port Aransas and 108 miles to Port Isabel).

The investigator believes that the water level fluctuations of this bay area is not affected so much by the tides as by

precipitation and wind. The long range water level is controlled by heavy precipitation which would raise the water level and by no precipitation accompanied by high rate of evaporation which would lower the water level.

The short range water level is controlled by the winds. For example: the immediate effect of a heavy north wind would be to blow the water out of Alazan Bay and Cayo del Grullo and pile it up on the Kenedy shore of Baffin Bay. The ultimate effect of this wind would be to pull the water out of Baffin Bay into the Laguna Madre as the water in the Laguna is pushed south. The immediate effect of the prevailing S.E. or southerly winds would be to blow the water from Baffin Bay and pile it up in Alazan Bay and Cayo del Grullo. The ultimate affect would be to pull the water out of Baffin Bay as the water in the Laguna is pushed north. A West wind would push water out of Baffin Bay and an East wind would push water into Baffin Bay but these winds seldom prevail. During periods of little or no wind the water level would tend to equalize. During these periods the effects of tides may be noticed.

UTILIZATION OF TIME

Project	Biologist Hours	*Crew Hours
Baffin Bay (Field)	40	40
Gill netting	44	44
Baffin Bay (Laboratory)	421	
Transportation	30	
Preparation of Articles, Reports, etc.	18	
Conferences	50	
Public Relations	20	
Compilation of Data	85	
Repair of Equipment	30	
Correspondence-----	16	
Total	754	84

SUMMARY

The twelve stations in the Baffin Bay area have been permanently located and are periodically worked.

*Crew time is the time spent by the crew when the boat is away from the dock and underway and when the biologist is aboard.

Little work has been done on planktonic and benthic forms during this quarter.

Gill nets have been substituted for trammel nets in Baffin Bay. The tagging program is proceeding satisfactorily in this area as far as drum are concerned.

Old Indian camp grounds have been located at three points in the area.

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