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RELATIVE ABUNDANCE OF PLANKTON OFF NAPLES, FLORIDA, AND ASSOCIATED HYDROGRAPHIC DATA, 1956-57

by

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ABSTRACT

Some chemical, physical, and plankton characteristics of the surface waters at Naples, Florida, have been investigated. Concentrations of inorganic phosphate, total phosphate, nitrate-nitrite nitrogen, carbohydrate, and protein were determined over a period of 17 months. Water temperatures, salinities, occurrence, and composition of phytoplankton and zooplankton were also recorded.

INTRODUCTION

This study adds to the hydrographic and biological data available for the Florida red tide area. It is the fifth report by the U. S. Bureau of Commercial Fisheries on field studies of the Florida red tide. The first four reports were by Graham, Amison, and Marvin (1954), Marvin (1955a), Finucane and Dragovich (1959), and Dragovich, Finucane, and May (1961). Other studies on planktonic forms of the Florida west coast have been made by King (1950), Davis (1948 and 1950), Davis and Williams (1950), and Gunter et al. (1948).

Knowledge of the species composition and relative abundance of planktonic forms, together with associated physical and chemical parameters, is important in characterizing a marine environment (Cleve, 1900, and Russell, 1939). Previous plankton analyses for the Florida red tide area provide comparatively little information regarding coincident aquatic conditions. In this report values for salinity, temperature, inorganic phosphorus, total phosphorus, nitrate-nitrite nitrogen, carbohydrate, and protein are given with abundance estimates of 48 taxa of phytoplankton and 13 zooplankton taxa. These data cover the coastal waters off Naples, Florida, for the period March 1956 to August 1957.

MATERIALS AND METHODS

Surface samples of water were collected from Naples Pier at Naples, Florida (lat. 26°07.9'N., long. 81°48.5' W. Fig. 1). The mean low water depth at the pier was 5 feet with a mean tidal range of 2.1 feet. Three or four times a month water samples were taken with 2-liter Erlenmeyer flasks for chemical analysis. Immediately after collection the samples were transferred to 200 mm. pyrex culture vials, capped with solid polyethylene screw caps, and sealed with plastic electrician's tape. They were tested

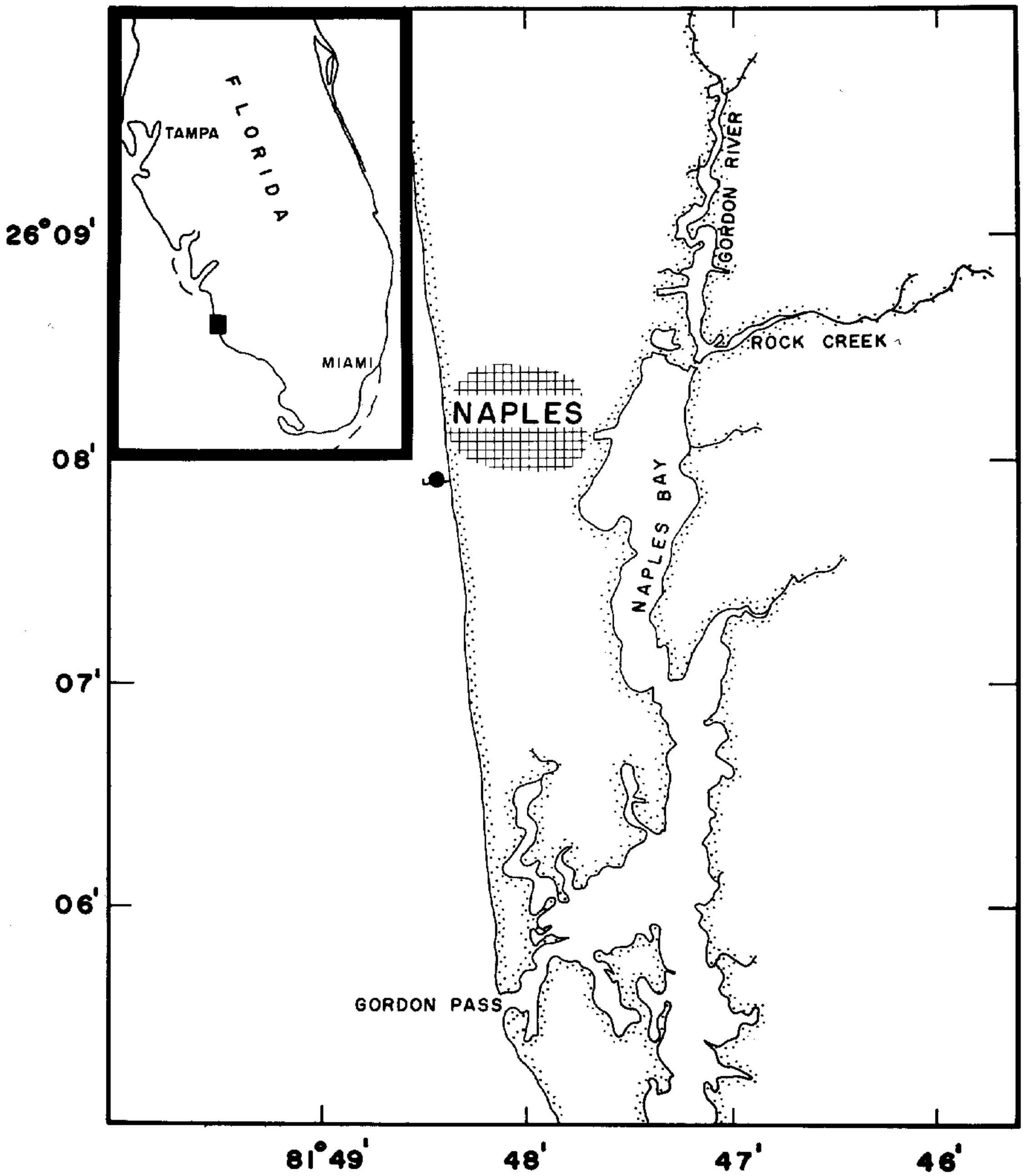

Figure 1.--Map of Naples area indicating station location. (The area included in this map is indicated as a black rectangle on the inset.)

for total and inorganic phosphorus, nitrate-nitrite nitrogen, carbohydrate, and protein.

Temperature, salinity, and plankton determinations were usually made 5 times a week. The particular collection method employed was chosen to permit detection of delicate or minute organisms which would have been fragmented or destroyed if collected with a plankton net. Water samples to be analyzed for plankton were collected like the chemical samples, in

2-liter Erlenmeyer flasks previously rinsed with a portion of sample water, and examined within 24 hours after collection.

The counting technique for *Gymnodinium breve* and preparation of the samples for the estimation of relative abundance of other organisms were those described by Finucane and Dragovich (1959). Abundance estimates of microorganisms other than *G. breve* were made as follows: three 1-ml. portions of the sample were pipetted from just beneath the surface of the water and placed on a 3-depression slide. After microscopic examination of the three aliquots, the abundance of phytoplankton forms was recorded in terms of three categories: + = 1-24 cells per ml.; ++ = 25-99 cells per ml.; and +++ = 100 or more cells per ml. The same procedure was employed for zooplankton estimates, using these categories: x = 1-9 organisms per ml.; xx = 10-49 organisms per ml.; and xxx = 50-100 organisms per ml.

The following physical and chemical methods were employed:

Water temperature: determined with mercury thermometer calibrated to the nearest 10th of a degree centigrade.

Salinity: determined by Mohr-Knudsen method (Knudsen, 1901).

Nitrate-nitrite nitrogen: determined by the method of Zwicker and Robinson (1944) as modified by Marvin (1955b).

Inorganic phosphorus: determined according to the Robinson and Thompson (1948) method.

Total phosphorus: determined by the method of Harvey (1948).

Carbohydrates: determined by the method of Erdman and Little (1950) as modified by Zein-Eldin and May (1958).

Protein: determined by the method of Wangersky (Collier, 1958) as modified by Marvin et al., 1960.

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APPENDIX TABLES

EXPLANATION OF COLUMN HEADINGS AND SYMBOLS

Time	Eastern Standard Time
NO_3-NO_2	Nitrate-nitrite nitrogen, μg. at./l.
PO_4-P	Phosphate phosphorus, μg.at./l.
In.	Inorganic
Tot.	Total
Carbohydrate	Arabinose equivalents, mg./l.
Protein	Tyrosine equivalents, mg./l.

Symbols for phytoplankton abundance:

+	1-24 cells per ml.
++	25-99 cells per ml.
+++	100 or more cells per ml.

Symbols for zooplankton abundance:

x	1-9 organisms per ml.
xx	10-49 organisms per ml.
xxx	50-100 organisms per ml.

Table 1.--Relative abundance of plankton with associated hydrographic data

M A R C H 1956

Day	1	2	5	6	7	8	9	12	13	14	15	16	19	20	21	22	23	26	27	28	29	30
Time	0910	0910	0908	1000	1030	0840	0900	0905	0843	0905	1615	1540	1615	1154	1050	1500	1000	0918	0940	1050	1020	0900
BIOLOGICAL DATA																						
Unicellular plankton																						
Amphidinium spp.																						
Cochlodinium spp.													+					+				
Gymnodinium breve																						
G. simplex																						
G. splendens																						
G. spp.					+	+		+	+	+	+	+		+	++	+	+	++			+	+
Gyrodinium spirale																						
G. spp.			+	+	+			+				+	+	+				+		+		+
Torodinium spp.																						
Polykrikos spp.																						
Nematodinium spp.																		+				
Pouchetia spp.						+																
Oxyrrhis spp.																						
Ceratium furca			+			+						+				+						
C. fusus																						
C. tripos																						
Gonyaulax spp.																						
Peridiniopsis spp.		+					+															
Peridinium depressum																						
P. digitale															+							
P. divergens									+													
P. spp.																						
Dinophysis tripos																						
D. spp.																						
Exuviella spp.																						
Prorocentrum sp.																						
Silicoflagellidae																						
Euglena spp.																						
Peranema spp.																						
Melosira spp.	+				+	++	+	++	++	+	+	++	+		+	+						
Skeletonema spp.																						
Chaetoceros spp.					+						+				+	+	+					
Guinardia spp.																						
Rhizosolenia spp.																						
Thalassiothrix spp.																						
Navicula spp.																						
Pleurosigma spp.																						
Nitzschia spp.										+		+					+					

Table 1. cont'd

Day	1	2	5	6	7	8	9	12	13	14	15	16	19	20	21	22	23	26	27	28	29	30
Time	0910	0910	0908	1000	1030	0840	0900	0905	0843	0905	1615	1540	1615	1154	1050	1500	1000	0918	0940	1050	1020	0900
BIOLOGICAL DATA																						
Unicellular plankton																						
Grammatophora spp.																						
Unidentified phytoplankton	++	++	++	++	++	+	++	+		++	++		++	++		++	++	++		++	++	++
Strombidium sp.																						
Unidentified Halteriidae												++										
Tintinnopsis spp.																						
Unidentified Tintinnidae																		+				
Vorticella spp.				+						+						+	+	+		+	+	
Cothurnia sp.																						
Pleuronema sp.																						
Unidentified ciliates		++	+	+	+		+		+	+	+		+	++	+		++			+		+
Multicellular plankton																						
Proales sp.																						
Synchaeta sp.																						
Unidentified Rotifera			x	x																		
Copepoda									x												x	
Ostracoda																						
Chaetopoda																						
Coelenterata																						
Nauplii	x									x								x				
Megalops and Zooea										x			x		x						x	
Veliger																						x
Trochophore																						
Echinoderm larvae																						
Pisces larvae				x																		
HYDROGRAPHIC DATA																						
Temperature, °C.	19.5	19.9	21.9	22.6	23.5	24.0	22.9	23.5	24.9	25.0	26.8	26.8	24.0	20.8	19.2	20.9	19.8	19.4	19.5	20.5	21.0	21.9
Salinity, ‰	36.3	36.3	36.2	36.3	36.3	36.4	36.4	36.5	36.6	36.4	36.6	37.0	36.8	37.0	37.1	37.0	37.1	37.0	36.2	36.9	36.8	36.8
NO_3-NO_2																						
In. PO_4-P	1.5					0.5					0.2					3.2					0.3	
Tot. PO_4-P	2.9					1.0					0.2					3.5					0.7	
Carbohydrate	1.6					4.1					0.9					1.1					0.7	
Protein	3.2															1.0						

Table 2.--Relative abundance of plankton with associated hydrographic data

A P R I L 1956

Day	2	3	4	6	9	10	11	12	13	16	17	18	19	20	23	24	25	26	27	30
Time	1030	1050	0940	0955	0930	0920	0920	0930	0930	0955	0915	1030	0900	0855	0935	0830	0835	0900	0835	0910
BIOLOGICAL DATA																				
Unicellular plankton																				
Amphidinium spp.																				
Cochlodinium spp.																				
Gymnodinium breve																				
G. simplex																				
G. splendens							+				+									
G. spp.	++	+		+	+	++		+			+	+	+	+				+		+
Gyrodinium spirale				+	+			+												
G. spp.	++	+	+	+	+	+	+	++	+	+	+	+		+	+				+	+
Torodinium spp.																				
Polykrikos spp.																				
Nematodinium spp.																				
Pouchetia spp.				+																
Oxyrrhis spp.													+							
Ceratium furca	+					+				+										
C. fusus																				
C. tripos																				
Gonyaulax spp.																				
Peridiniopsis spp.					+	+														
Peridinium depressum																				
P. digitale																				
P. divergens				+				+	+											
P. spp.		+			+	+						+	+	+						
Dinophysis tripos																				
D. spp.																				
Exuviella spp.																				
Prorocentrum sp.																				
Silicoflagellidae																				
Euglena spp.																				
Peranema spp.																				
Melosira spp.		+	+	+				+	+	+	+						+			
Skeletonema spp.																				
Chaetoceros spp.		+		+	+															
Guinardia spp.																				
Rhizosolenia spp.																				
Thalassiothrix spp.																				
Navicula spp.																				
Pleurosigma spp.																				
Nitzschia spp.						+			+											

Table 2. cont'd

Day	2	3	4	6	9	10	11	12	13	16	17	18	19	20	23	24	25	26	27	30
Time	1030	1050	0940	0955	0930	0920	0920	0930	0930	0955	0915	1030	0900	0855	0935	0830	0835	0900	0835	0910
BIOLOGICAL DATA																				
Unicellular plankton																				
Grammatophora spp.																				
Unidentified phytoplankton	++	++	+	++	++	++	++	++	++	++	++	++	++	++	+	++	++	++	++	++
Strombidium sp.																				
Unidentified Halteriidae						++														
Tintinnopsis spp.	+				+	+			+											++
Unidentified Tintinnidae																				
Vorticella spp.	+		+							+		+			++	+		+	+	
Cothurnia sp.									++											+
Pleuronema sp.																				
Unidentified ciliates		+	+	+						+	+	+	+	+	+	+	+	+	+	+
Multicellular plankton																				
Proales sp.																				
Synchaeta sp.																				
Unidentified Rotifera													x	x						
Copepoda																				
Ostracoda																				
Chaetopoda																				
Coelenterata																				
Nauplii				x	x					x		x		x				x	x	
Megalops and Zooea																x		x		
Veliger										x										
Trochophore																				
Echinoderm larvae																				
Pisces larvae				x																
HYDROGRAPHIC DATA																				
Temperature, °C.	22.0	22.0	22.9	24.6	23.6	22.3	21.9	19.9	20.8	22.5	22.9	23.6	22.2	21.5	22.5	23.0	23.8	23.9	24.6	25.0
Salinity, ‰	37.0	36.8	37.0	37.2	37.3	37.2	37.2	37.3	37.3	37.2	37.2	37.6	37.4	36.7	36.9	36.9	36.8	37.2	37.8	37.3
NO_3-NO_2																				
In. PO_4-P				0.5				3.2					0.2					0.2		
Tot. PO_4-P				0.8				4.2					0.2							
Carbohydrate				0.5				1.2										0.8		
Protein				1.0				1.7					1.5					0.1		

Table 3.--Relative abundance of plankton with associated hydrographic data

M A Y 1956

Day	1	2	3	4	7	8	9	10	11	14	15	16	17	18	21	22	23	24	25	28	29	31
Time	0908	0830	1040	0845	0930	0950	1035	0920	0850	0900	0847	1025	0935	1000	0900	1055	0840	0830	0840	1000	0850	0850
BIOLOGICAL DATA																						
Unicellular plankton																						
Amphidinium spp.																						
Cochlodinium spp.		+																				
Gymnodinium breve																						
G. simplex																						
G. splendens					+								+		+							
G. spp.		+	+		+						+	+			+				+	+	+	+
Gyrodinium spirale					+																	
G. spp.	+	+	+			+	+		+		+	+	+	+	+					+	+	+
Torodinium spp.																						
Polykrikos spp.			+																			
Nematodinium spp.												+										
Pouchetia spp.																						
Oxyrrhis spp.																						
Ceratium furca																		+				
C. fusus																						
C. tripos																						
Gonyaulax spp.																						+
Peridiniopsis spp.					+					+					+			+				
Peridinium depressum										+												
P. digitale																						+
P. divergens																						
P. spp.	+				+						+				+							
Dinophysis tripos																						
D. spp.																						
Exuviella spp.																						
Prorocentrum sp.															+							+
Silicoflagellidae																						
Euglena spp.																						
Peranema spp.																						
Melosira spp.					+													++			+	
Skeletonema spp.																						
Chaetoceros spp.	+				+	+							+	+	++	+	++		+		+	
Guinardia spp.						+	+++	+++	+++	+	+		+	+								+
Rhizosolenia spp.					+		+++	+++	+++	+	+							+				
Thalassiothrix spp.																						
Navicula spp.											+											
Pleurosigma spp.																						
Nitzschia spp.		+									+		+	+	++	+	++	+	+		+	

Table 3. cont'd

Day	1	2	3	4	7	8	9	10	11	14	15	16	17	18	21	22	23	24	25	28	29	31
Time	0908	0830	1040	0845	0930	0950	1035	0920	0850	0900	0847	1025	0935	1000	0900	1055	0840	0830	0840	1000	0850	0850
BIOLOGICAL DATA																						
Unicellular plankton																						
Graumatophora spp.																						
Unidentified phytoplankton	++	++	++		++	++	+	++	++	++	++	+	++	++	++	++	++	++	++	++	++	++
Strombidium sp.																						
Unidentified Halteriidae																						
Tintinnopsis spp.										++								+				
Unidentified Tintinnidae																						
Vorticella spp.								+											+	+		
Cothurnia sp.	+									+												
Pleuronema sp.										+												
Unidentified ciliates	+	+			+	+	+	+	+			+	+	+	++	+	+	+		++	+	
Multicellular plankton																						
Proales sp.																						
Synchaeta sp.																						
Unidentified Rotifera																						
Copepoda																						x
Ostracoda																						
Chaetopoda																						
Coelenterata																						
Nauplii		x																xx			x	
Megalops and Zooea								x														
Veliger																						
Trochophore																						
Echinoderm larvae																						
Pisces larvae			x																			
HYDROGRAPHIC DATA																						
Temperature, °C.	24.9	24.9	25.9	26.3	27.7	27.5	27.7	27.0	27.4	28.0	28.2	28.5	27.5	27.7	27.0	29.5	27.0	27.5	28.2	27.5	26.9	26.5
Salinity, ‰	36.3	36.3	37.1	37.1	37.8	37.8	37.8	37.7	37.7	37.6	36.9	36.8	36.6	36.6	36.8	37.0	37.1	37.0	37.0	37.0	37.1	36.2
NO_3-NO_2			0.3					0.3					0.4					1.8				0.4
In. PO_4-P			0.0					0.2					0.7					0.3				0.1
Tot. PO_4-P			0.9					0.6										0.6				0.4
Carbohydrate			1.7					2.6					1.6					1.6				
Protein			0.1					0.0					0.0									0.0

Table 4.--Relative abundance of plankton with associated hydrographic data

J U N E 1956

Day	1	4	5	6	7	8	11	12	13	14	15	18	19	20	21	22	25	26	27	28	29
Time	0850	1055	0900	1250	1033	1010	0940	0900	0840	0850	1005	1040	0900	0930	0930	0845	0910	0840	0845	0845	0830
BIOLOGICAL DATA																					
Unicellular plankton																					
Amphidinium spp.																					
Cochlodinium spp.																					
Gymnodinium breve																					
G. simplex																					
G. splendens												+	+	+						+	
G. spp.	+	+							+	+	+	+	+		++	+		++	+	++	+
Gyrodinium spirale																					
G. spp.	+		+				+	+	+	+	+	+			+		++	++	+	+	+
Torodinium spp.				+		+															
Polykrikos spp.																					
Nematodinium spp.																					
Pouchetia spp.																					
Oxyrrhis spp.																					
Ceratium furca									+												
C. fusus									+												
C. tripos																					
Gonyaulax spp.																					
Peridiniopsis spp.															+		+			+	
Peridinium depressum																					
P. digitale																					
P. divergens							++							+						+	
P. spp.				+					++		+	++	+	+	+		+				
Dinophysis tripos																					
D. spp.																					
Exuviella spp.																	+	+			
Prorocentrum sp.				+		+		+													
Silicoflagellidae																					
Euglena spp.																					
Peranema spp.																					
Melosira spp.					+		++		+			+	+				+				
Skeletonema spp.																					
Chaetoceros spp.	+	+	+	++	++	++		+	+	++	++		+	+	+	++		+	+		++
Guinardia spp.	+				+	+			+												
Rhizosolenia spp.																					
Thalassiothrix spp.								+													
Navicula spp.																					
Pleurosigma spp.																					
Nitzschia spp.	+						+				++		+			++	+	+			

Table 4. cont'd

Day	1	4	5	6	7	8	11	12	13	14	15	18	19	20	21	22	25	26	27	28	29
Time	0850	1055	0900	1250	1033	1010	0940	0900	0840	0850	1005	1040	0900	0930	0930	0845	0910	0840	0845	0845	0830
BIOLOGICAL DATA																					
Unicellular plankton																					
Grammatophora spp.																					
Unidentified phytoplankton	++	++	++	++	++	++	++	++	+	++	++		++	++		++		++		++	++
Strombidium sp.																					
Unidentified Halteriidae																					
Tintinnopsis spp.																					
Unidentified Tintinnidae																					
Vorticella spp.																					
Cothurnia sp.																					
Pleuronema sp.																					
Unidentified ciliates	+	+	+		+	+	+	+	+	+	+	+	+	+			++	+	++		+
Multicellular plankton																					
Proales sp.																					
Synchaeta sp.																					
Unidentified Rotifera																					
Copepoda												x	x								
Ostracoda																					
Chaetopoda																					
Coelenterata																					
Nauplii		x								x											
Megalops and Zooea												x	x								
Veliger										x											
Trochophore																					
Echinoderm larvae																					
Pisces larvae																					
HYDROGRAPHIC DATA																					
Temperature, °C.	27.8	28.5	28.8	29.8	28.6	28.5	27.8	27.5	27.2	27.0	28.0	27.9	28.8	29.0	28.0	29.1	29.5	30.0	30.0	30.0	29.0
Salinity, ‰	37.0	37.2	37.5	37.4	37.6	37.7	37.4		37.6	37.6	37.6	37.5	37.5	37.7	37.7	37.6	37.9	38.2	38.0	38.2	38.0
NO_3-NO_2					0.4					1.5					0.4					0.3	
In. PO_4-P					0.6					0.2					0.3					1.0	
Tot. PO_4-P					1.0					1.1					0.3						
Carbohydrate					1.6					1.7					1.0					1.1	
Protein					0.5					0.4					0.0					0.0	

Table 5.--Relative abundance of plankton with associated hydrographic data

J U L Y 1956

Day	2	3	5	6	9	10	11	12	13	16	17	18	19	20	23	24	25	26	27	30	31
Time	0910	0950	0830	0825	0850	0950	0925	0900	0935	0915	0915	0830	0845	0915	0900	0830	0845	0840	0830	0930	0830
BIOLOGICAL DATA																					
Unicellular plankton																					
Amphidinium spp.																					
Cochlodinium spp.																					
Gymnodinium breve																					
G. simplex																					
G. splendens											+										+
G. spp.	+	+	+	+	+		+	++		+	+	+	+	+	+	+	+		+	+	+
Gyrodinium spirale																					
G. spp.			+		+	+	+		+	+		+	+	+	+		+		+		
Torodinium spp.				+		+															
Polykrikos spp.												+									
Nematodinium spp.																					
Pouchetia spp.																					
Oxyrrhis spp.																					
Ceratium furca																					
C. fusus																					
C. tripos																					
Gonyaulax spp.																					
Peridiniopsis spp.														+							
Peridinium depressum																					
P. digitale																					
P. divergens																					
P. spp.	+	+	+		+		+				+		+	+				+		+	+
Dinophysis tripos																					
D. spp.																					
Exuviella spp.																					
Prorocentrum sp.		+									+										+
Silicoflagellidae																					
Euglena spp.																					
Peranema spp.																					
Melosira spp.	+				+							+					+	+		+	+
Skeletonema spp.																					
Chaetoceros spp.			+	+	+		+	+	+		+	+	+	+	+	+	+	+	+	+	+
Guinardia spp.				+																	
Rhizosolenia spp.					+	+				+											
Thalassiothrix spp.						+													+		
Navicula spp.						+															
Pleurosigma spp.																					
Nitzschia spp.			+	+		+			+												
Grammatophora spp.																					

Table 5. cont'd

Day	2	3	5	6	9	10	11	12	13	16	17	18	19	20	23	24	25	26	27	30	31
Time	0910	0950	0830	0825	0850	0950	0925	0900	0935	0915	0915	0830	0845	0915	0900	0830	0845	0840	0830	0930	0830
BIOLOGICAL DATA																					
Unicellular plankton																					
Unidentified phytoplankton	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	+	++
Strombidium sp.																					
Unidentified Halteriidae																				+	+
Tintinnopsis spp.																					
Unidentified Tintinnidae																					
Vorticella spp.	+	+		+							+	+	+	+			+			+	+
Cothurnia sp.																					
Pleuronema sp.																					
Unidentified ciliates		+			+	+	+		+	+				+		+	+	+			+
Multicellular plankton																					
Proales sp.																					
Synchaeta sp.																					
Unidentified Rotifera																	x				x
Copepoda																					
Ostracoda																					
Chaetopoda																					
Coelenterata	x	x																			x
Nauplii		x																		x	
Megalops and Zooea																					
Veliger																					
Trochophore																					
Echinoderm larvae																					
Pisces larvae																					
HYDROGRAPHIC DATA																					
Temperature, °C.	28.9	29.4	28.5	28.0	29.5	28.8	29.7	29.8	30.1	30.0	31.0	30.4	31.0	31.0	30.5	29.9	30.0	30.0	30.0	30.2	30.0
Salinity, ‰	38.0	38.0	37.8	37.7	37.7	37.8	37.8	38.0	38.0	38.0	38.0	38.2	38.2	38.3	38.1	38.2	38.4	38.1	38.0	38.1	37.9
NO_3-NO_2			0.2					0.3					0.0					0.0			
In. PO_4-P			0.6					0.3					1.2					0.3			
Tot. PO_4-P			0.6					0.4										1.0			
Carbohydrate			1.1					2.1					0.9					0.6			
Protein			0.1					0.0					0.0					0.1			

Table 6.--Relative abundance of plankton with associated hydrographic data

A U G U S T 1956

Day	1	2	3	6	7	8	9	10	13	14	15	16	17	20	21	22	23	24	27	28	29	30	31
Time	0830	0840	0820	0945	0830	0845	0845	0830	0915	0840	0930	0845	0830	0900	0900	0905	0845	1120	0845	0840	0900	0855	1000
BIOLOGICAL DATA																							
Unicellular plankton																							
Amphidinium spp.																							
Cochlodinium spp.																							
Gymnodinium breve																				+			
G. simplex																							
G. splendens		+															+		+	+	+	+	
G. spp.	+	+	+	+	+	+	+++	+++	+++	+++	+	+		+	+		+	+		+	+	+	+
Gyrodinium spirale																							
G. spp.		+	+	+	+	+	+	+	+	+			+		+	+	+	+		+			
Torodinium spp.																							
Polykrikos spp.																							
Nematodinium spp.																							
Pouchetia spp.																							
Oxyrrhis spp.																							
Ceratium furca									+					+		+	+						+
C. fusus																							
C. tripos																							
Gonyaulax spp.																							
Peridiniopsis spp.	+	+			+		+	+										+					
Peridinium depressum																							
P. digitale																							
P. divergens				+															+	+			
P. spp.	+	+	+	+	+									+	+		+	+	+			+	+
Dinophysis tripos																							
D. spp.																							
Exuviella spp.		+																					
Prorocentrum sp.															+								
Silicoflagellidae																							
Euglena spp.																							
Peranema spp.																							
Melosira spp.	+		+	+				+	+					+	+			+	++	++	++	+	+
Skeletonema spp.																							
Chaetoceros spp.	+	+	+	+							+	+		+	+	++	+	+	++	++	++	+	
Guinardia spp.																							
Rhizosolenia spp.																		+					++
Thallasiothrix spp.																							
Navicula spp.																							
Pleurosigma spp.																							
Nitzschia spp.							+											+	++	++	++		+

Table 6. cont'd

Day	1	2	3	6	7	8	9	10	13	14	15	16	17	20	21	22	23	24	27	28	29	30	31
Time	0830	0840	0820	0945	0830	0845	0845	0830	0915	0840	0930	0845	0830	0900	0900	0905	0845	1120	0845	0840	0900	0855	1000
BIOLOGICAL DATA																							
Unicellular plankton																							
Grammatophora spp.																							
Unidentified phytoplankton	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++			+	++	++
Strombidium sp.																							
Unidentified Halteriidae																							+
Tintinnopsis spp.	+	+				+				+				+	+		+	+				+	
Unidentified Tintinnidae																							
Vorticella spp.	+	+		+					+	+				+			+			+			
Cothurnia sp.																							
Pleuronema sp.																							
Unidentified ciliates	+	+	+	+	+			+			+	+	+	+	+		+	+	+	+	+	+	
Multicellular plankton																							
Proales sp.																							x
Synchaeta sp.																	x	x				x	
Unidentified Rotifera	x																					x	
Copepoda		x									x												
Ostracoda																							
Chaetopoda																							
Coelenterata																							
Nauplii				x	xx																		
Megalops and Zooea		x	x		xx			x						x			x						
Veliger																							
Trochophore																							
Echinoderm larvae																		x					
Pisces larvae					x																		
HYDROGRAPHIC DATA																							
Temperature, °C.	30.0	31.0	30.1	31.9	31.2	31.0	31.1	31.0	30.8	31.0	31.0	31.0	31.0	31.0	31.0	30.0	29.0	31.2	30.5	30.7	30.4	31.7	31.6
Salinity, ‰	37.9	38.1	38.1	38.2	38.4	38.2	38.1	38.2	38.2	38.1	38.3	38.0	38.0	38.0	38.2	38.2	37.7	37.6	37.8	37.9	38.2	38.1	37.8
NO_3-NO_2		0.6					0.0					0.4					1.2					0.9	
In. PO_4-P		0.3															0.7					0.2	
Tot. PO_4-P		1.0										0.2					0.9					1.3	
Carbohydrate		1.4					1.0					1.0					0.9					1.5	
Protein		0.2					0.3					0.3					0.3					0.1	

Table 7.--Relative abundance of plankton with associated hydrographic data

S E P T E M B E R 1956

Day	4	5	6	7	10	11	12	13	14	17	18	19	20	21	24	25	26	27	28
Time	0920	0845	0855	0842	0830	0855	0830	0830	0900	0900	0832	0835	0845	0830	0845	0830	0830	0830	0830
BIOLOGICAL DATA																			
Unicellular plankton																			
Amphidinium spp.																			
Cochlodinium spp.																			
Gymnodinium breve																			
G. simplex																			
G. splendens													+					+	+
G. spp.	+	+	++		+	+	+	+	+	+	+	+	+	+	+	+		+	
Gyrodinium spirale																			
G. spp.	+		+	+									+	+		+	+	+	+
Torodinium spp.												+							
Polykrikos spp.																			
Nematodinium spp.																			
Pouchetia spp.																			
Oxyrrhis spp.																			
Ceratium furca																			
C. fusus																		+	
C. tripos													+	+					
Gonyaulax spp.																			
Peridiniopsis spp.																			
Peridinium depressum																			
P. digitale																			
P. divergens		+																	
P. spp.	+				+++			+		+			+		+				
Dinophysis tripos																			
D. spp.																			
Exuviella spp.																			
Prorocentrum sp.							+						+			+			
Silicoflagellidae																			
Euglena spp.																			
Peranema spp.																			
Melosira spp.	+	++	+			+					+		+		+		+		+
Skeletonema spp.																			
Chaetoceros spp.		+				+		+	+			++				+		+	+
Guinardia spp.																			
Rhizosolenia spp.			++	++				+											
Thalassiothrix spp.																			
Navicula spp.		+																	
Pleurosigma spp.																			
Nitzschia spp.			+	++															

Table 7. cont'd

Day	4	5	6	7	10	11	12	13	14	17	18	19	20	21	24	25	26	27	28
Time	0920	0845	0855	0842	0830	0855	0830	0830	0900	0900	0832	0835	0845	0830	0845	0830	0830	0830	0830
BIOLOGICAL DATA																			
Unicellular plankton																			
Grammatophora spp.																			
Unidentified phytoplankton	++	++	++	++	+	++	++	++	++	++	++	++	++	++	++	+	++	++	++
Strombidium sp.															+				
Unidentified Halteriidae					+		+								+			+	
Tintinnopsis spp.			+			+		+					+	+	+			+	
Unidentified Tintinnidae																			
Vorticella spp.	++	++	+		+		+	+		+	+				+		+		
Cothurnia sp.																			
Pleuronema sp.																			
Unidentified ciliates	++	++		+		+	+	+	+	++	+	++	+	+	+	++	+	+	++
Multicellular plankton																			
Proales sp.	xx																		
Synchaeta sp.																			
Unidentified Rotifera							x								x			x	
Copepoda										x								x	
Ostracoda																			
Chaetopoda																			
Coelenterata										x									
Nauplii		x								x		x				x			
Megalops and Zooea		x					x					x			x	x			
Veliger																			
Trochophore																			
Echinoderm larvae																			
Pisces larvae																			
HYDROGRAPHIC DATA																			
Temperature, °C.	29.9	28.4	28.6	27.5	28.0	27.8	26.5	27.0	27.5	29.0	27.7	28.0	27.8	27.5	28.0	27.8	27.0	26.8	26.4
Salinity, ‰	37.6	37.7	37.4	37.2	37.1	37.3	37.3	38.5	37.4	37.2	37.3	38.3	36.7	36.4	36.4	35.9	35.9	36.4	36.5
NO_3-NO_2			0.4					0.5					0.4					1.3	
In. PO_4-P			0.3					0.3					0.1					1.4	
Tot. PO_4-P			0.6					0.3					0.4					1.8	
Carbohydrate			0.6					0.9					1.1					1.5	
Protein			0.1					0.2					0.1					0.8	

Table 8.--Relative abundance of plankton with associated hydrographic data

O C T O B E R 1956

Day	1	2	3	4	5	8	9	10	11	12	15	16	17	18	19	22	23	24	25	26	29	31
Time	0900	0820	0830	0825	0825	0900	0830	0830	0830	0830	0900	0830	0830	1005	0830	0900	0845	0900	0830	0830	1000	1045
BIOLOGICAL DATA																						
Unicellular plankton																						
Amphidinium spp.																						
Cochlodinium spp.																						
Gymnodinium breve																						
G. simplex																						
G. splendens	+		+		+											+						
G. spp.	+	+	+	+	+	+	+		+	+	+	+	+	+		+	+++	+	+	+	+	+
Gyrodinium spirale																						
G. spp.			+			+			+				+	+			+				+	
Torodinium spp.																						
Polykrikos spp.																						
Nematodinium spp.																						
Pouchetia spp.																						
Oxyrrhis spp.																						
Ceratium furca	+			+						+			+	+		+	+	+	+			
C. fusus																						
C. tripos																						
Gonyaulax spp.																						
Peridiniopsis spp.			+	+																		
Peridinium depressum																						
P. digitale																						
P. divergens																						
P. spp.	+	+	+	+	+	+	+	++		+	+	+	+	+	++	+	+++	+	+	+	+	+
Dinophysis tripos				+																		
D. spp.																		+				
Exuviella spp.			+										+									
Prorocentrum sp.	+	+		+	+	+			++	+							+			+	+	+
Silicoflagellidae																						
Euglena spp.																						
Peranema spp.																						
Melosira spp.	+	+		+	+		+							+								+
Skeletonema spp.																						
Chaetoceros spp.	+		+	+	+		+			+							+					
Guinardia spp.																						
Rhizosolenia spp.																						
Thalassiothrix spp.																						
Navicula spp.							+															
Pleurosigma spp.																						
Nitzschia spp.											+					+						+

Table 8. cont'd

Day	1	2	3	4	5	8	9	10	11	12	15	16	17	18	19	22	23	24	25	26	29	31
Time	0900	0820	0830	0825	0825	0900	0830	0830	0830	0830	0900	0830	0830	1005	0830	0900	0845	0900	0830	0830	1000	1045
BIOLOGICAL DATA																						
Unicellular plankton																						
Grammatophora spp.																						
Unidentified phytoplankton	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++
Strombidium sp.																						
Unidentified Halteriidae				+			+					+	+			+			+		+	
Tintinnopsis spp.						+	+				+	+	+			+	+	+		+	+	
Unidentified Tintinnidae																						
Vorticella spp.		+	+			+	+			+		+	+			+			+		+	
Cothurnia sp.																						
Pleuronema sp.																						
Unidentified ciliates		+	+	+		+	+	++			+	+	+	+	++	+	+	+	+	+	+	+
Multicellular plankton																						
Proales sp.															x							
Synchaeta sp.																						
Unidentified Rotifera						x				x	x	x	x			x		x		x	x	
Copepoda	x	x	x			x	x						x								x	x
Ostracoda																						
Chaetopoda																						
Coelenterata																						
Nauplii					x				x			x	x	x						x		
Megalops and Zooea					x				x	x	x			x			x	x	x	x	x	x
Veliger										x		x				x	x					
Trochophore																						
Echinoderm larvae												x	x									
Pisces larvae							x	x														
HYDROGRAPHIC DATA																						
Temperature, °C.	27.5	27.2	28.0	28.0	27.8	29.0	27.8	27.8	27.0	25.2	23.5	24.0	23.9	24.8	25.0	24.8	26.0	26.0	26.0	25.5	24.5	25.0
Salinity, ‰	36.5	36.5	36.7	36.6	36.4	36.7	36.3	36.3	36.6	36.6	36.0	35.3	34.5	34.9	35.6	35.7	35.4	35.7	35.9	35.8	36.0	36.2
NO_3-NO_2				0.0					0.2					0.5					0.3			0.2
In. PO_4-P				0.4					0.2					1.0					0.7			0.4
Tot. PO_4-P				0.5					0.7					1.3					0.8			0.6
Carbohydrate				1.5					2.0					1.8					1.5			2.6
Protein				0.1					0.2					0.2					0.2			0.3

Table 9.--Relative abundance of plankton with associated hydrographic data

N O V E M B E R 1956

Day	1	2	5	6	7	8	9	13	14	15	16	19	20	21	23	26	27	28	30
Time	0840	0820	0900	0830	0830	0830	0840	0825	0930	0910	0930	0845	0900	0845	0825	0900	0840	0840	0825
BIOLOGICAL DATA																			
Unicellular plankton																			
Amphidinium spp.																			
Cochlodinium spp.																			
Gymnodinium breve																			
G. simplex																			
G. splendens																			
G. spp.	+	+++	+	+++	+		+			+	+		+		+	+	+	+	+
Gyrodinium spirale																			
G. spp.						+	+			+				+					
Torodinium spp.	+																		
Polykrikos spp.																			
Nematodinium spp.																			
Pouchetia spp.																			
Oxyrrhis spp.																			
Ceratium furca														+	+	+	+	+	
C. fusus																			
C. tripos																			
Gonyaulax spp.																			
Peridiniopsis spp.																			
Peridinium depressum														+	+				
P. digitale																			
P. divergens																			
P. spp.	+	+	+	+				+	+						+	+		+	+
Dinophysis tripos																			
D. spp.																			
Exuviella spp.																		+	
Prorocentrum sp.																			
Silicoflagellidae																			
Euglena spp.																			
Peranema spp.																			
Melosira spp.											+						+		
Skeletonema spp.																			
Chaetoceros spp.		+	+									+							
Guinardia spp.																			
Rhizosolenia spp.																			
Thalassiothrix spp.																			
Navicula spp.		+																	
Pleurosigma spp.																			
Nitzschia spp.					+						+								

Table 9. cont'd

Day	1	2	5	6	7	8	9	13	14	15	16	19	20	21	23	26	27	28	30
Time	0840	0820	0900	0830	0830	0830	0840	0825	0930	0910	0930	0845	0900	0845	0825	0900	0840	0840	0825
BIOLOGICAL DATA																			
Unicellular plankton																			
Grammatophora spp.																			
Unidentified phytoplankton	++	++	++	++	++	++	++	++	++	++	++	+	++	++	++	++	++	++	++
Stombidium sp.																			
Unidentified Halteriidae	+		+	+++		+		+	+						+	+		+	+
Tintinnopsis spp.	+	+	+	+	+			+	+						+				+
Unidentified Tintinnidae																			
Vorticella spp.	+	+	+	+	+			+							+			+	+
Cothurnia sp.																			
Pleuronema sp.																			
Unidentified ciliates	+	+	+		+	+	+	+	++	+	+	+	+			+	+	+	+
Multicellular plankton																			
Proales sp.																			
Synchaeta sp.																			
Unidentified Rotifera	x																		x
Copepoda										x									
Ostracoda																			
Chaetopoda																			
Coelenterata																			
Nauplii						x												x	
Megalops and Zooea	x	x	x							x					x		x	x	x
Veliger																			
Trochophore							x												
Echinoderm larvae														x					
Pisces larvae																			
HYDROGRAPHIC DATA																			
Temperature, °C.	24.5	24.0	24.0	23.0	23.3	23.5	22.8	20.0	21.0	21.0	22.1	22.0	22.0	22.0	19.0	19.8	18.5	17.0	18.8
Salinity, ‰	36.3	36.3	35.8	35.6	38.6	38.6	38.5	35.7	35.6	35.8	35.8	36.1	36.3	36.2	36.2	36.3	36.1	36.0	36.2
NO_3-NO_2	0.2					2.2				4.4					0.8				
In. PO_4-P	0.6					0.3				0.2					1.7				
Tot. PO_4-P	0.6					0.5				0.5					1.7				
Carbohydrate	0.4					0.5				1.6					2.4				
Protein	0.2					0.5				0.6									

Table 10.--Relative abundance of plankton with associated hydrographic data

D E C E M B E R 1956

Day	3	4	5	6	7	10	11	12	13	14	17	18	19	20	21	26	27	31
Time	0915	0945	0915	0900	0855	0915	0845	0825	0840	0825	0855	0925	0900	0955	0830	0830	0930	0850
BIOLOGICAL DATA																		
Unicellular plankton																		
Amphidinium spp.																		
Cochlodinium spp.																		
Gymnodinium breve																		+
G. simplex																		
G. splendens																		
G. spp.	+	+	+	+		+	+	+	+	+	+		+	+	+++		+	++
Gyrodinium spirale																		
G. spp.			+		+		+			+						+		++
Torodinium spp.																		
Polykrikos spp.																		
Nematodinium spp.																		
Pouchetia spp.																		
Oxyrrhis spp.																		
Ceratium furca		+	+				+	+	+	+	+	++						+
C. fusus																		
C. tripos																		
Gonyaulax spp.																		
Peridiniopsis spp.																		
Peridinium depressum																		
P. digitale																		
P. divergens																		
P. spp.	+	+		+	+		+	+	+	+	+	+++	+	+	+		+	++
Dinophysis tripos																		
D. spp.																		
Exuviella spp.										+			+	+		+		+
Prorocentrum sp.															+			+
Silicoflagellidae																		
Euglena spp.																		
Peranema spp.																		
Melosira spp.			+										+	+	+			
Skeletonema spp.																		
Chaetoceros spp.				+			+	+					+	+	+	+		+
Guinardia spp.													+					
Rhizosolenia spp.			+	+														
Thalassiothrix spp.																		
Navicula spp.																		
Pleurosigma spp.																		
Nitzschia spp.		+								+				+	+			

Table 10. cont'd

Day	3	4	5	6	7	10	11	12	13	14	17	18	19	20	21	26	27	31
Time	0915	0945	0915	0900	0855	0915	0845	0825	0840	0825	0855	0925	0900	0955	0830	0830	0930	0850
BIOLOGICAL DATA																		
Unicellular plankton																		
Grammatophora spp.																		
Unidentified phytoplankton	++	++	++	++	++	++	++	++	+	+	++	++	++	++	++	++	++	++
Strombidium sp.																		
Unidentified Halteriidae	+					+	+											
Tintinnopsis spp.	+	+				+	+	+	+++	+			+	+	+		+	
Unidentified Tintinnidae																		
Vorticella spp.				+	+	+	+	+	+	+		+	+	+	+	+	+	+
Cothurnia sp.																		
Pleuronema sp.																		
Unidentified ciliates	+	+	++	++	++	+	+	+	+	+	+	+	+	+		+	+	++
Multicellular plankton																		
Proales sp.																		
Synchaeta sp.																		
Unidentified Rotifera	x	x				x	x	x						x			x	
Copepoda	x								x				x		x		x	
Ostracoda																		
Chaetopoda																		
Coelenterata																		
Nauplii					x							x						
Megalops and Zooea				x													x	x
Veliger																		
Trochophore																		
Echinoderm larvae														x				
Pisces larvae	x																	
HYDROGRAPHIC DATA																		
Temperature, °C.	18.0	18.0	18.2	17.7	19.0	19.8	20.0	20.0	21.0	21.4	22.0	22.4	22.0	22.0	21.5	19.5	18.2	17.5
Salinity, ‰	36.0	36.0	36.1	36.2	36.3	36.4	36.5	36.5	36.5	36.6	36.5	36.6	36.5	36.5	36.6	36.8	36.8	36.7
NO_3-NO_2				0.4					1.3					1.2			1.6	
In. PO_4-P				0.3					2.6					0.2			0.8	
Tot. PO_4-P				1.6		1.9								0.7			0.9	
Carbohydrate				0.9					0.6					0.8			1.5	
Protein				0.6					0.2					1.3			1.0	

Table 11.--Relative abundance of plankton with associated hydrographic data

J A N U A R Y 1957

Day	1	2	3	4	7	8	9	10	11	14	15	16	17	18	21	22	23	24	25	28	29	30	31
Time	0855	1050	0835	0820	0940	0835	0835	0835	0845	0910	0855	0937	0925	0835	0900	0940	0920	0940	0830	0830	0825	0825	0840
BIOLOGICAL DATA																							
Unicellular plankton																							
Amphidinium spp.																							
Cochlodinium spp.																							
Gymnodinium breve	+																						
G. simplex		+						+++															
G. splendens																							
G. spp.	+			+	+	+	+	+++	+++	+	+		+	+	+	+	+	+	+	+	+	++	+
Gyrodinium spirale																							
G. spp.	+	+	+				+											++					
Torodinium spp.																	+					+	+
Polykrikos spp.																		+	+		+		+
Nematodinium spp.																							
Pouchetia spp.																							
Oxyrrhis spp.																							
Ceratium furca	+	+									+							+	+				
C. fusus																							
C. tripos																							
Gonyaulax spp.																							
Peridiniopsis spp.			+																				
Peridinium depressum																							
P. digitale																							
P. divergens																							
P. spp.	+			+	+			+	+				+	+	+	+	+	+	+	+	+		+
Dinophysis tripos																							
D. spp.																							
Exuviella spp.											+			+						+			
Prorocentrum sp.					+					+	+			+	+								
Silicoflagellidae					+	+		+++	+	+	++		+	+	+			++	+	+			
Euglena spp.																							
Peranema spp.																							
Melosira spp.	+	+	+	+	+								+				+		+	+	+	+	+
Skeletonema spp.																							
Chaetoceros spp.	+	+	+		+				+	+			+			+	+						+
Guinardia spp.																						+	
Rhizosolenia spp.																							
Thalassiothrix spp.																							
Navicula spp.							+																
Pleurosigma spp.																							
Nitzschia spp.	+	+	+				+										+						

Table 11. cont'd

Day	1	2	3	4	7	8	9	10	11	14	15	16	17	18	21	22	23	24	25	28	29	30	31
Time	0855	1050	0835	0820	0940	0835	0835	0835	0845	0910	0855	0937	0925	0835	0900	0940	0920	0940	0830	0830	0825	0825	0840
BIOLOGICAL DATA																							
Unicellular plankton																							
Grammatophora spp.																							
Unidentified phytoplankton	++	+	++	++	++	++	++	++	++	++			++	++	++	++	+		+	+	+	++	++
Strombidium sp.				+																			
Unidentified Halteriidae	+								+	+	+++		+	+	+								
Tintinnopsis spp.	+			+	+	+		+	+	+			+	+	+	+	+		+++	+	+		+
Unidentified Tintinnidae			+								++												
Vorticella spp.	+		+		+		+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Cothurnia sp.																							
Pleuronema sp.																							
Unidentified ciliates	+	+		+	+	+		+	+	+	+			+	+	+	+	++	+	+	+	+	+
Multicellular plankton																							
Proales sp.																							
Synchaeta sp.																							
Unidentified Rotifera	x													x			x		x	x			x
Copepoda	x			x						x				x	x				x				x
Ostracoda																							
Chaetopoda																							
Coelenterata																							
Nauplii			x	x										x					x	x		x	
Megalops and Zooea	x			x	x				x	x				x	x	x	x		x				
Veliger																				x		x	
Trochophore																							
Echinoderm larvae																							
Pisces larvae																							
HYDROGRAPHIC DATA																							
Temperature, °C.	18.0	19.5	17.5	17.0	19.5	19.5	19.0	19.5	20.0	20.0	19.0	21.0	22.0	17.5	18.0	19.0	19.5	20.0	19.5	21.0	21.4	19.5	21.9
Salinity, ‰	36.9	36.7	36.7	36.7	36.3	36.3	36.3	36.4	36.2	36.1	36.2	36.3	36.1	36.4	36.1	36.2	36.2	36.1	36.2	36.3	36.3	36.6	36.9
NO_3-NO_2			0.4					0.2										0.1				0.5	0.3
In. PO_4-P			1.0					0.3					1.0					0.1				0.1	0.2
Tot. PO_4-P			1.0					0.5										0.7				0.4	0.6
Carbohydrate			1.5					2.2					0.9					0.8				1.2	0.6
Protein			0.6					1.0					3.5					0.3				1.0	0.5

Table 12.--Relative abundance of plankton with associated hydrographic data

F E B R U A R Y 1957

Day	1	4	5	6	7	8	11	12	13	14	15	18	19	20	21	25	26	27	28
Time	1015	0850	0925	0835	1010	0930	1015	0910	0850	0835	0830	0900	0835	0855	0835	0910	0825	0825	0845
BIOLOGICAL DATA																			
Unicellular plankton																			
Amphidinium spp.																			
Cochlodinium spp.													+						
Gymnodinium breve							+					+							
G. simplex																			
G. splendens							+		+	+		+		+	+				
G. spp.	+	+	+	+	+	+	+	+	+	+	+	++	+	+	+	+	+	+	+
Gyrodinium spirale																			
G. spp.	+	+			+	+	+		+	+		+	+		+			+	
Torodinium spp.			+	+								+	+						
Polykrikos spp.					+		+								+			+	
Nematodinium spp.																			
Pouchetia spp.																			
Oxyrrhis spp.																			
Ceratium furca								+		+				+					
C. fusus																			
C. tripos																			
Gonyaulax spp.																			
Peridiniopsis spp.																			
Peridinium depressum																			
P. digitale																			
P. divergens																			
P. spp.	+	+	+	+			+		+	+	+				+	+	+	+	+
Dinophysis tripos																			
D. spp.																			
Exuviella spp.																			
Prorocentrum sp.									+	+			+						
Silicoflagellidae							+	+	+						+				
Euglena spp.																			
Peranema spp.	+		+	+															
Melosira spp.	+	+	+	+			+		+					+	+	+	+	+	+
Skeletonema spp.																			
Chaetoceros spp.	+	+	+	+	++	+	+		+				+	+	+		+		+
Guinardia spp.				+							+								
Rhizosolenia spp.													+						
Thalassiothrix spp.																			
Navicula spp.											+								
Pleurosigma spp.																			

Table 12. cont'd

Day	1	4	5	6	7	8	11	12	13	14	15	18	19	20	21	25	26	27	28
Time	1015	0850	0925	0835	1010	0930	1015	0910	0850	0835	0830	0900	0835	0855	0835	0910	0825	0825	0845
BIOLOGICAL DATA																			
Unicellular plankton																			
Nitzschia spp.				+			+		+									+	
Grammatophora spp.																			
Unidentified phytoplankton	++	++	++	++	++	++	+	++	++	++	+	++	++		+	+	+	+	+
Strombidium sp.																			
Unidentified Halteriidae			+				+						+						
Tintinnopsis spp.	+	+	+				+		+	+	+		+		+	+		+	
Unidentified Tintinnidae																			
Vorticella spp.	+		+	+			+		+		+	+	+	+	+				
Cothurnia sp.																			
Pleuronema sp.																			
Unidentified ciliates	+	+	+	+		+	+	++	+	+	+			+	+	+	+	+	+
Multicellular plankton																			
Proales sp.																			
Synchaeta sp.																			
Unidentified Rotifera		x		x					x	x	x				x	x	x		
Copepoda				x						x				x		x			x
Ostracoda																			
Chaetopoda																			
Coelenterata																			
Nauplii								x						x			x		x
Megalops and Zooea	x								x	x	x			x	x		x		
Veliger										x									
Trochophore																			
Echinoderm larvae																			
Pisces larvae				x											x				
HYDROGRAPHIC DATA																			
Temperature, °C.	23.0	22.2	23.2	22.9	23.1	23.0	24.2	23.0	22.2	21.0	20.0	20.9	21.3	22.5	21.9	21.3	21.5	21.5	21.5
Salinity, ‰	36.2	36.2	36.3	36.4	36.4	36.3	36.3	36.6	36.5	36.3	36.3	36.4	35.9	36.4	36.0	36.1	36.2	35.8	35.7
NO_3-NO_2					0.4					0.3					1.0				1.4
In. PO_4-P					0.1					0.6					0.6				1.0
Tot. PO_4-P					0.8					1.0					0.9				1.5
Carbohydrate					2.6					0.3					0.4				0.4
Protein					0.4					10.5					6.6				0.5

Table 13.--Relative abundance of plankton with associated hydrographic data

M A R C H 1957

Day	1	4	5	6	7	8	11	12	13	14	15	18	19	20	21	22	25	26	27	29
Time	0830	0920	0830	0840	0840	0845	0855	0820	0825	0825	0825	0910	0840	0940	0915	0900	0910	0840	0840	0835
BIOLOGICAL DATA																				
Unicellular plankton																				
Amphidinium spp.																				
Cochlodinium spp.																				
Gymnodinium breve																				
G. simplex																				
G. splendens		+							+											
G. spp.	+			+	+	+	+	+	+	+++	+++	+	+	+		+	+	+	+	+
Gyrodinium spirale																				
G. spp.		+		+			+					+	+	+	+		+			++
Torodinium spp.																			+	
Polykrikos spp.																				
Nematodinium spp.																				
Pouchetia spp.																				
Oxyrrhis spp.																				
Ceratium furca			+				+													
C. fusus																				
C. tripos																				
Gonyaulax spp.																				
Peridiniopsis spp.			+																	
Peridinium depressum																				
P. digitale																				
P. divergens																				
P. spp.	+		+	+	+	+	+	+	+	+	+	+	+	++	+	+	+	+	+	
Dinophysis tripos																				
D. spp.																				
Exuviella spp.																				
Prorocentrum sp.											+								+	
Silicoflagellidae	+				+			+						+	++		+		+	+
Euglena spp.																		+		
Peranema spp.											+							+	+	
Melosira spp.								+				+				+				
Skeletonema spp.																				
Chaetoceros spp.												+				+		+		
Guinardia spp.																				
Rhizosolenia spp.																				
Thalassiothrix spp.																				
Navicula spp.																				
Pleurosigma spp.																				
Nitzschia spp.							+									+		+		

Table 13. cont'd

Day	1	4	5	6	7	8	11	12	13	14	15	18	19	20	21	22	25	26	27	29
Time	0830	0920	0830	0840	0840	0845	0855	0820	0825	0825	0825	0910	0840	0940	0915	0900	0910	0840	0840	0835
BIOLOGICAL DATA																				
Unicellular plankton																				
Grammatophora spp.					+															
Unidentified phytoplankton	+	++	++	+	+	+	+	+	++	++	++		++		++	+	+	+	+	
Strombidium sp.																		+		
Unidentified Halteriidae					+		+++	+	+	+	+			++	++					
Tintinnopsis spp.	+			+	+	+	+	+	+	+	+					+	+	+	+	
Unidentified Tintinnidae																				
Vorticella spp.										+	+					+		+		
Cothurnia sp.																				
Pleuronema sp.																				
Unidentified ciliates	+		++	+	+	+	+	+	+	+	+	+	+			+	+		+	+
Multicellular plankton																				
Proales sp.																				
Synchaeta sp.																				
Unidentified Rotifera																x	x	x	x	
Copepoda				x	x	x	x	x			x				x		x		x	
Ostracoda																				
Chaetopoda																		x		
Coelenterata					x															
Nauplii	x	x			x	x	x		x	x	x						x			
Megalops and Zooea		x	x	x	x	x			x	x	x	xx			x		x	x		
Veliger																	x	x		
Trochophore																				
Echinoderm larvae																				
Pisces larvae													x							
HYDROGRAPHIC DATA																				
Temperature, °C.	20.9	21.5	21.5	21.2	21.5	21.0	18.8	19.5	20.2	20.8	21.3	22.5	22.8	24.0	23.8	22.9	24.8	23.5	20.9	22.0
Salinity, ‰	35.7	35.8	35.5	35.2	35.3	35.1	34.9	35.0	35.3	35.0	35.4	34.8	34.8	34.8	34.8	35.0	35.0	34.8	34.4	34.6
NO_3-NO_2					2.2										1.0					
In. PO_4-P					1.0										0.4					
Tot. PO_4-P					1.6										1.6					
Carbohydrate															0.4					
Protein					6.1										6.5					

Table 14.--Relative abundance of plankton with associated hydrographic data

A P R I L 1957

Day	1	2	3	4	5	8	9	10	11	12	15	16	17	18	19	22	23	24	25	26	29	30
Time	0925	0825	0930	0910	0835	0855	1020	0820	0830	1320	0850	0835	0830	0820	0835	0825	0820	0830	0830	0835	0930	0910
BIOLOGICAL DATA																						
Unicellular plankton																						
Amphidinium spp.																		+				+
Cochlodinium spp.	+	+							+	+		+						+	+		+	+
Gymnodinium breve						+												+	+	+		
G. simplex						+																
G. splendens																						
G. spp.	+	+	++	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gyrodinium spirale																						
G. spp.		+	++	+	+	+	+		+	+	+	+		+		+	+	+	+	+	+	
Torodinium spp.						+			+													
Polykrikos spp.																						
Nematodinium spp.																						
Pouchetia spp.																						
Oxyrrhis spp.																						
Ceratium furca	+	+																				
C. fusus																						
C. tripos																						
Gonyaulax spp.	+					+												+				
Peridiniopsis spp.	+	+																+				
Peridinium depressum																						
P. digitale																						
P. divergens																						
P. spp.	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Dinophysis tripos																						
D. spp.																						
Exuviella spp.																						
Prorocentrum sp.	+					+		+			+	+					+	+	+		+	+
Silicoflagellidae	+		+			+									+			+				
Euglena spp.																						
Peranema spp.						+												+				
Melosira spp.					+	+	+	+	+	+	+	+		+	+	+	+	+	+		+	
Skeletonema spp.			++																			
Chaetoceros spp.	+					+		+						+		+	+		+	+	+	+
Guinardia spp.						+	+											+				
Rhizosolenia spp.			+			+	+	+	+	+		+		+	+	+	+	+	+		+	
Thalassiothrix spp.																						
Navicula spp.	+																					
Pleurosigma spp.	+																					
Nitzschia spp.								+		+							+		+		+	

Table 14. cont'd

Day	1	2	3	4	5	8	9	10	11	12	15	16	17	18	19	22	24	25	26	29	30
Time	0925	0825	0930	0910	0835	0855	1020	0820	0830	1320	0850	0835	0830	0820	0835	0825	0830	0830	0835	0930	0910
BIOLOGICAL DATA																					
Unicellular plankton																					
Grammatophora spp.						+		+				+									
Unidentified phytoplankton	++	++	++	++	+	++	++	+	+	+	+	++	++	++	+	+	+	++	+	+	+	++
Strombidium sp.												+	+								
Unidentified Halteriidae	+		+			+		+	+				+					+			
Tintinnopsis spp.	+	+			+	+	+	+			+	+	+	+	+	+	+		+	+	+	+
Unidentified Tintinnidae																					
Vorticella spp.	+	+	+		+	+		+	+	+		+	+		+	+	+	+	+		+	+
Cothurnia sp.																					
Pleuronema sp.																					
Unidentified ciliates	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Multicellular plankton																					
Proales sp.																					
Synchaeta sp.																					
Unidentified Rotifera		x			x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
Copepoda		x			x									x		x		x		x	x	
Ostracoda																					
Chaetopoda												x					x			x	x	
Coelenterata																					
Nauplii				x																	
Megalops and Zooea	x	x			x	x					x		x			x	x	x				
Veliger						x												x			
Trochophore																					
Echinoderm larvae																					
Pisces larvae																					
HYDROGRAPHIC DATA																					
Temperature, °C.	21.0	22.2	23.5	23.4	24.5	25.5	26.4	25.6	26.0	27.6	25.0	24.4	24.0	24.4	24.5	24.5	24.3	25.0	25.5	25.2	25.1	25.0
Salinity, ‰	34.6	34.6	35.2	35.1	35.3	35.2	35.0	35.2	35.1	35.0	34.8	35.0	35.1	35.0	35.1							35.6
NO_3-NO_2				1.5					0.6		1.1			0.8			0.9		1.0			
In. PO_4-P				0.3					0.4		0.5			0.2			0.4		0.1			
Tot. PO_4-P				1.2					0.5		1.0			0.6			0.4		0.6			
Carbohydrate				0.5					1.5		0.2			0.2			0.3		0.2			
Protein				0.7					0.7		0.5			0.3			0.5		0.5			

Table 15.--Relative abundance of plankton with associated hydrographic data

M A Y 1957

Day	1	2	3	6	7	8	9	10	13	14	15	16	17	20	21	22	23	24
Time	0830	0840	0835	0915	0830	0825	0830	0830	0920	0825	0910	0750	0840	0900	0825	0900	0835	0840
BIOLOGICAL DATA																		
Unicellular plankton																		
Amphidinium spp.	+								+					+				
Cochlodinium spp.	+	+		+		+	+		+	+			+		+			
Gymnodinium breve		+					+	+						+	+			
G. simplex																		
G. splendens				+		+		+		+								
G. spp.	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+
Gyrodinium spirale																		
G. spp.	+	+	+	+		+				+				+	+			+
Torodinium spp.	+					+		+										
Polykrikos spp.								+						+				
Nematodinium spp.																		
Pouchetia spp.																		
Oxyrrhis spp.																		
Ceratium furca					+	+								+				
C. fusus																		
C. tripos																		
Gonyaulax spp.									+	+								
Peridiniopsis spp.																		
Peridinium depressum																		
P. digitale																		
P. divergens																		
P. spp.	+	+		+	+	+	+	+	+	+			+	+	+	+	+	
Dinophysis tripos																		
D. spp.																		
Exuviella spp.			+			+												
Prorocentrum sp.	+				+	+		+										
Silicoflagellidae	+	+				+		+		+			+					
Euglena spp.							+						+	+	+		+	
Peranema spp.																		
Melosira spp.					+	+		+	+				+	+				
Skeletonema spp.																		
Chaetoceros spp.		+	+	+		+		+	+	+			+	+	+	+	+	+
Guinardia spp.					+			+	+									
Rhizosolenia spp.					+				+									
Thalassiothrix spp.																		
Navicula spp.																		
Pleurosigma spp.																		
Nitzschia spp.										+			+				+	

Table 15. cont'd

Day	1	2	3	6	7	8	9	10	13	14	15	16	17	20	21	22	23	24
Time	0830	0840	0835	0915	0830	0825	0830	0830	0920	0825	0910	0750	0840	0900	0825	0900	0835	0840
BIOLOGICAL DATA																		
Unicellular plankton																		
Grammatophora spp.																		
Unidentified phytoplankton	++	++		+	+	++	++	+	+	++			+	+	+	+	+	
Strombidium sp.					+													
Unidentified Halteriidae	+			+						+						+		
Tintinnopsis spp.		+																
Unidentified Tintinnidae				+	+	+	+	+					+	+	+	+	+	+
Vorticella spp.	+	+		+			+			+				+	+		+	
Cothurnia sp.																		
Pleuronema sp.																		
Unidentified ciliates	+	+	+	+	+	+		+	+	+			+	+	+	+		+
Multicellular plankton																		
Proales sp.																		
Synchaeta sp.																		
Unidentified Rotifera	x	x			x		x	x						x	x	x	x	
Copepoda	x			x	x			x	x						x		x	
Ostracoda																		
Chaetopoda				x			x											
Coelenterata																		
Nauplii									x				x	x				
Megalops and Zooea	x	x		x	x	x	x	x		x							x	
Veliger	x				x									x				
Trochophore																		
Echinoderm larvae				x														
Pisces larvae						x												
HYDROGRAPHIC DATA																		
Temperature, °C.	25.6	25.9	26.5	25.5	25.1	25.0	24.5	24.8	26.8	27.1	27.2	26.7	27.5	28.8	29.5	29.8	29.0	29.0
Salinity, ‰	35.3	35.2	35.3	35.1	35.5	35.6	35.4	35.4	35.5	35.7	35.6	35.4	35.5	35.8	35.7	35.8	35.6	36.0
NO_3-NO_2		1.0					0.2					0.8					0.2	
In. PO_4-P		0.8					0.6					0.3					0.3	
Tot. PO_4-P		1.0					17.4					2.4					1.0	
Carbohydrate		0.3					0.7					1.4					0.7	
Protein		0.9					0.5					0.6					0.6	

Table 16.--Relative abundance of plankton with associated hydrographic data

J U N E 1957

Day	3	4	5	6	7	10	11	12	13	14	17	18	19	20	21	24	25	26	27	28
Time	0855	0850	0825	1000	0825	0910	0930	0849	0840	0840	0845	0815	0840	0905	0845	0920	1000	0955	0835	0830
BIOLOGICAL DATA																				
Unicellular plankton																				
Amphidinium spp.											+									
Cochlodinium spp.		+								+	+	+	+		+			+	+	
Gymnodinium breve				+	+						+									
G. simplex																				
G. splendens	+			+			+		+	+	+	+	+	+	+			+		
G. spp.	+	+	+	+++	+++	+	+	+	+	+	+	+	+	+	+	+	+	+	++	+
Gyrodinium spirale																				
G. spp.			+				+			+	+		+	+		+				+
Torodinium spp.				+	+		+					+								
Polykrikos spp.																				
Nematodinium spp.																				
Pouchetia spp.																				
Oxyrrhis spp.																				
Ceratium furca					+								+							
C. fusus																				
C. tripos																				
Gonyaulax spp.				+++	+++		+			+	+	+	+							
Peridiniopsis spp.				+				+			+							+		+
Peridinium depressum															+					
P. digitale																				
P. divergens						+													+	
P. spp.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+
Dinophysis tripos																				
D. spp.																				
Exuviella spp.									+					+						
Prorocentrum sp.	+			+	+	+					+	+					+			
Silicoflagellidae								+							+					
Euglena spp.	+		+	+	+	+		+			+					+	+			
Peranema spp.																				
Melosira spp.	+		+					+				+	+					+		
Skeletonema spp.																				
Chaetoceros spp.	+	+				+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Guinardia spp.																				
Rhizosolenia spp.						+					+									
Thalassiothrix spp.																				
Navicula spp.												+	+							
Pleurosigma spp.																				
Nitzschia spp.				+		+				+		+	+							

Table 16. cont'd

Day	3	4	5	6	7	10	11	12	13	14	17	18	19	20	21	24	25	26	27	28
Time	0855	0850	0825	1000	0825	0910	0930	0849	0840	0840	0845	0815	0840	0905	0845	0920	1000	0955	0835	0830
BIOLOGICAL DATA																				
Unicellular plankton																				
Grammatophora spp.						+														
Unidentified phytoplankton	+	+	++	++	++	+	+	+	+	+	+	+	+	+	+	+	+	++	++	++
Strombidium sp.																				
Unidentified Halteriidae		+	+	+													+			
Tintinnopsis spp.																				
Unidentified Tintinnidae	+	+			+	+	+	+		+	+	+	+		+		+			
Vorticella spp.											+	+				+	+			
Cothurnia sp.																				
Pleuronema sp.																				
Unidentified ciliates	+	+	+	+	+	+	+		+		+	+		+	+	+	+			
Multicellular plankton																				
Proales sp.																			x	
Synchaeta sp.																				
Unidentified Rotifera	x					x	x			x	x	x	x	x	x					
Copepoda			x																	
Ostracoda						xx	x													
Chaetopoda																				
Coelenterata								x												
Nauplii	x									x	x								x	
Megalops and Zoea	x		x						x	x	x					x				
Veliger						x					x	x								
Trochophore																				
Echinoderm larvae																				
Pisces larvae																				
HYDROGRAPHIC DATA																				
Temperature, °C.	28.5	29.4	29.1	31.0	29.5	27.9	28.5	28.7	28.4	28.8	28.3	28.4	28.6	29.2	29.8	29.0	29.5	29.7	30.0	30.0
Salinity, ‰	35.8	36.0	35.9	36.0	35.7	36.3			33.1	36.9	36.7	37.0	36.8	36.9	36.7	36.8	36.3	36.7	36.2	36.1
NO_3-NO_2				0.2					1.0		0.5			0.5					0.5	
In. PO_4-P				1.2					0.6		0.6			0.7					0.7	
Tot. PO_4-P				12.7					1.0		1.7			1.0					5.2	
Carbohydrate				1.2					1.2		1.4			0.5					0.3	
Protein				0.4					0.9		0.6			0.6					0.9	

Table 17.--Relative abundance of plankton with associated hydrographic data

J U L Y 1957

Day	1	2	3	5	8	9	10	11	12	15	16	17	18	19	22	23	24	25	26	29	30	31
Time	0845	0915	0820	0845	0845	0945	0830	0835	0830	0915	0905	0830	1000	0915	1010	0825	0835	0835	0835	0720	0835	0900
BIOLOGICAL DATA																						
Unicellular plankton																						
Amphidinium spp.													+									
Cochlodinium spp.		+												+						+		
Gymnodinium breve																						
G. simplex																						
G. splendens	+					+								+								
G. spp.		+	+	+	+	+++	+	+	+	+	+	+	+		+	+	+	+	+	+++	+	++
Gyrodinium spirale																						
G. spp.	+					+			+						+						+	+
Torodinium spp.																						
Polykrikos spp.	+	+		+		+												+	+			
Nematodinium spp.																						
Pouchetia spp.																						
Oxyrrhis spp.																						
Ceratium furca				+	+	+		+												+	+	+
C. fusus																			+	+	+	
C. tripos																						
Gonyaulax spp.	+			+	+	+	+	+	+	+	+				+	+			+	+		+
Peridiniopsis spp.				+		+			+										+		+	
Peridinium depressum			+	+	+																	
P. digitale																						
P. divergens						++	+	+				+						+		+	+	
P. spp.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Dinophysis tripos																						
D. spp.				+								+				+				+		
Exuviella spp.																						
Prorocentrum sp.		+		+	+	+						+				+				++	+	
Silicoflagellidae	+			+	+								+				+		+	+		+
Euglena spp.	+	+	+	+	+		+	+				+				+				+		+
Peranema spp.																						
Melosira spp.														+				+				
Skeletonema spp.																						
Chaetoceros spp.		+	+	+	+		+	+	+	+	+	+	+		+		+	+	+	+	+	+
Guinardia spp.																				+	+	
Rhizosolenia spp.																						
Thalassiothrix spp.																						
Navicula spp.																						
Pleurosigma spp.																						
Nitzschia spp.																				+	+	+
Grammatophora spp.				+																		

Table 17. cont'd

Day	1	2	3	5	8	9	10	11	12	15	16	17	18	19	22	23	24	25	26	29	30	31
Time	0845	0915	0820	0845	0845	0945	0830	0835	0830	0915	0905	0830	1000	0915	1010	0825	0835	0835	0835	0720	0835	0900
BIOLOGICAL DATA																						
Unicellular plankton																						
Unidentified phytoplankton		+	++											++						+		
Strombidium sp.																						
Unidentified Halteriidae	+		+	+	+																	
Tintinnopsis spp.																						
Unidentified Tintinnidae		+	+	+			+		+	+		+		+	+	+	+		+	+		
Vorticella spp.		+														+	+					+
Cothurnia sp.																						
Pleuronema sp.																						
Unidentified ciliates	+	+	+	+							+	+			+	+	+		+			
Multicellular plankton																						
Proales sp.																						
Synchaeta sp.																						
Unidentified Rotifera	x	x	x		x	x	x	x									x					
Copepoda	x	x				x					x	x				x			x			
Ostracoda																						
Chaetopoda																						
Coelenterata																						
Nauplii						x										x						
Megalops and Zooea	x					x			x		x				x	x		x	x			
Veliger														x								
Trochophore																						
Echinoderm larvae																			x			
Pisces larvae				x					x											x		
HYDROGRAPHIC DATA																						
Temperature, °C.	30.5	30.0	30.0	30.0	30.0	30.2	30.5	30.1	30.0	30.4	30.8	30.3	30.3	29.9	31.0	30.0	30.0	30.0	30.5	30.7	31.5	30.5
Salinity, ‰	38.6	35.1	35.1	35.4	35.8	36.1	36.2	36.0	35.6	35.1	36.0	35.9	35.5	35.5	35.5	35.4	35.0	32.4	35.3	35.3	35.2	34.0
NO_3-NO_2				1.1				0.5					0.3					0.4		1.2		
In. PO_4-P				0.5				0.4										1.1		0.7		
Tot. PO_4-P				1.6				0.8										1.7		0.8		
Carbohydrate				1.3				0.9					1.2					0.8		4.1		
Protein				0.9				8.0					0.9					1.0		0.6		

Table 18.--Relative abundance of plankton with associated hydrographic data

A U G U S T 1957

Day	1	2	5	6	7	8	9	12	13	14	15	16	19	20	21	22	23	26	27	28
Time	0835	0900	0900	0850	0835	0840	0835	0910	0900	0900	0850	0820	1030	0840	0830	0840	0930	0940	0945	
BIOLOGICAL DATA																				
Unicellular plankton																				
Amphidinium spp.																				
Cochlodinium spp.																				
Gymnodinium breve																				
G. simplex																				
G. splendens					+		+	+	+	++									++	
G. spp.	+	++	+	+++	++	+	+	+	+	+++								++	++	
Gyrodinium spirale																				
G. spp.	+																			
Torodinium spp.																				
Polykrikos spp.				+	+				+											
Nematodinium spp.																				
Pouchetia spp.																				
Oxyrrhis spp.																				
Ceratium furca		+	+	+	+		+													
C. fusus					+															
C. tripos			+																	
Gonyaulax spp.	+	+	+			+	+	+	+											
Peridiniopsis spp.		+	+	+	+	+														
Peridinium depressum				+																
P. digitale																				
P. divergens		+	+	+	+															
P. spp.	+	+	+	+	+	+	+	+	+	+++										
Dinophysis tripos																				
D. spp.	+			+++																
Exuviella spp.																				
Prorocentrum sp.			+++	+++	+++	+	+++													
Silicoflagellidae	+																			
Euglena spp.	+		+						+											
Peranema spp.																				
Melosira spp.					+	+	+	+	+											
Skeletonema spp.																				
Chaetoceros spp.	+	+	+		+		+	+												
Guinardia spp.		+						+												
Rhizosolenia spp.																++			++	++
Thalassiothrix spp.																				
Navicula spp.																				
Pleurosigma spp.																				
Nitzschia spp.						+	+	+	+							++	++			++

Table 18. cont'd

Day	1	2	5	6	7	8	9	12	13	14	15	16	19	20	21	22	23	26	27	28
Time	0835	0900	0900	0850	0835	0840	0835	0910	0900	0900	0850	0820	1030	0840	0830	0840	0930	0940	0945	
BIOLOGICAL DATA																				
Unicellular plankton																				
Grammatophora spp.																				
Unidentified phytoplankton			++																	
Strombidium sp.																				
Unidentified Halteriidae								+		+										
Tintinnopsis spp.																				
Unidentified Tintinnidae	+	+						+		+										
Vorticella spp.									+	+										
Cothurnia sp.																				
Pleuronema sp.																				
Unidentified ciliates	+	+					+	+	+	+										
Multicellular plankton																				
Proales sp.																				
Synchaeta sp.																				
Unidentified Rotifera							x	x		x										
Copepoda	x							x												
Ostracoda																				
Chaetopoda																				
Coelenterata																				
Nauplii		x																		
Megalops and Zooea	x		x																	
Veliger																				
Trochophore																				
Echinoderm larvae																				
Pisces larvae							x													
HYDROGRAPHIC DATA																				
Temperature, °C.	30.1	30.5	30.1	29.0	30.0	30.0	30.2	31.0	29.5	30.1	30.0	29.5	31.0	30.0	30.7	31.0	30.8	29.5	30.0	30.0
Salinity, ‰	34.4	35.3	32.8	32.4	33.7	33.5	34.3	34.6	34.9	35.0	34.8	34.9	34.7	33.4	34.8	35.1	34.6	34.4	34.8	34.9
NO_3-NO_2																				
In. PO_4-P																				
Tot. PO_4-P																				
Carbohydrate																				
Protein																				