

(5) Tide Analysis

# Tide Analysis

## 1. Summary of Tide

Summary of Tide, Chart Datum Level (CDL) and Mean Water Level (MWL) are as follows.

	Coast Guard (for Old Road)				Dieppe Bay	
	above OBL	C. D. L	above L. W. L		above OBL	above C. D. L
Port Zante	4.182	3.242	3.042	2.942	4.432	3.232
Temporay Tide Bench Mark	3.83	2.89	2.69	2.59	4.08	2.88
HHWL	2.29	1.35	1.15	1.05	2.55	1.35
MHHWL	1.67	0.73	0.53	0.43	1.94	0.74
HWL	1.60	0.70	0.50	0.40	1.90	0.70
M. W. L	1.39	0.45	0.25	0.15	1.65	0.45
(Official MSL)	1.24	0.30	0.10	0.00	1.49	0.29
LWL	1.14	0.20	0.00	-0.10	1.40	0.20
MLLWL	1.11	0.17	-0.03	-0.13	1.36	0.16
LLWL	0.99	0.05	-0.15	-0.25	1.25	0.05
C. D. L (Zo)	0.94	0.00	-0.20	-0.30	1.20	0.00
Observation basis line (OBL: m)	0.00	-0.94	-1.14	-1.24	0.00	-1.20

Figure 4 Summary of Tides in Coast Guard (for Old Road) and Dieppe Bay

## 2. Survey Data

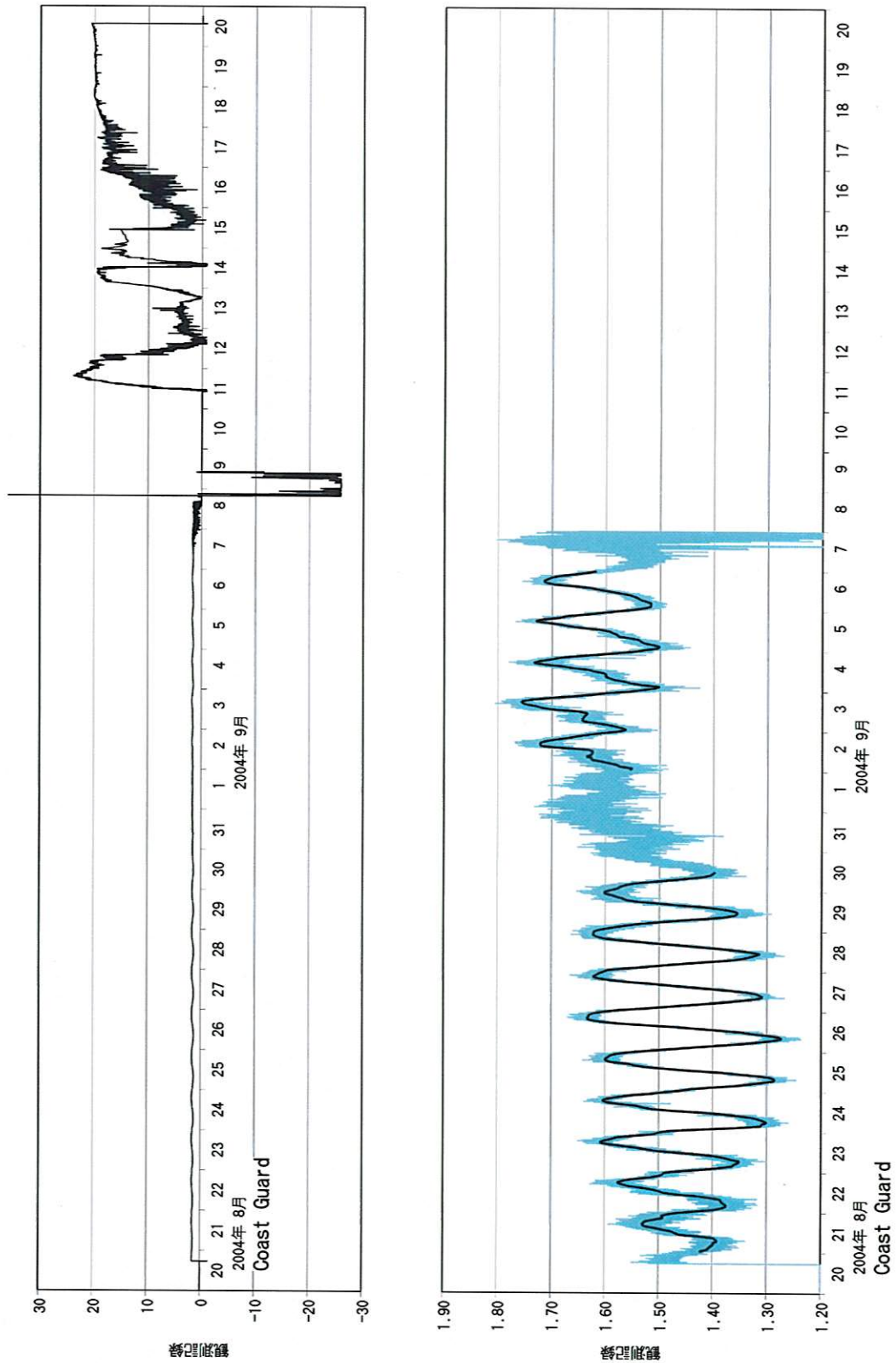


Figure 2 Tide Data at Coast Guard (for Old Road)

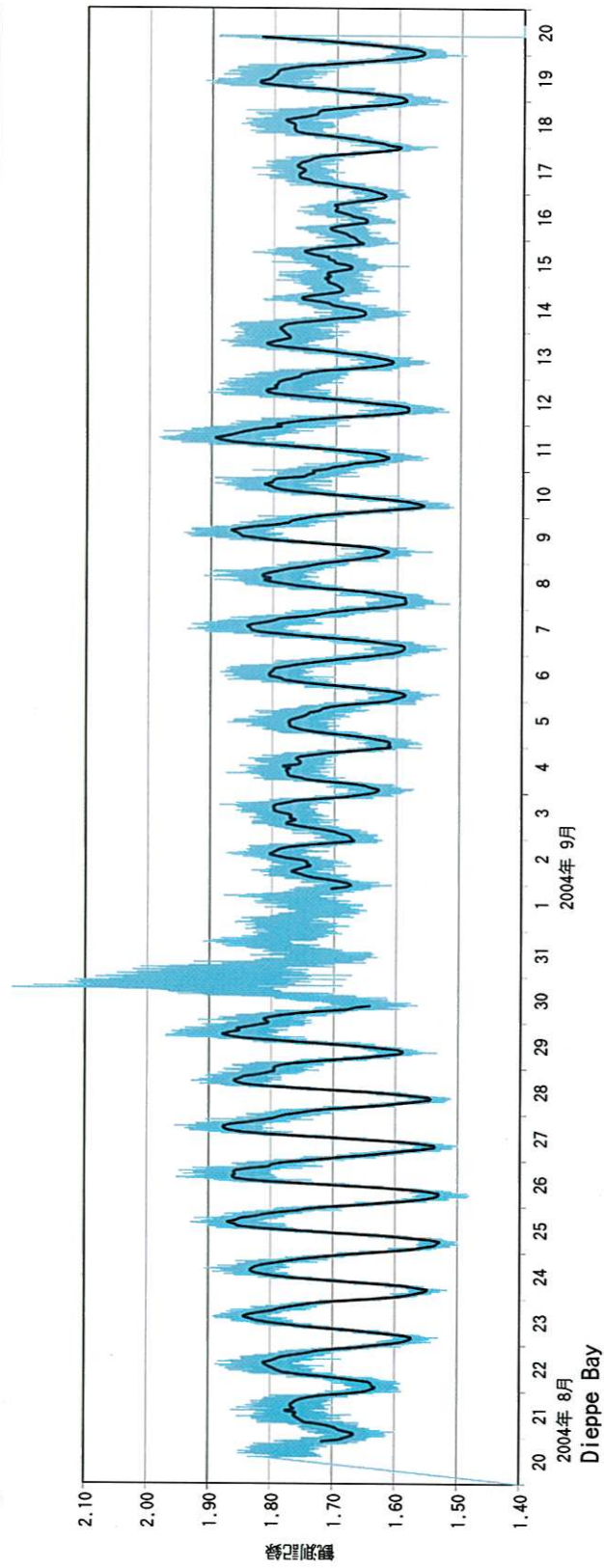
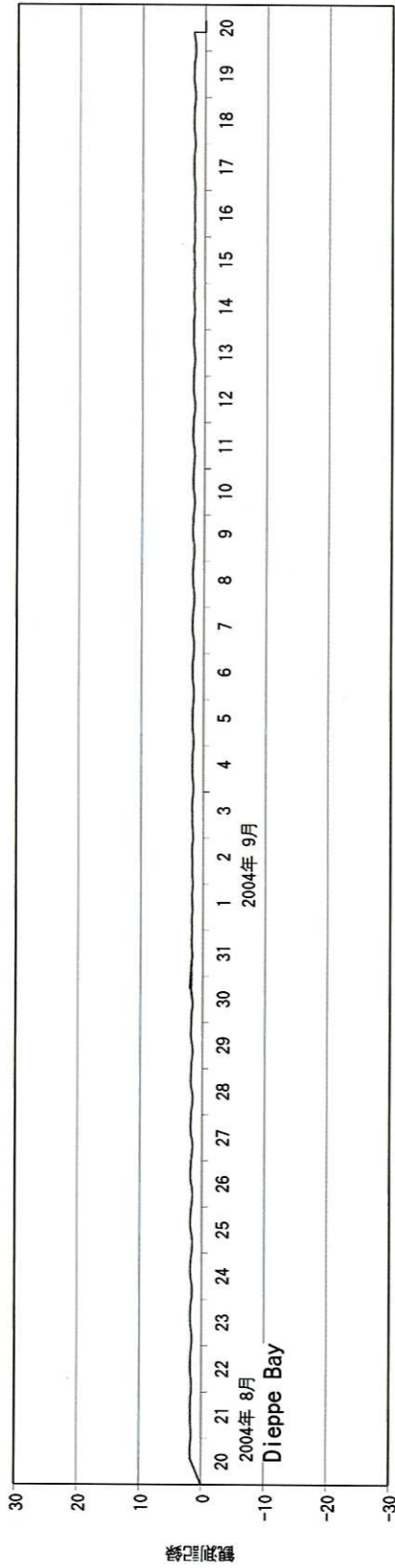


Figure 3 Tide Data at Dieppe Bay

**(6) Wave Analysis**

## Wave Analysis

### 1. Wave Analysis by Return Period

Offshore waves by direction were obtained, as a result of wave estimates over forty nine years.

Table 1 Probability Wave height by Direction and Return Periods (RP)

Offshore Wave Direction	RP 10years		RP 30years		RP 50years	
	Height (m)	Cycle (s)	Height (m)	Cycle (s)	Height (m)	Cycle (s)
SE	4.4	7.7	6.4	9.2	7.2	9.8
SSE	3.8	7.3	5.8	8.7	6.8	9.5
S	3.3	6.9	5.5	8.5	6.5	9.2
SSW	2.9	6.6	5.1	8.2	6.1	9.0
SW	2.8	6.5	4.5	7.8	5.4	8.4
WSW	2.8	6.5	4.2	7.6	4.9	8.1
W	2.0	6.0	3.7	7.2	4.6	7.9
WNW	2.0	6.0	3.7	7.2	4.6	7.9

### 2. Wave Direction and Height at the Project Site (Old Road)

The result of wave analysis on the extreme wave estimated with 30 years Return Period (RP), wave height, cycle and length for the main directions are as follows.

Table 2 Wave Direction and Height at the Project Site

Offshore Wave Direction	Height	Cycle	A ( 1.9m)			B ( 2.2m)			C ( 2.2m)			E ( 3.5m)		
			drm	H3	Ho'	drm	H3	Ho'	drm	H3	Ho'	drm	H3	Ho'
SE	6.4	9.2	200	3.81	3.23	200	3.80	3.26	200	3.64	3.17	200	3.38	3.18
SSE	5.8	8.7	203	4.55	3.85	203	4.54	3.89	203	4.34	3.77	203	4.03	3.78
S	5.5	8.5	206	5.13	4.33	207	5.12	4.38	207	4.91	4.25	208	4.57	4.28
SSW	5.1	8.2	210	5.14	4.39	211	5.10	4.43	211	4.96	4.34	213	4.63	4.38
SW	4.5	7.8	215	4.55	3.98	215	4.50	4.00	216	4.44	3.97	218	4.17	4.01
WSW	4.2	7.6	220	3.73	3.31	221	3.69	3.33	221	3.66	3.31	225	3.47	3.38
W	3.7	7.2	224	2.76	2.52	225	2.73	2.53	225	2.71	2.52	230	2.61	2.59
WNW	3.7	7.2	228	2.12	1.97	229	2.11	1.99	229	2.09	1.97	235	2.04	2.05

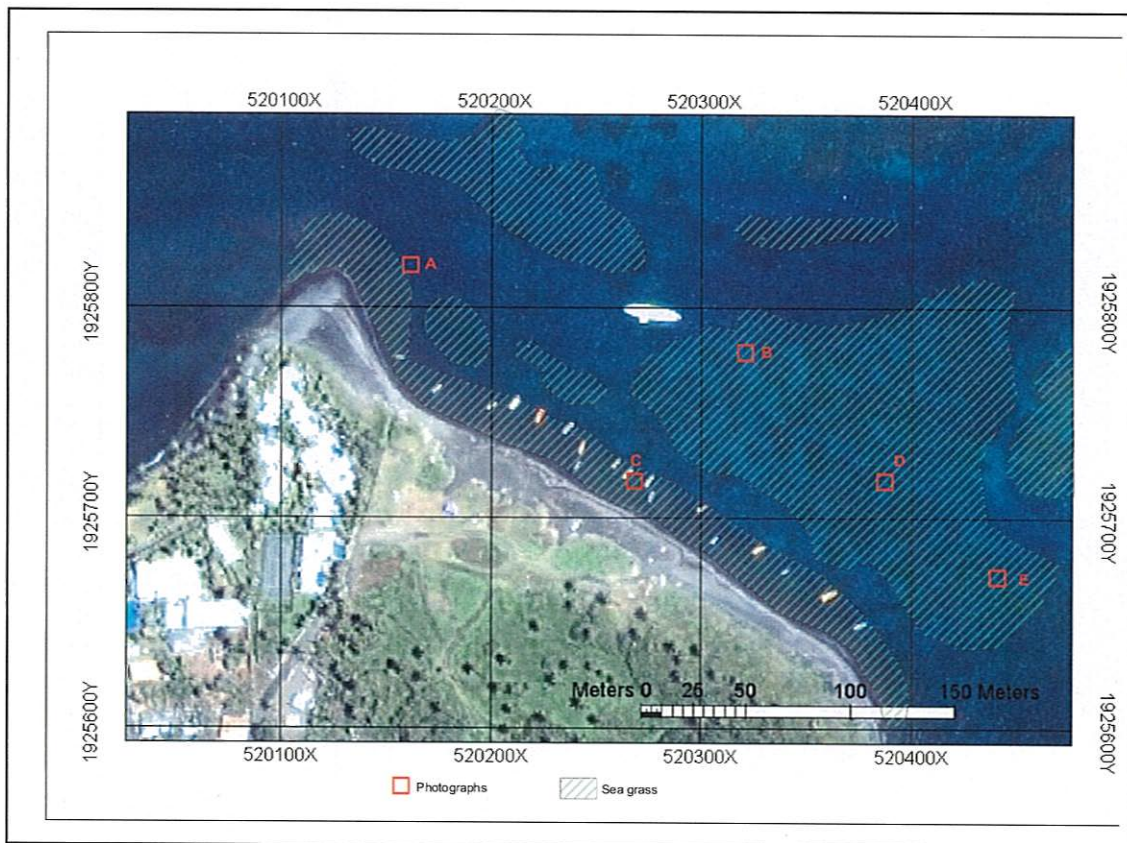
drm: Mean wave direction (degrees), H3: Significant wave height(m), Ho': Estimated wave height(m)  
Point (Depth): HHWL=MWL+0.90m (official MSL+1.05m)

(7) Sea Grass Survey

## Sea grass Survey

Figure 1 shows the location of the sea grass area as mapped at Dieppe Bay. The figure shows the location of photographs taken during the mapping exercise. The photographs are shown in Figures 2 through 6.

**Figure 1 : Location of Sea grass bed communities**



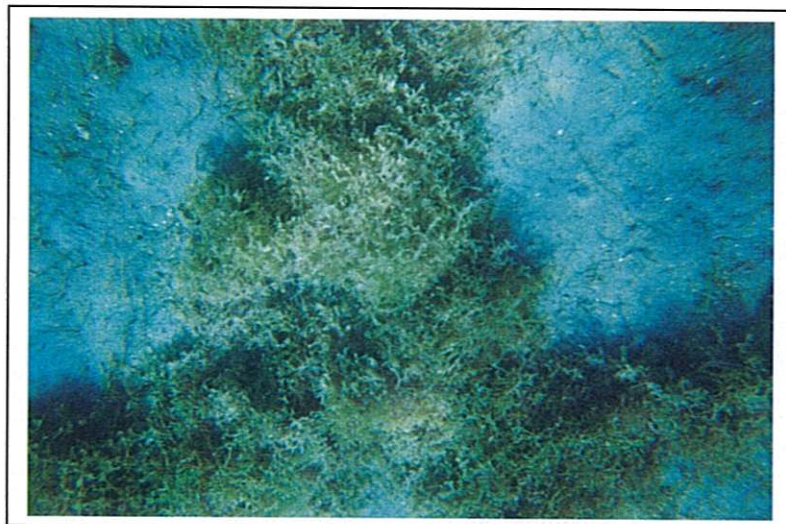
While no attempt was made to specifically identify the species of sea grasses at the site or to determine biomass or density, two (2) species appeared dominant. The photograph in Figure 7 shows both types. Note that it is recommended that a full sea grass bed survey be carried out.



**Figure 2 : Sea grass Photograph A**



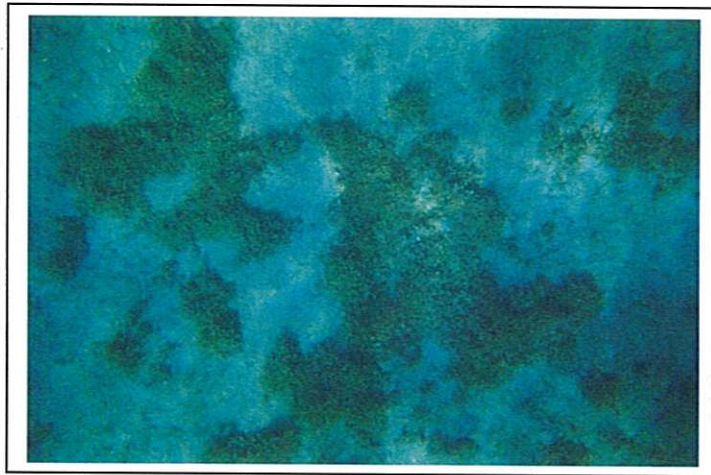
**Figure 3 : Sea grass Photograph B**



**Figure 4 : Sea grass Photograph C**



**Figure 5 : Sea grass Photograph D**



**Figure 6 : Sea grass Photograph E**



**Figure 7 : Sea grass species observed at Dieppe bay**

[The grass on the left appears to be *Syringodium filiforme* and that on the right appears to be *Thalassia testudinum*, both are common in the northeastern Caribbean]

