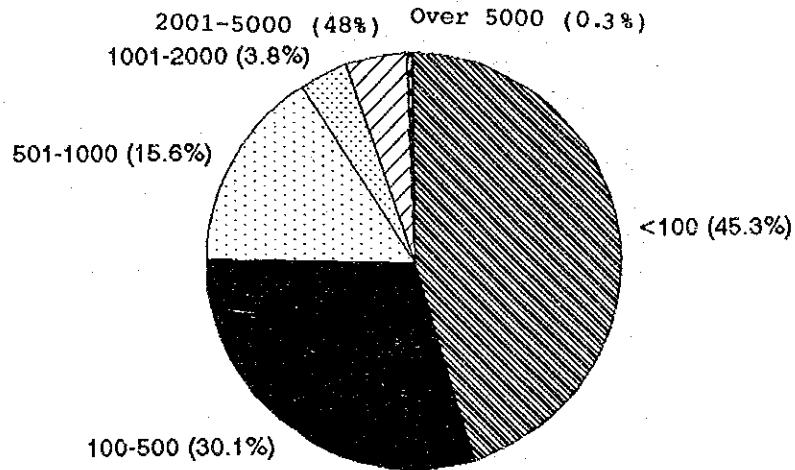


(Vessels by Size)

Figure 2.10
Vessel Characteristics by Size (Tons)
Cebu City Port

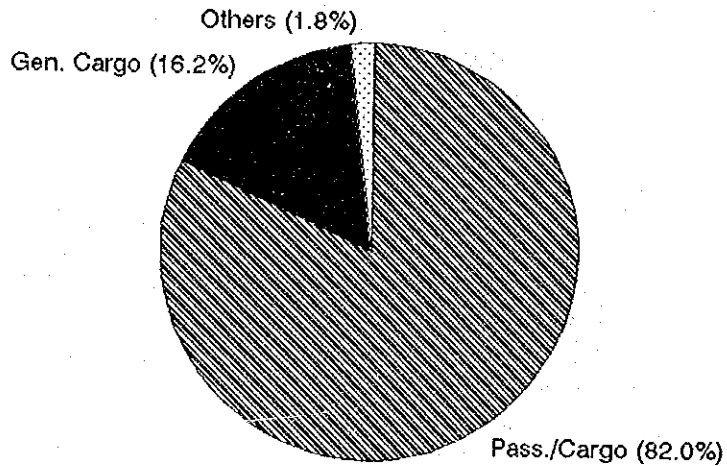


Comment/Analysis

Vessels with Gross Tonnage (GRT) of less than 100 tons dominate the Cebu City Port with a percentage of 45.3, followed closely by 100-500 GRT at 30.1% and 15.6% for 501-1000 GRT.

(Vessel by Type)

Figure 2.11
Vessel Characteristics by Type
Cebu City Port

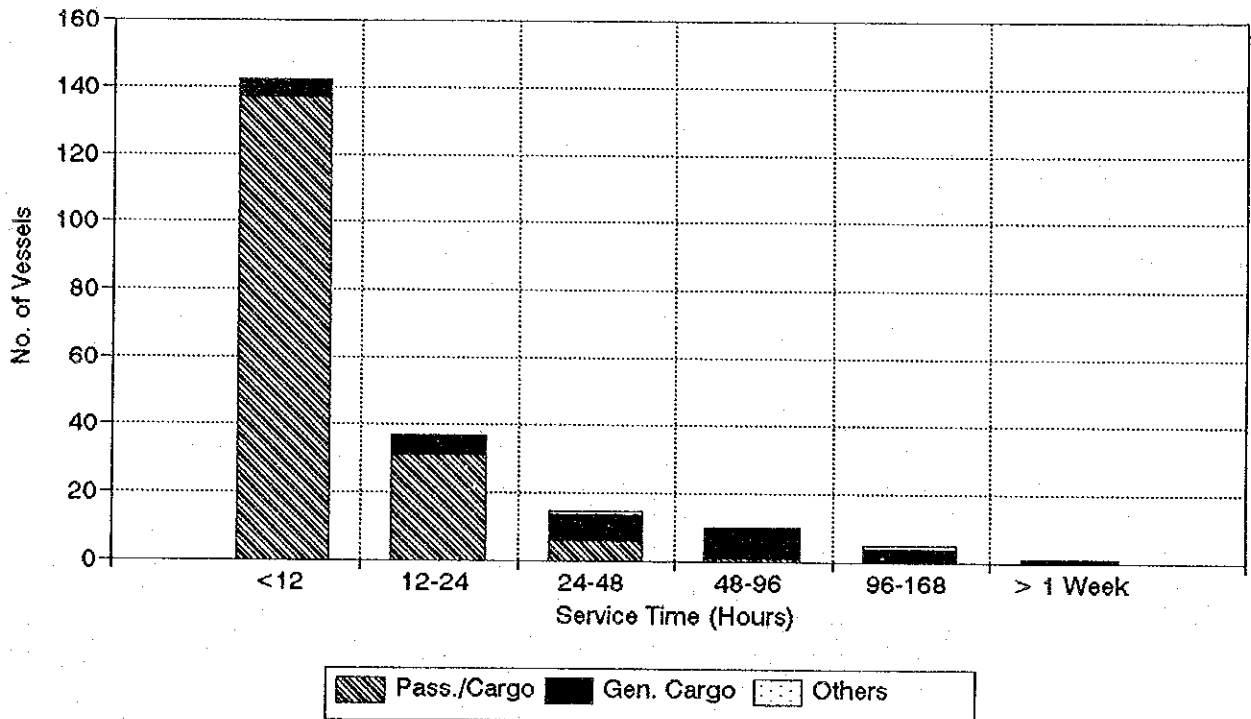


Comment/Analysis

Passenger/Cargo type ships comprise 82.0% at the total sea vessels docking/anchoring within the Cebu City Port, as can be seen in Figure 2.11. The General Cargo type registered 16.2% while the other types (i.e, motor tanker, motor launch, motor boat and barge) amounted to 1.8% .

(Service Time)

Figure 2.12
Service Time by Vessel Type
Cebu City Port



Comment/Analysis

Unlike the Manila North Harbor, service time in Cebu City Port is generally shorter with large volume of vessels docking for less than 12 hours. Average service time of Passenger/Cargo and General Cargo are 10 hours and 56 hours. Around 80% of Passenger Cargo vessels are small, below 100 tonnages, than their service time is quite short.

Figure 2.13
Record of Ship's Tracks
Cebu City Port, May 22, 1991

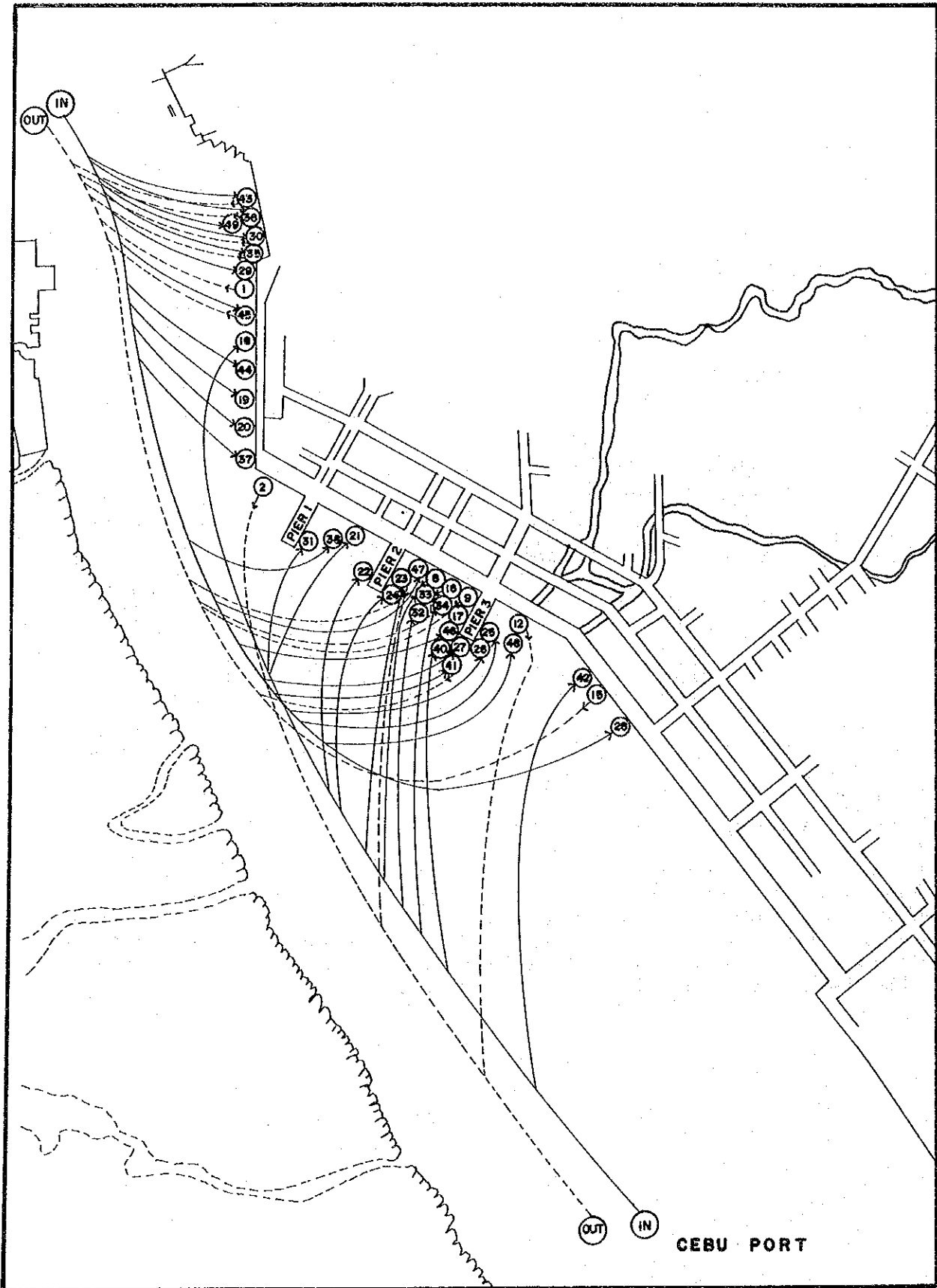
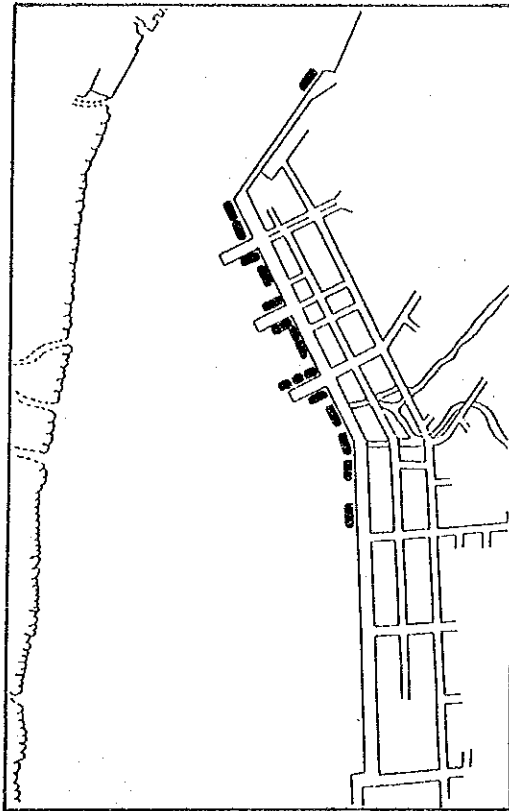


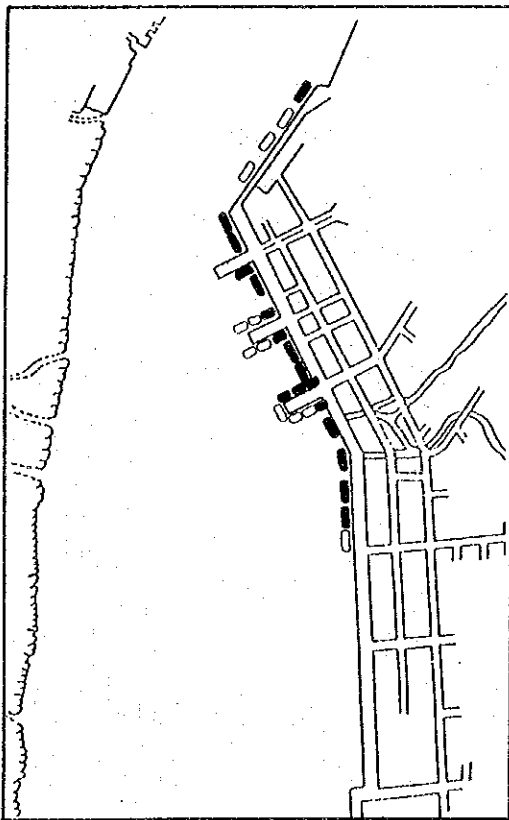
Figure 2.14
Record of Anchorage Positions
Cebu City Port, May 21, 1991

LEGEND:

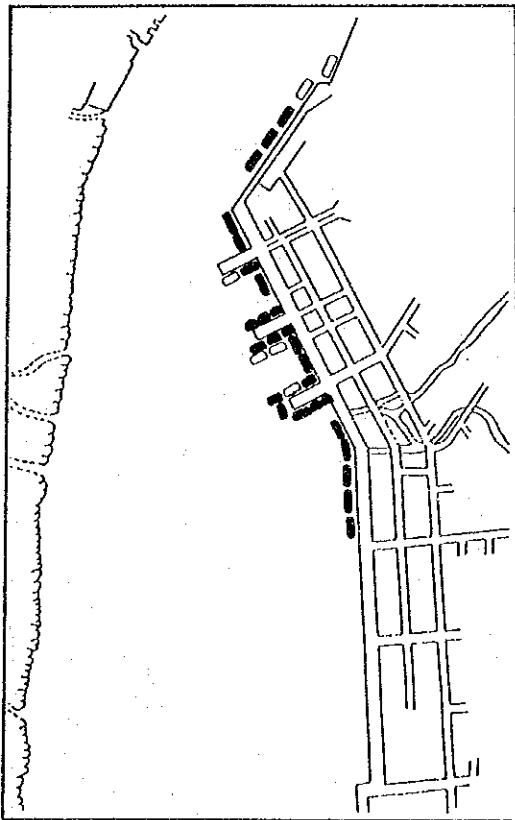
- NEWLY BERTHED VESSEL
- VESSEL AT BERTH



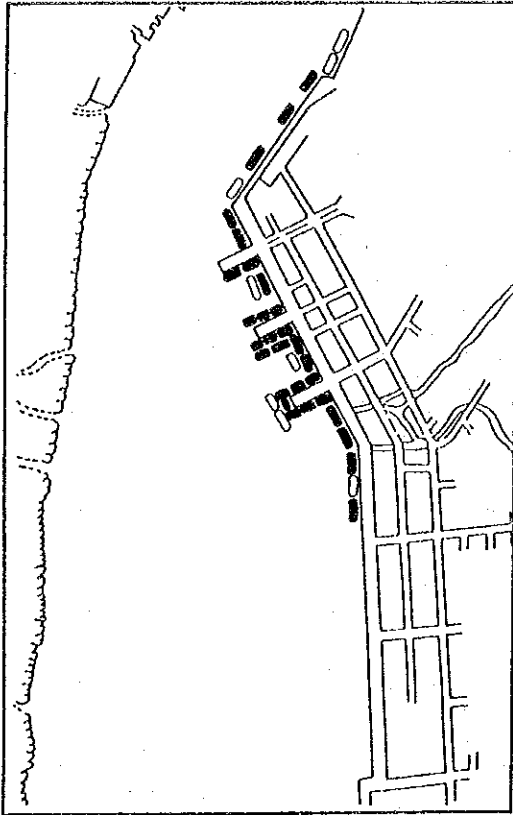
6 A.M.



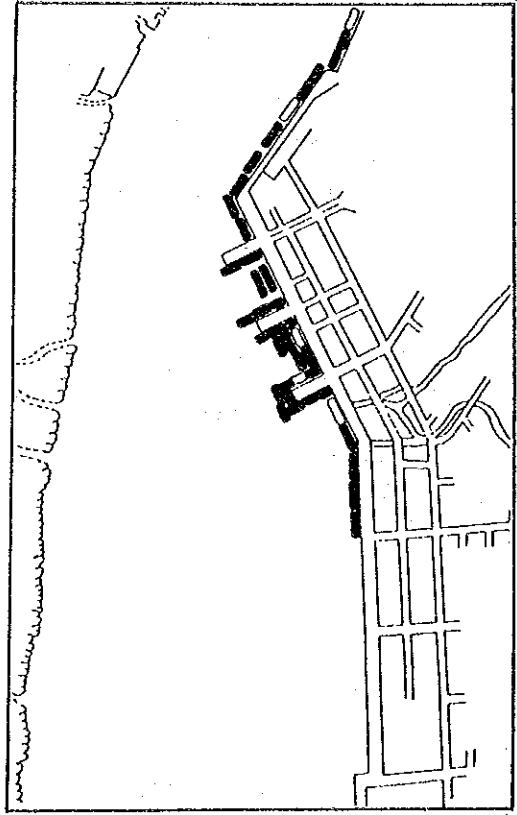
8 A.M.



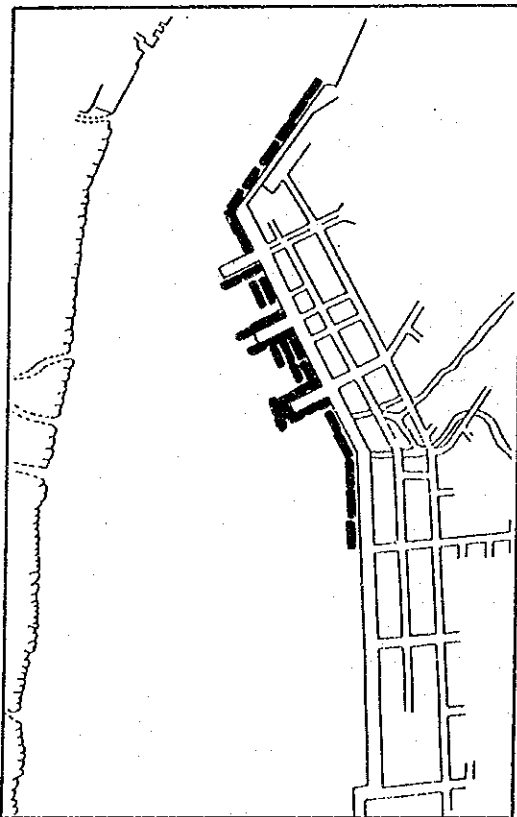
10 A.M.



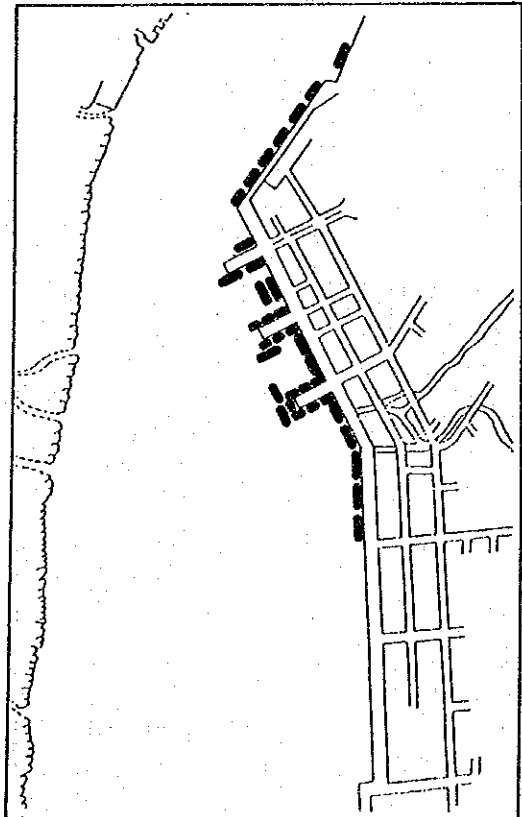
12 NOON



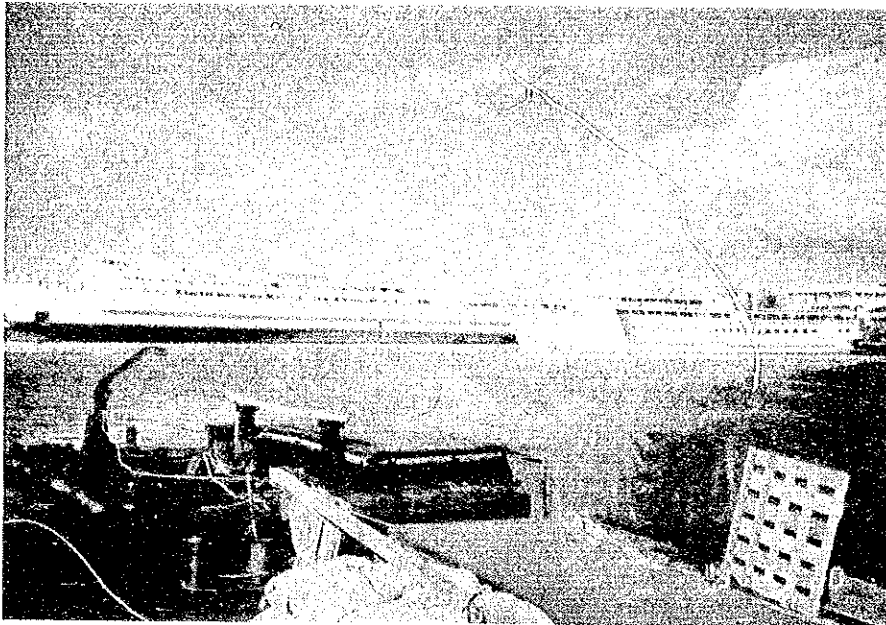
2 P.M.



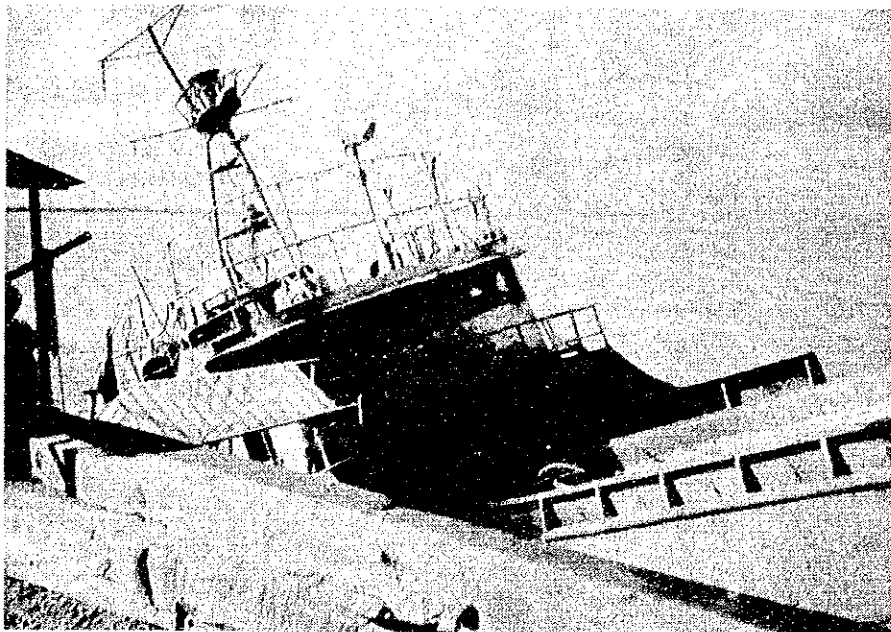
4 P.M.



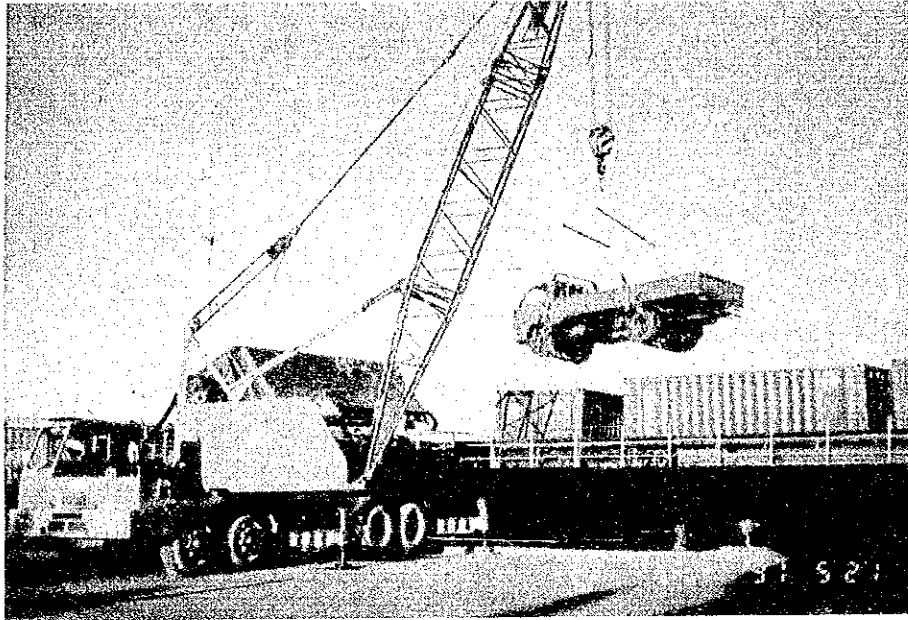
6 P.M.



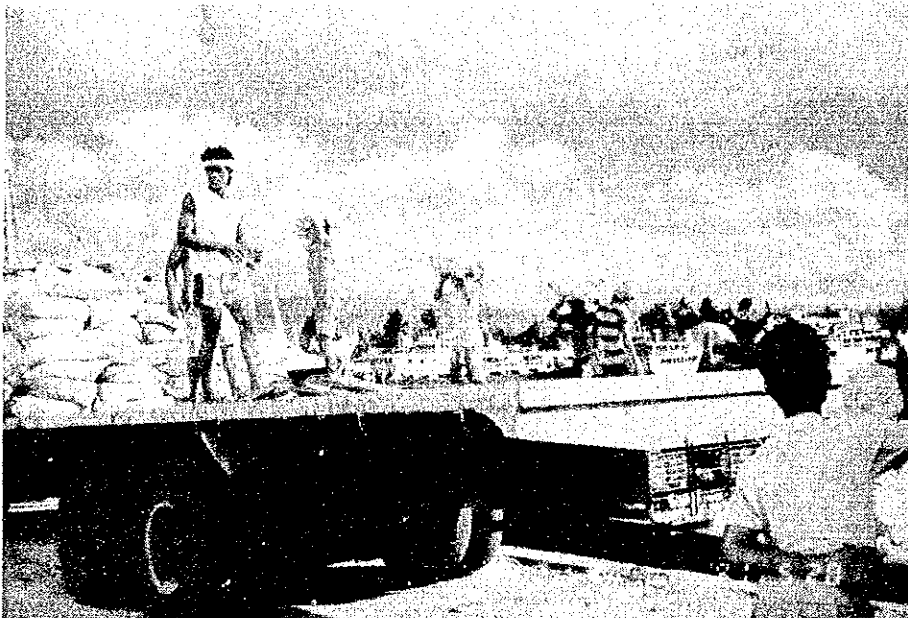
Picture Cebu - 1
Anchoring Vessels



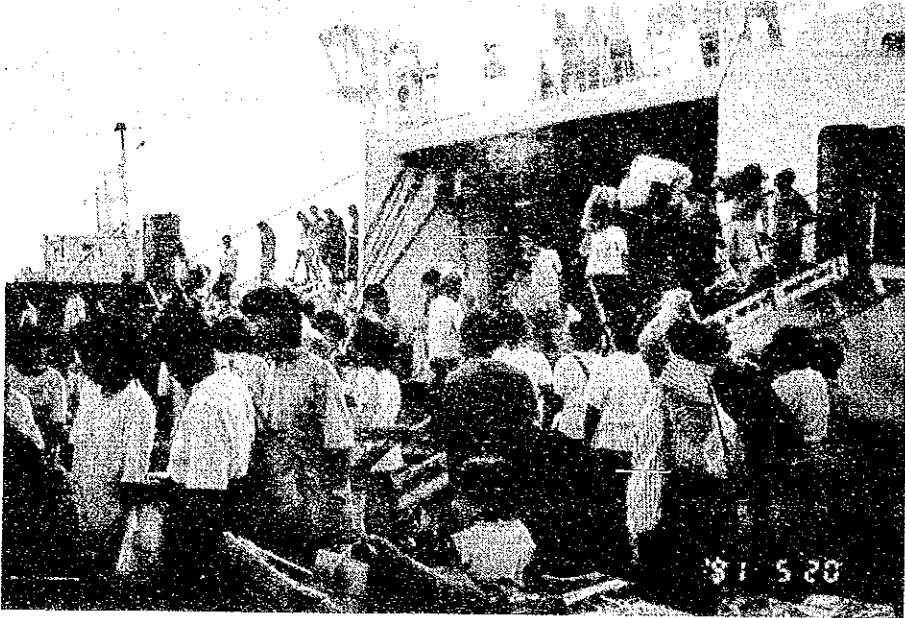
Picture Cebu - 2
Sunken Vessel due to Typhoon Ruping



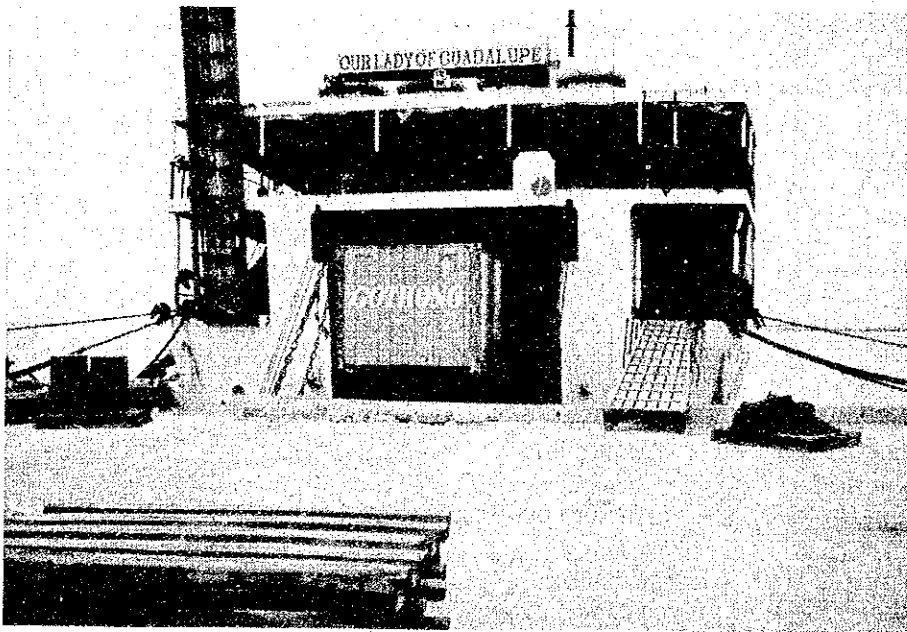
Picture Cebu - 3
Crane Truck



Picture Cebu - 4
Stevedores



Picture Cebu - 5
Passengers getting off a vessel



Picture Cebu - 6
Container Loaded into a vessel

(3) Cagayan de Oro Port

(Summary)

Table 2.6
Traffic Volume in Cagayan De Oro
(May 27 - June 10, 1991)

VESSEL CATEGORY	No. OF VESSELS	TYPE					SIZE (Tons)						
		PF	PC	GC	MT	FB	Below 100	100 500	501 1,000	1,001 2,000	2,001 5,000	Over 5,000	
6 - 8	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	11	1	-	-	-	-	-	6	3	1	2
8 - 10	1	-	-	1	-	-	-	1	-	-	-	-	-
	9	-	8	1	-	-	-	3	4	-	2	-	
10 - 12	1	-	-	-	-	1	-	1	-	-	-	-	
	3	-	2	1	-	-	-	1	-	-	2	-	
12 - 14	4	1	3	-	-	-	-	1	3	-	-	-	
	3	-	3	-	-	-	1	-	-	1	1	-	
14 - 16	1	-	1	-	-	-	-	1	-	-	-	-	
	4	-	3	-	-	1	-	1	1	-	2	-	
16 - 18	11	-	4	4	1	2	-	4	-	-	5	2	
	3	-	-	2	-	1	-	1	-	1	-	1	
TOTAL	18	1	8	5	1	3	0	8	3	0	5	2	
	34	0	27	5	0	2	1	6	11	5	8	3	

NOTE : $\frac{\text{outgoing}}{\text{incoming}}$

Table 2.7
Service Time in Cagayan de Oro Port
(May 27 - June 10, 1991)

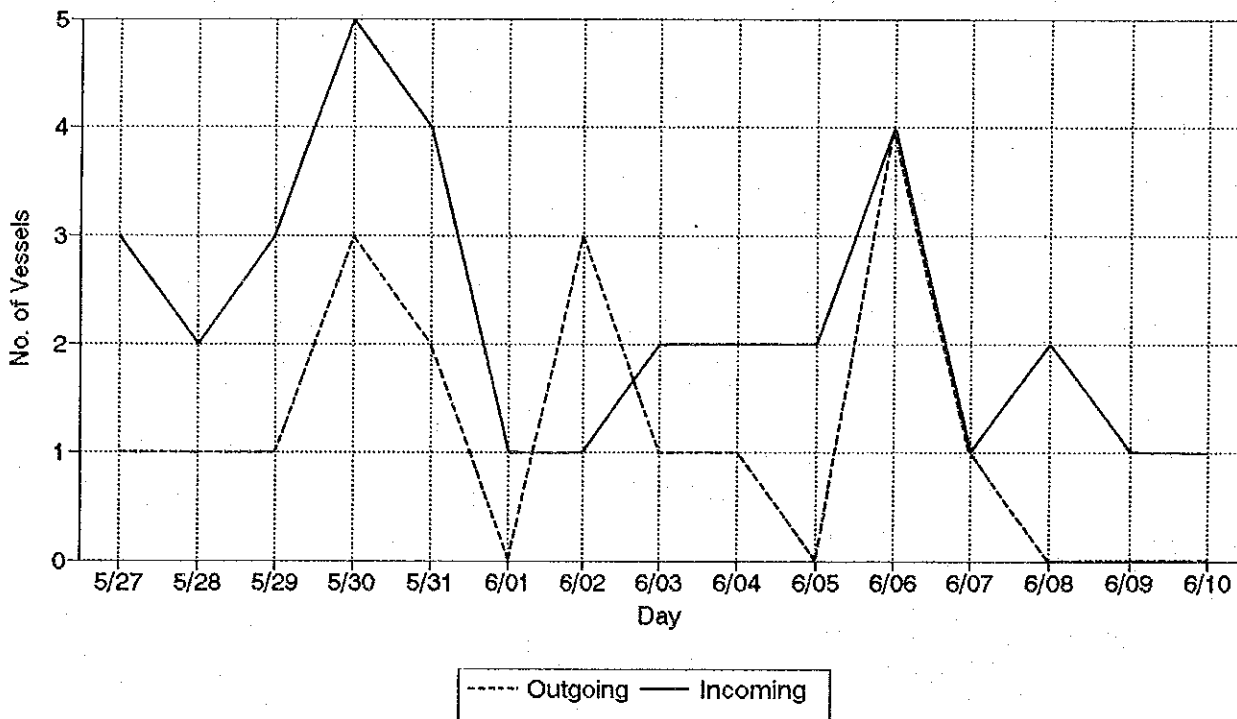
Vessel Category	No. of Vessels	T Y P E						S I Z E (T O N)					
		P	PC	GC	T	FB	BELOW 100	100- 500	501- 1,000	1001 2,000	2,001 5,000	Over 5,000	
BELOW 12 Hours	12	-	12	-	-	-	-	-	7	-	3	2	
12 - 24 Hrs.	39	-	29	7	1	2	1	3	13	13	8	1	
24 - 48 Hrs.	13	3	5	-	-	5	-	9	1	1	2	-	
48 - 96 Hrs.	9	-	5	3	-	1	-	7	-	1	1	-	
96 - 168 Hrs.	-	-	-	-	-	-	-	-	-	-	-	-	
Over 168 Hrs. (over 1 week)	2	-	-	2	-	-	-	1	-	1	-	-	
T O T A L	76	3	51	12	1	8	1	20	21	16	14	3	

LEGEND :

P - Passenger
 PC - Passenger Cargo
 GC - General Cargo
 T - Tanker
 FB - Fishing Boat

(Daily Traffic Volume)

Figure 2.15
Daily Traffic Volume
Cagayan de Oro Port

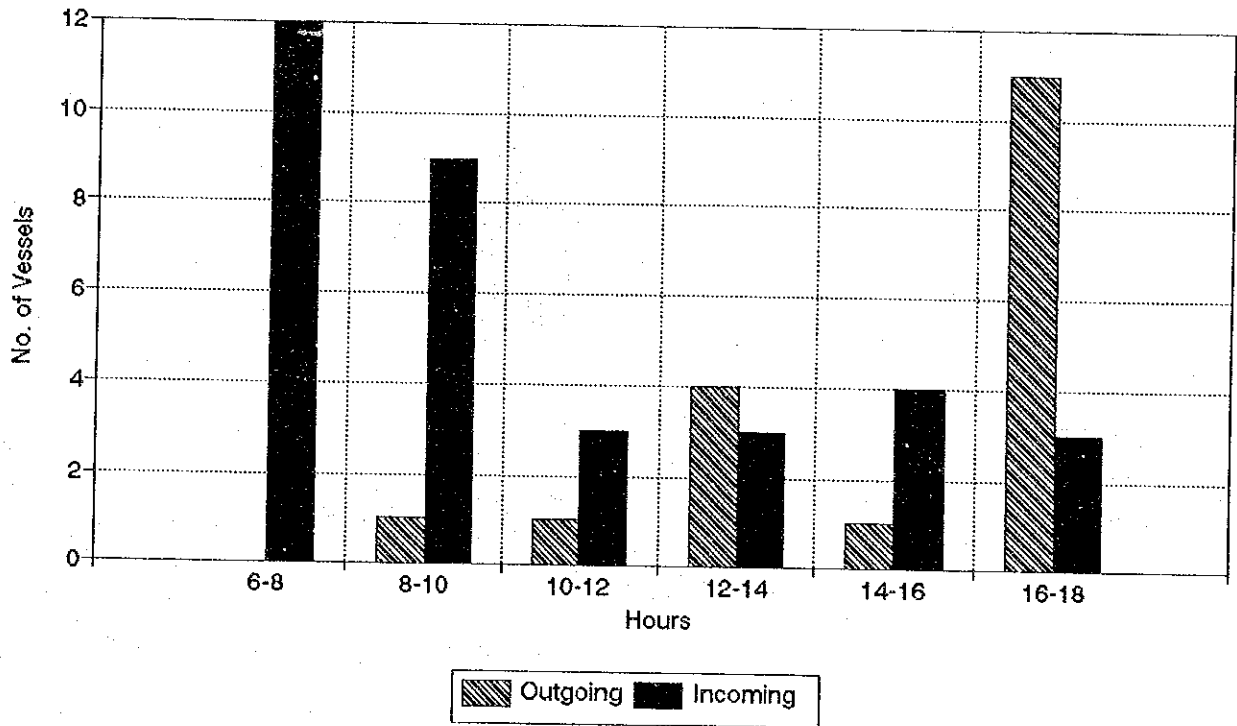


Comment/Analysis

The presence of neighboring private ports along the seashore of Cagayan may be the reason for the scarcity of traffic volume in the Base Port. Maximum and minimum incoming daily volume are recorded at 5 and 1 while the maximum outgoing is 3 and not-at all as a minimum.

(Hourly Traffic Volume)

Figure 2.16
Traffic Volume Every Two Hours
Cagayan de Oro Port

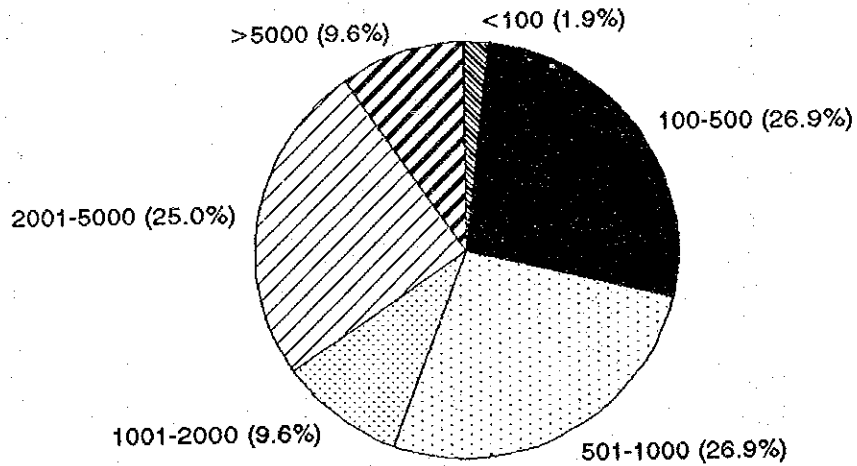


Comment/Analysis

Peak hour incoming traffic volume is recorded at 6.00 - 8.00 a.m. while outgoing volume reach its peak at 4:00 - 6:00 p.m.

(Vessels by Size)

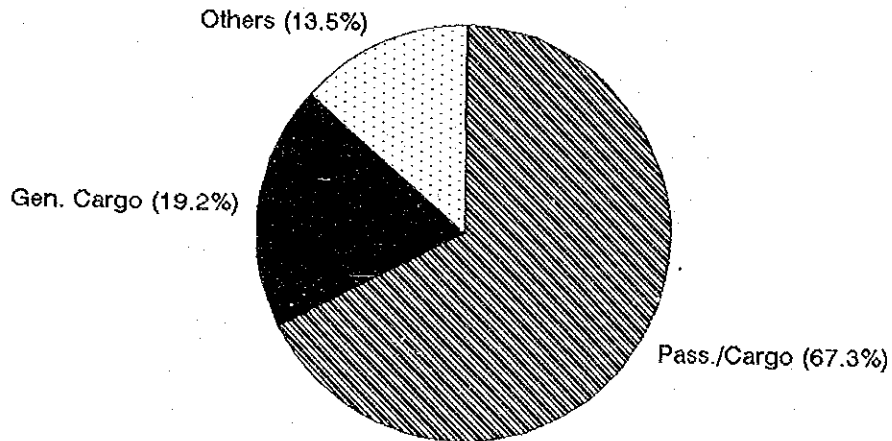
Figure 2.17
Vessel Characteristics by Size (Tons)
Cagayan de Oro Port



Comment/Analysis

Small vessels with a gross tonnage ranging from 100-500 tons has the highest share among the vessels in Cagayan de Oro Port. However, large and middle vessels have considerable shares respectively.

Figure 2.18
Vessel Characteristics by Type
Cagayan de Oro Port

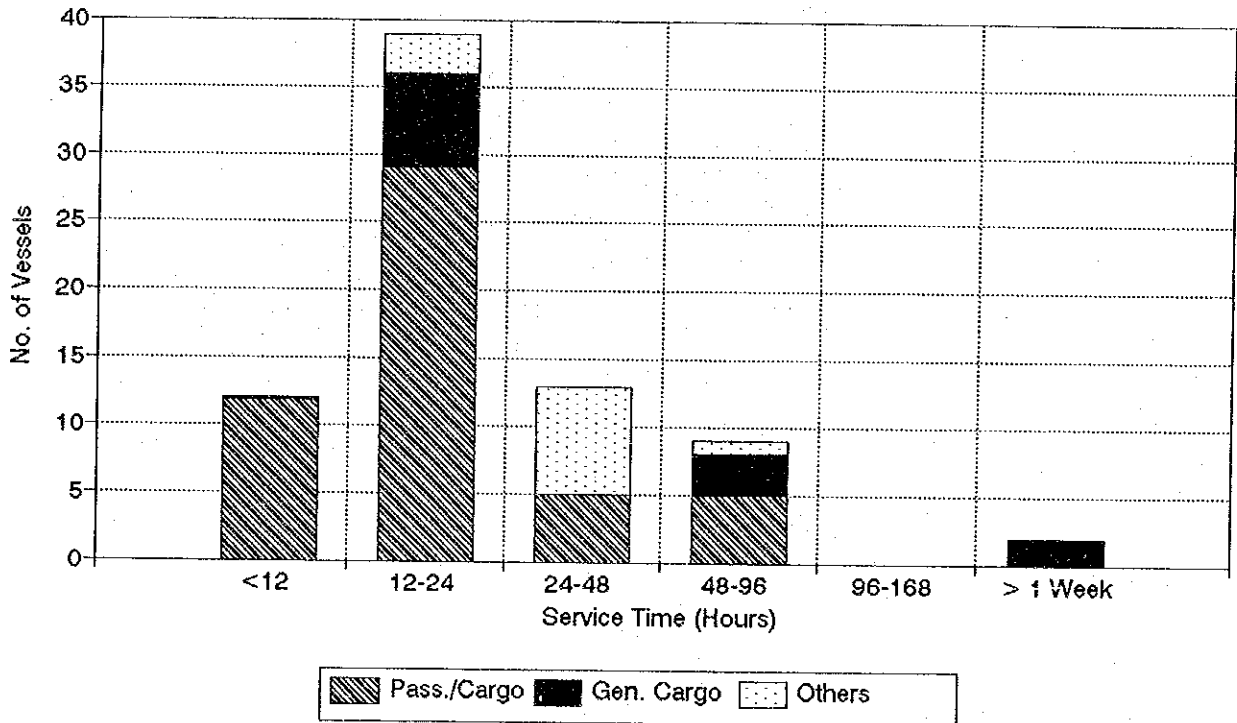


Comment/Analysis

Passenger/Cargo vessels has the highest share of 67.3% followed by General Cargo vessels at 19.2% and the rest at 13.5%.

(Service Time)

Figure 2.19
Service Time by Vessel Type
Cagayan de Oro Port



Comment/Analysis

Average service time of Passenger/Cargo and General Cargo is 22 hours and 62 hours respectively. Due to introduction of modernized stevedoring service, service time is considerably short.

Figure 2.20
Record of Ship's Tracks

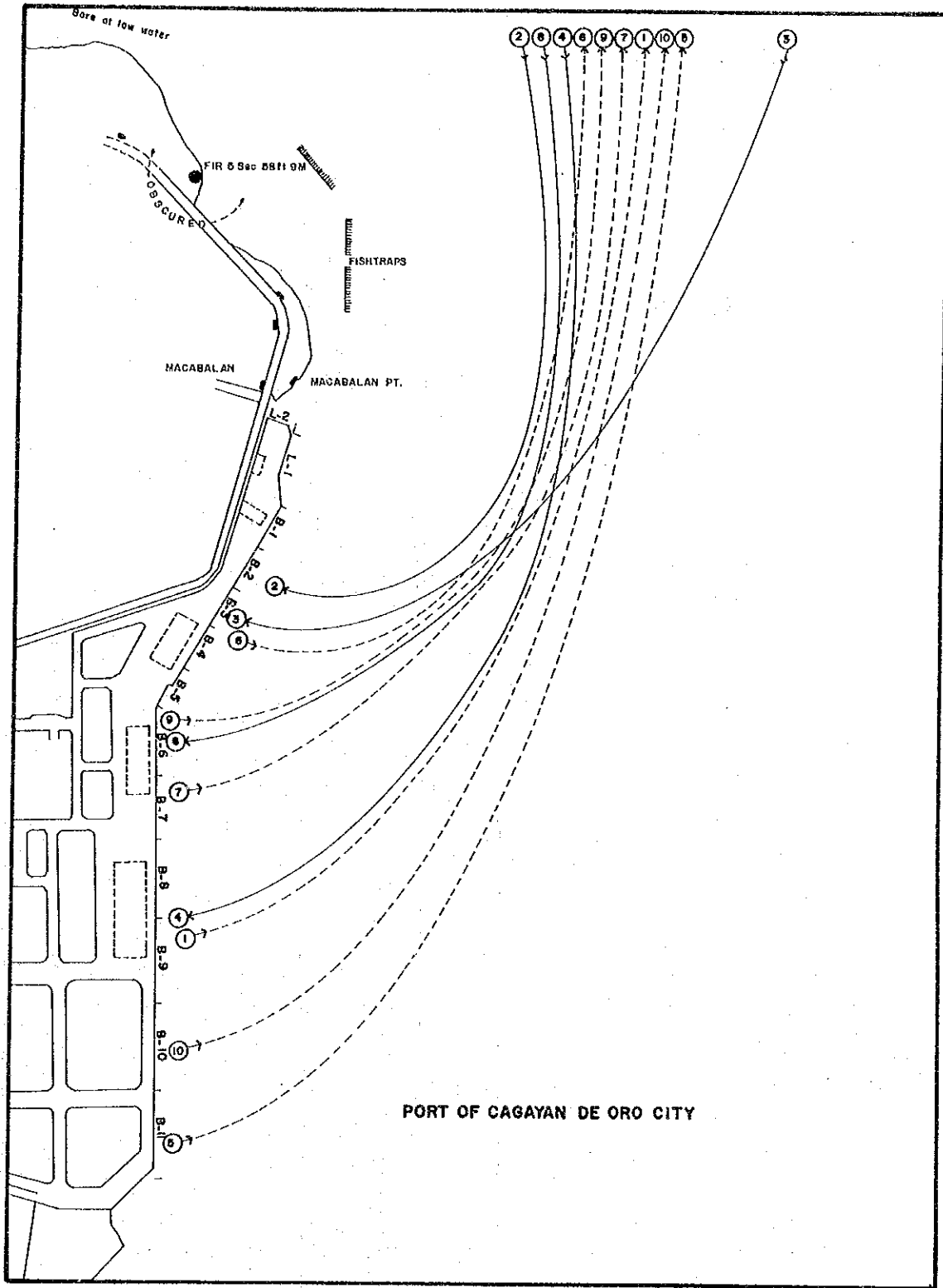
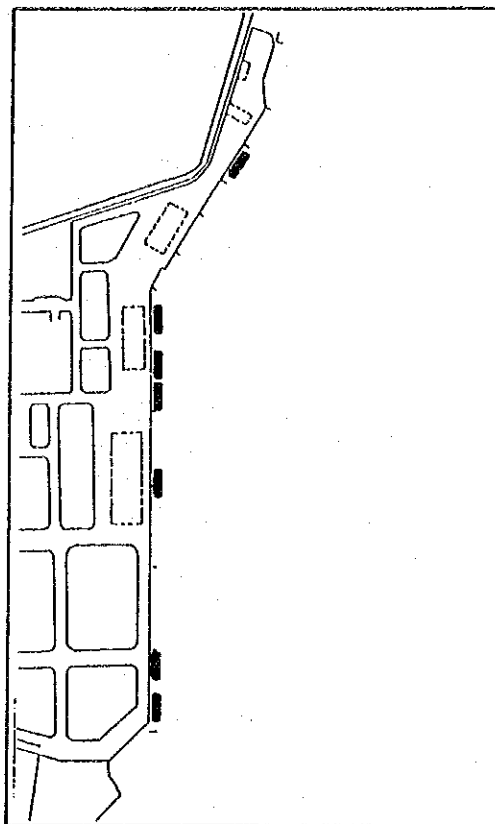
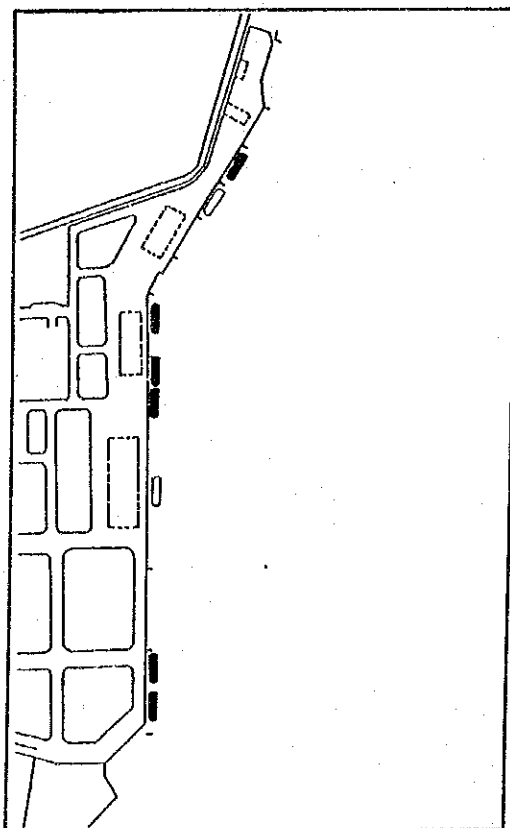


Figure 2.21
 Record of Anchorage Positions
 Cagayan de Oro Port, June 7, 1991

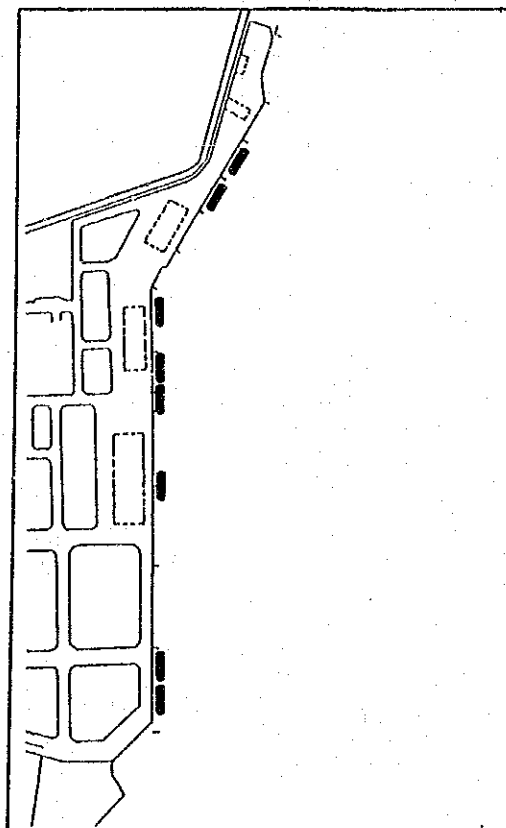
LEGEND:
 ○ NEWLY BERTHED VESSEL
 ● VESSEL AT BERTH



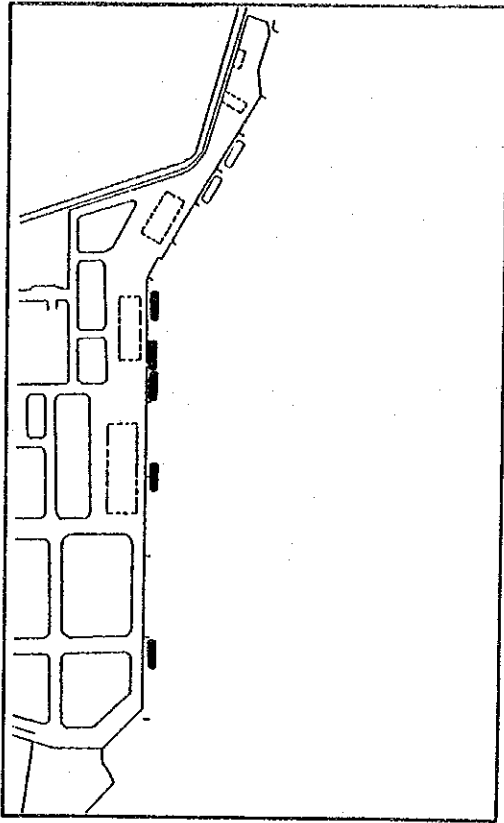
6 A.M.



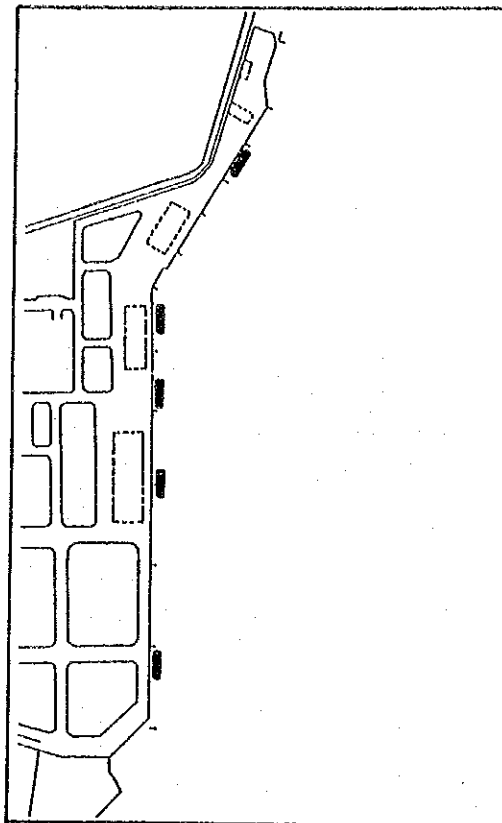
8 A.M.



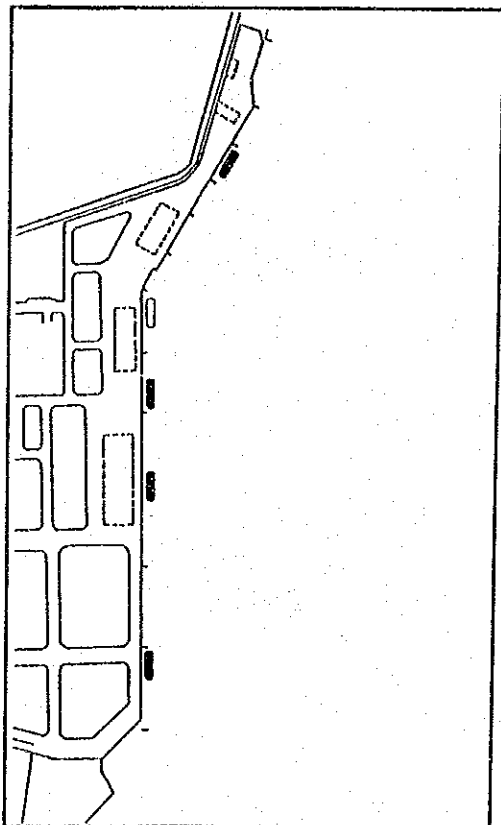
10 A.M.



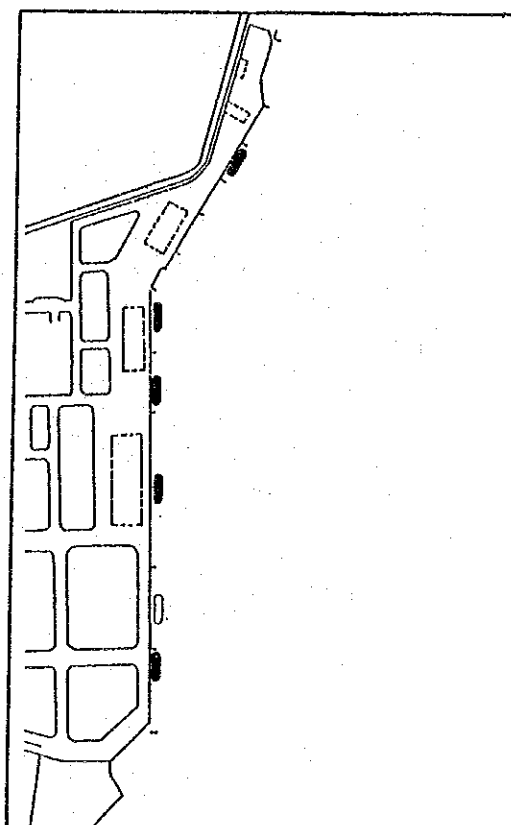
12 NOON



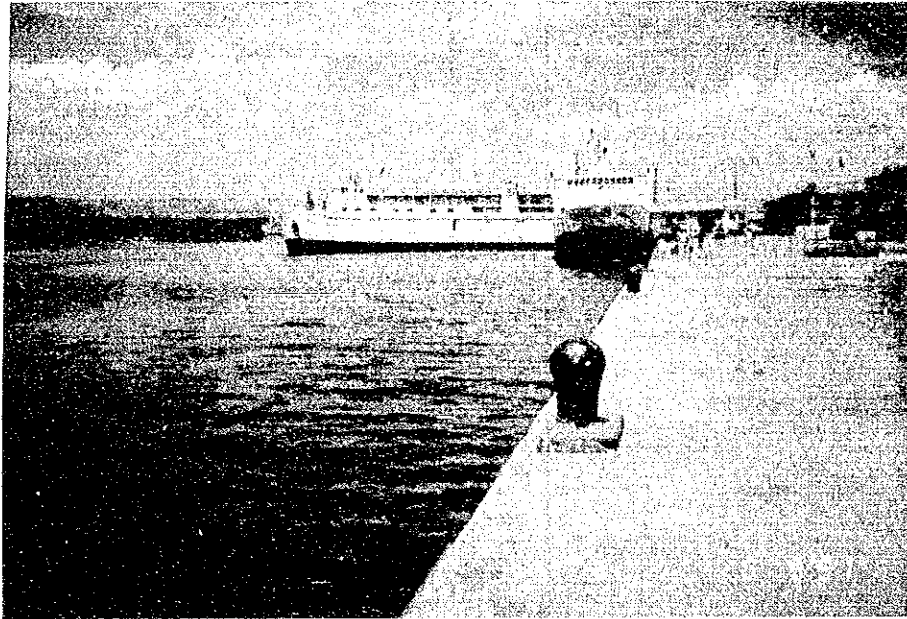
2 P.M.



4 P.M.



6 P.M.

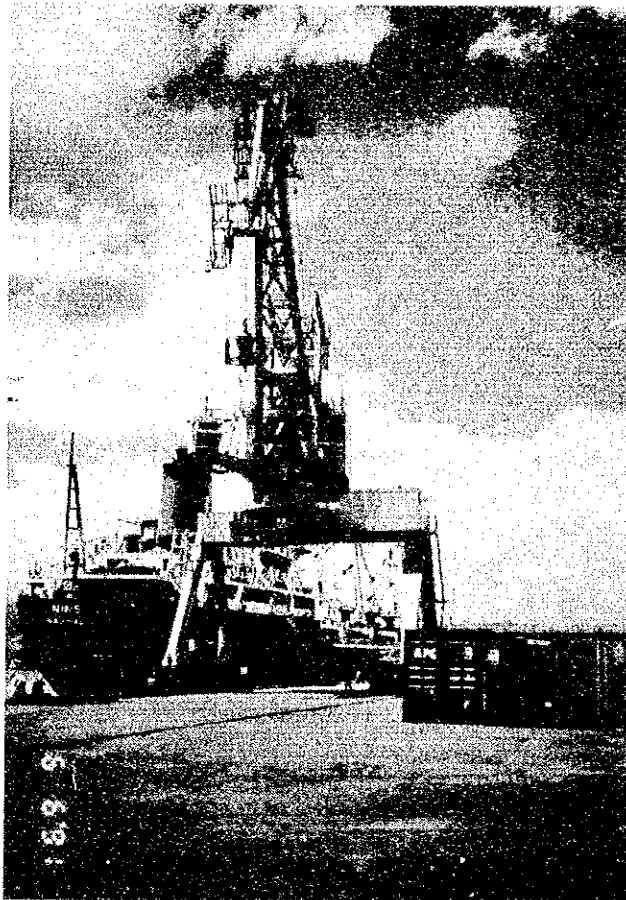


Picture CDO - 1

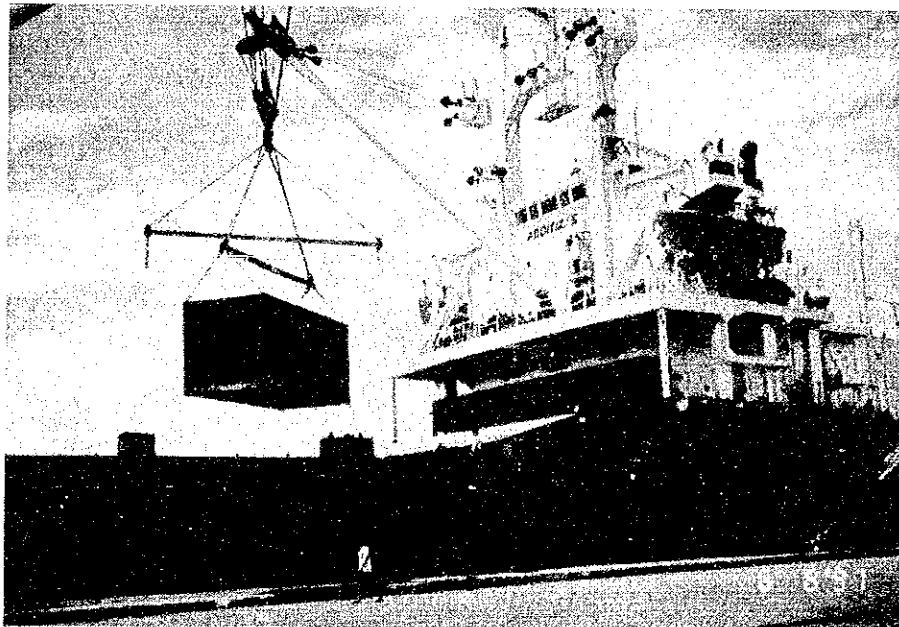


Picture CDO - 2

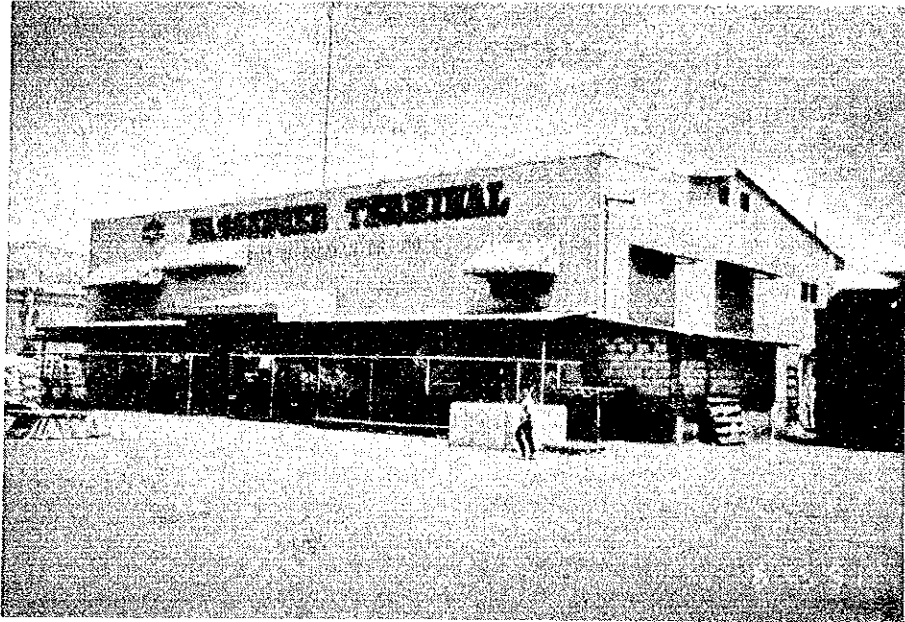
Modernized Stevedoring System



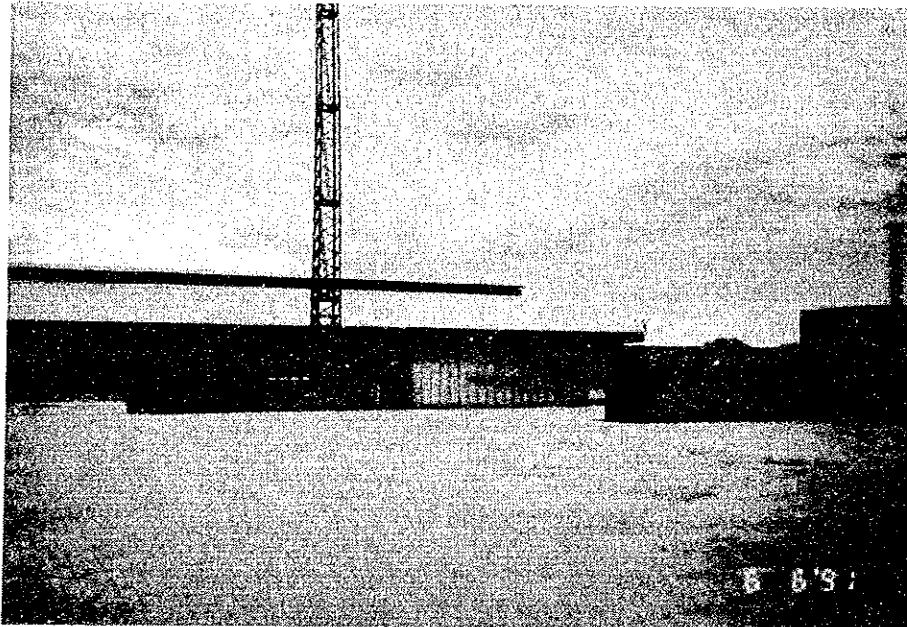
Picture CDO - 3
Big Crane in
possession of Port



Picture CDO - 4
Vessel equipped with a crane



Picture CDO - 5
Passenger Terminal



Picture CDO - 6
Container Freight Station

3. Survey on Aids to Navigation

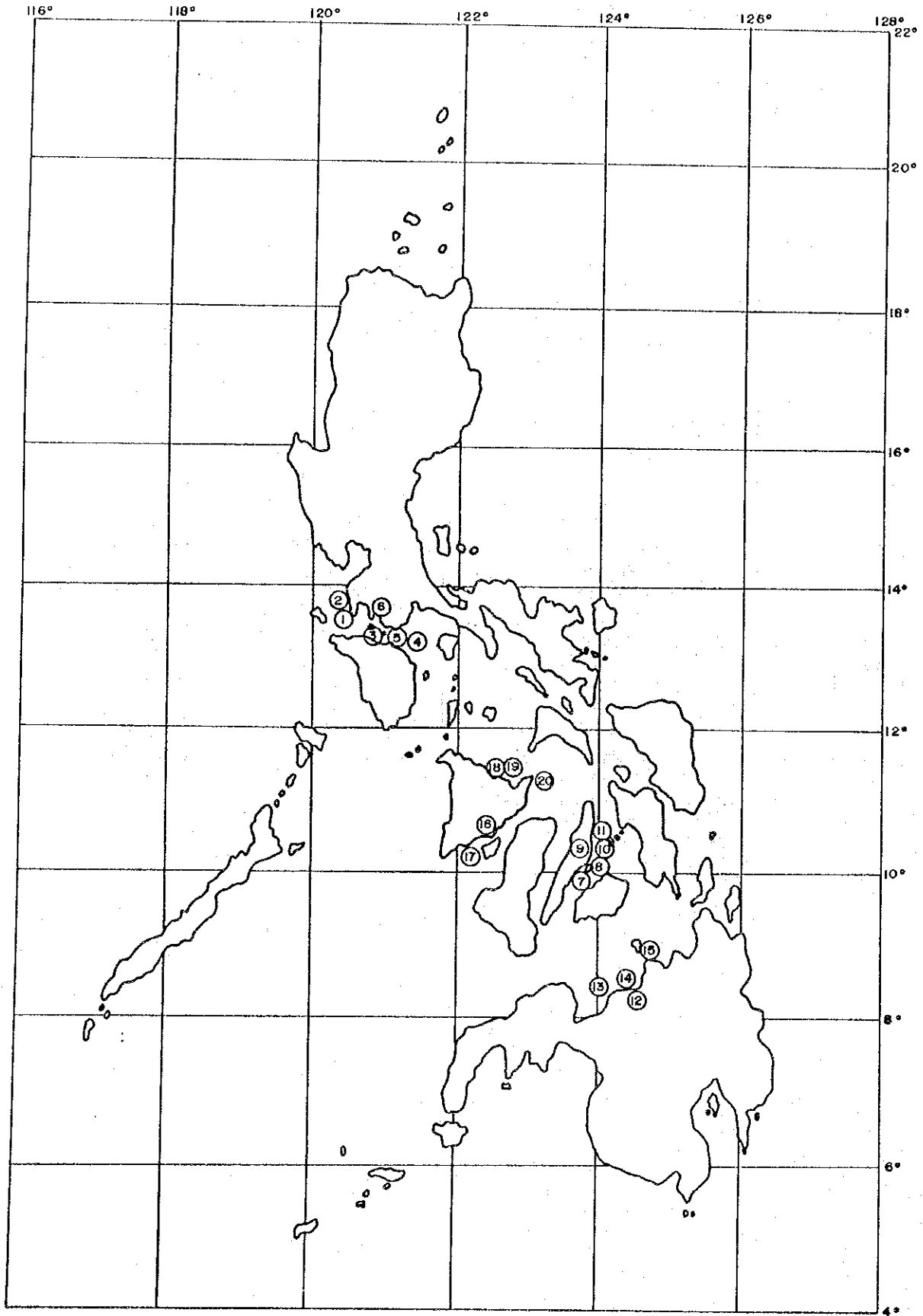
Survey on Aids to Navigation had been conducted at 20 stations from May 2 to May 23. Table 3.2 and Figure show the areas covered.

Table 3.2
List of Surveys Stations

SEQ. NO.	REGION	CG DIST	LIGHT STATION/ POINT, AREA SURVEYED	LOCATION	DATE
1	4	5	Cape Santiago LH	Calatagan	May 2
2	4	5	Calatagan Reef	off Calatagan	May 2
3*	4	5	Verde Is/Passage		May 3
4*	4	5	Baco Chico Is	off Calapan, Mindoro	May 4
5	4	5	Calapan LB	Calapan	May 4
6	4	5	Batangas LB	Batangas City	May 4
7	7	2	Lauis Ledge LB	off Talisay, Cebu	May 9
8*	7	2	Paguian Pt.	Paguian, Mactan	May 9
9	7	2	Bagacay LH	Liloan, Cebu	May 9
10*	7	2	Binongkaran Pt.	Binongkaran, Cebu	May 10
11	7	2	Bogo LB	off Bogo, Cebu	May 10
12	2	7	Macabalan Pt.	Cagayan de Oro	May 12
13*	2	7	Sulauan Pt.	Cagayan de Oro	May 13
14	2	7	OpoI	Cagayan de Oro	May 13
15	2	7	Balingoan	Cagayan de Oro	May 13
16	6	6	Iloilo Jetty (R)(G)	Iloilo City	May 20
17*	6	6	Iloilo Strait	off Iloilo	May 21
18	6	6	Capiz Jetty (R)(G)	Roxas City	May 22
19	6	6	Culasi Pt. LH	Roxas City	May 22
20	6	6	Manigonigo LH	Manigonigo Is	May 23

* - Site examination for proposed ATN

FIGURE
Location of Survey Stations

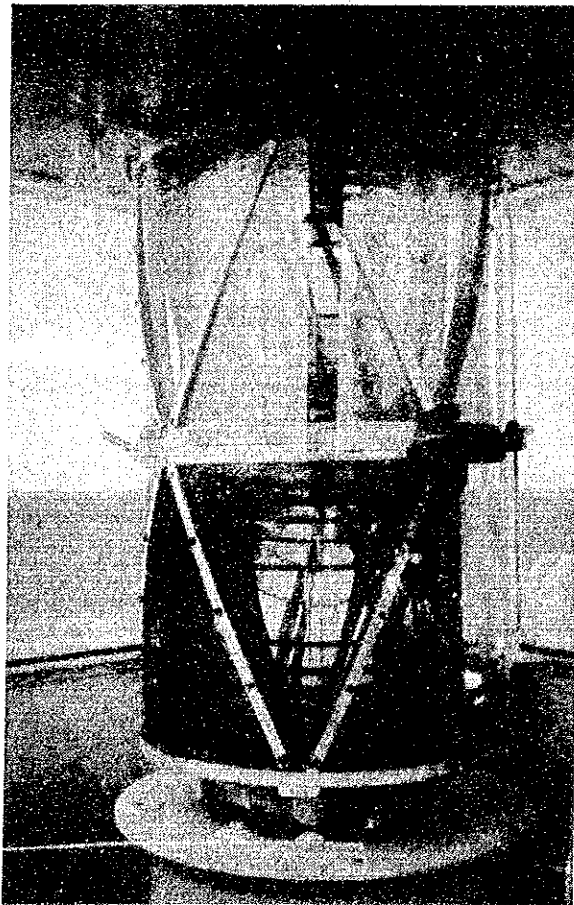


Seq. No.	1	Name	Cape Santiago LH	Survey Date	May 2, 1991	Location	Calapan, Batangas																																				
<p><u>Outline of Facility</u></p> <p>Tower : Built in 1890; structure is good : Window frames broken</p> <p>Lantern : Iron/steel frames, bay covered with heavy rust : Door missing : Many cracks in concrete platform : Lightning rod/wires missing</p> <p>Building : Associated bldgs. for office & dwelling well rehabilitated : Ceiling/walls broken : Some windows inoperable : Rain leakage in many parts</p> <p>Lighting : Very temporary Apparatus : Temporary electric wires temporary : No spare parts/no maint.tools : Dusty lens</p> <p>Power : Engine/generator functioning well : No elec. distribution box : No spare parts/maintenance tools</p> <p>Others : Fence down in many parts : Poor sanitary condition : Broken water storage/tank</p>																																											
<table border="1"> <thead> <tr> <th></th> <th>Excel- lent</th> <th>Good</th> <th>Ave- rage</th> <th>Poor</th> <th>Very Poor</th> </tr> </thead> <tbody> <tr> <td>1. Location</td> <td>v</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Building</td> <td></td> <td></td> <td>v</td> <td></td> <td></td> </tr> <tr> <td>3. Light</td> <td></td> <td></td> <td></td> <td>v</td> <td></td> </tr> <tr> <td>4. Operation</td> <td></td> <td></td> <td>v</td> <td></td> <td></td> </tr> <tr> <td>5. Maintenance</td> <td></td> <td></td> <td></td> <td>v</td> <td></td> </tr> </tbody> </table>					Excel- lent	Good	Ave- rage	Poor	Very Poor	1. Location	v					2. Building			v			3. Light				v		4. Operation			v			5. Maintenance				v		<p><u>Recommendation for Improvement</u></p> <ul style="list-style-type: none"> - Lantern house/lighting apparatus should be replaced. - Distribution wires should be replaced. - Electrical distribution box should be installed. - Fence/gate should be repaired. - Water supply system should be installed. - All drainage parts of structure should be replaced. 			
	Excel- lent	Good	Ave- rage	Poor	Very Poor																																						
1. Location	v																																										
2. Building			v																																								
3. Light				v																																							
4. Operation			v																																								
5. Maintenance				v																																							

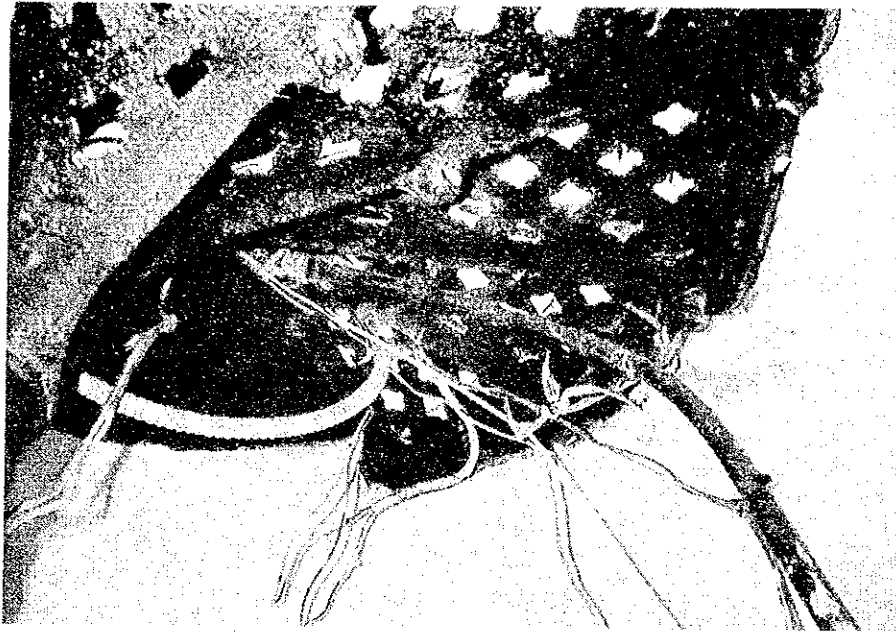
Seq. No.	2	Name	Calatagan Reef	Survey Date	May 2, 1991	Location	Calatagan, Batangas																																				
<p><u>Outline of Facility</u></p> <p>Structure : Beacon tower is good. There is no ladder for climbing; no fender for maintenance.</p> <p>Lantern : There is no lantern light.</p>																																											
<p><u>Maintenance & Operation</u></p>																																											
<table border="1"> <thead> <tr> <th></th> <th>Excel- lent</th> <th>Good</th> <th>Ave- rage</th> <th>Poor</th> <th>Very Poor</th> </tr> </thead> <tbody> <tr> <td>1. Location</td> <td></td> <td>v</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Building</td> <td></td> <td>v</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3. Light</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4. Operation</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5. Maintenance</td> <td></td> <td></td> <td></td> <td>v</td> <td></td> </tr> </tbody> </table>					Excel- lent	Good	Ave- rage	Poor	Very Poor	1. Location		v				2. Building		v				3. Light						4. Operation						5. Maintenance				v		<p><u>Recommendation for Improvement</u></p> <ul style="list-style-type: none"> - Tower elevation should be increased by at least 5 meters. - Lighting apparatus should be installed. - Ladder and fender should be installed. 			
	Excel- lent	Good	Ave- rage	Poor	Very Poor																																						
1. Location		v																																									
2. Building		v																																									
3. Light																																											
4. Operation																																											
5. Maintenance				v																																							



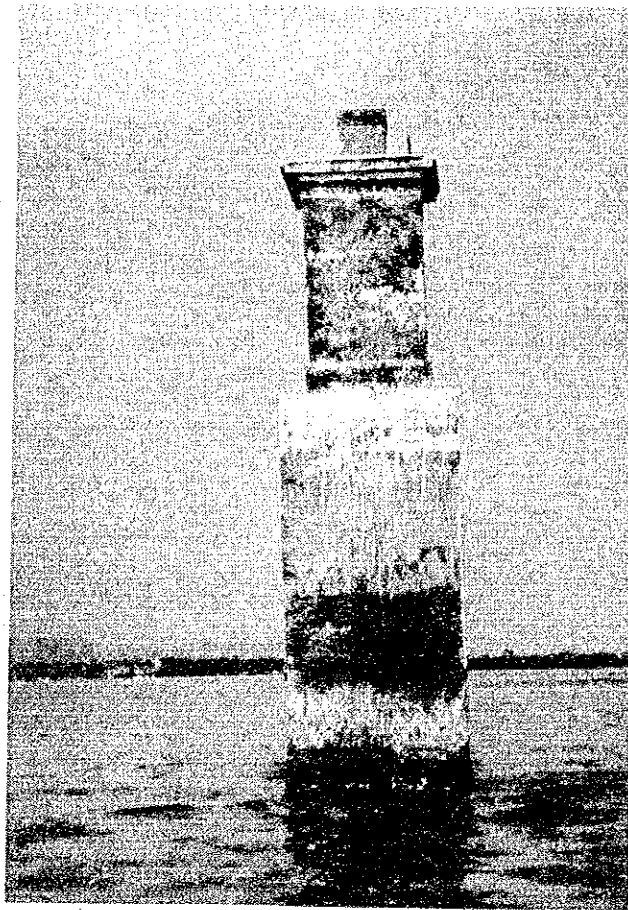
Picture 1-1 : Overview of Cape Santiago LH



Picture 1-2 : Lighting Apparatus



Picture 1-3 : Temporary Electric Wires



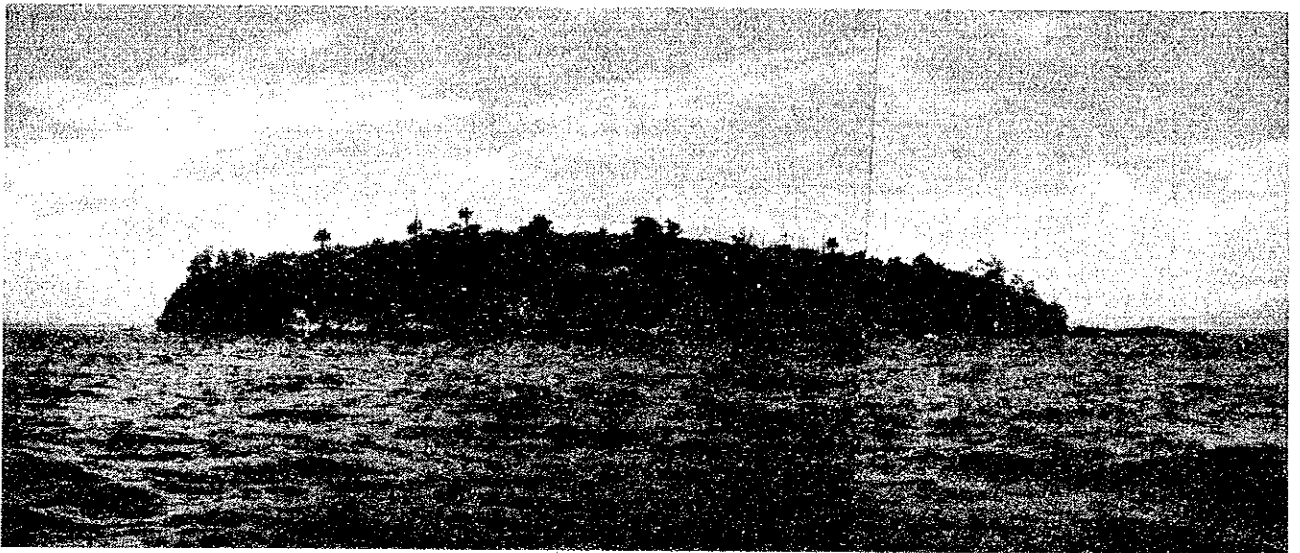
Picture 2-1 : Overview of Calatagan Reef Beacon

Seq. No.	Name	Verde Island Passage	Survey Date	May 3, 1991	Location	Verde Passage
<p><u>Site Examination</u></p> <ul style="list-style-type: none"> - High level of fishing activities. - Strong tidal current. 						
<p><u>Proposal for Construction</u></p> <ul style="list-style-type: none"> - New lighthouses should be established in West Pt./South Pt. of Verde Island. - Solar panels should be used for power supply. - Access should be provided to the Western Pt. - A jetty in South Pt. should be established. 						
<u>Evaluation</u>	Excel- lent	Good	Ave- rage	Poor	Very Poor	<u>Recommendation for Improvement</u>
1. Location						
2. Building						
3. Light						
4. Operation						
5. Maintenance						

Seq. No.	Name	Baco Chico Island	Survey Date	May 4, 1991	Location	Calapan, Oriental Mindoro
<p><u>Site Examination</u></p> <ul style="list-style-type: none"> - Located at the entrance of Verde Island Passage. 						
<p><u>Proposal for Construction</u></p> <ul style="list-style-type: none"> - A lighthouse should be constructed at the center of the island. - A large size beacon should be installed and a jetty constructed. - Access, passing through the channel, should be provided. 						
<u>Evaluation</u>	Excel- lent	Good	Ave- rage	Poor	Very Poor	<u>Recommendation for Improvement</u>
1. Location						
2. Building						
3. Light						
4. Operation						
5. Maintenance						



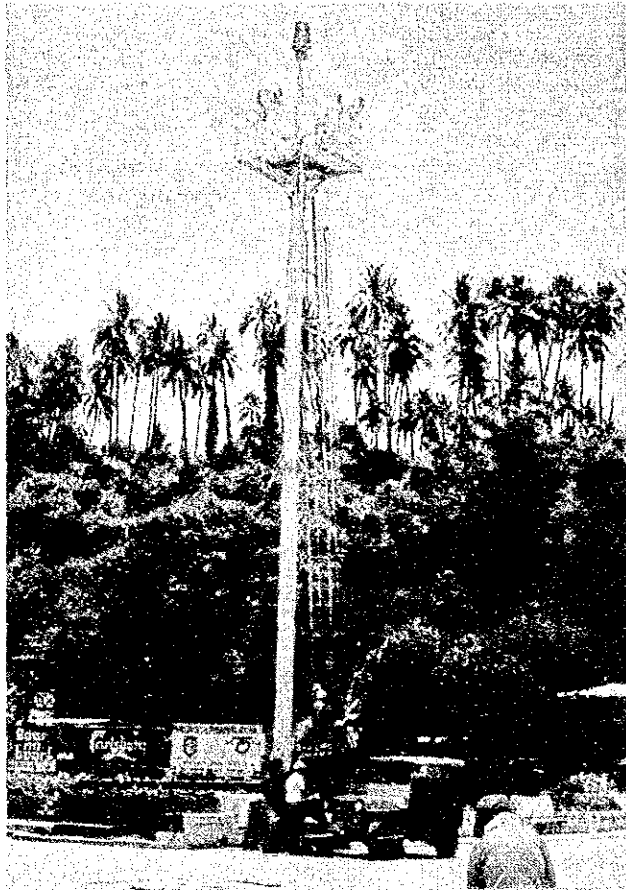
Picture 3-1 : Proposed Point



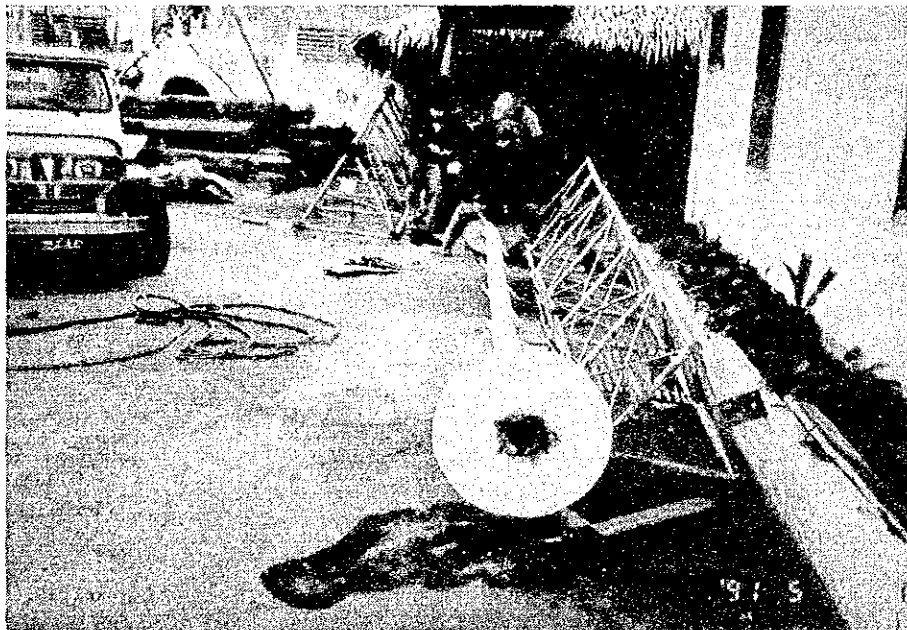
Picture 4-1
Overview of Baco Chico Island

Seq. No.	Name	Calapan LB	Survey Date	May 4, 1991	Location	Calapan, Oriental Mindoro
<u>Outline of Facility</u> Structure : The light installed is located at the wharf. The tower is too slender and is not visible.						
<u>Maintenance & Operation</u> - Maintenance is at a very good level.						
<u>Evaluation</u>		Excel- lent	Good Ave- rage	Poor Very Poor	<u>Recommendation for Improvement</u>	
1) Location				v	- Power supply should be changed to solar panel.	
2) Building				v	- Tower should be built into a single one or a day mark board should be installed at the upper part of the existing lighting pole.	
3) Light		v				
4) Operation			v			
5) Maintenance		v				

Seq. No.	Name	Batangas LB	Survey Date	May 4, 1991	Location	Batangas City
<u>Outline of Facility</u> Structure : Height of tower is low and hardly visible from sea. : Tower is presently under construction, to increase height.						
<u>Maintenance & Operation</u> - Maintenance is at a very good level.						
<u>Evaluation</u>		Excel- lent	Good Ave- rage	Poor Very Poor	<u>Recommendation for Improvement</u>	
1. Location				v	- Complete tools for maintenance should be supplied.	
2. Building				v		
3. Light		v				
4. Operation			v			
5. Maintenance		v				



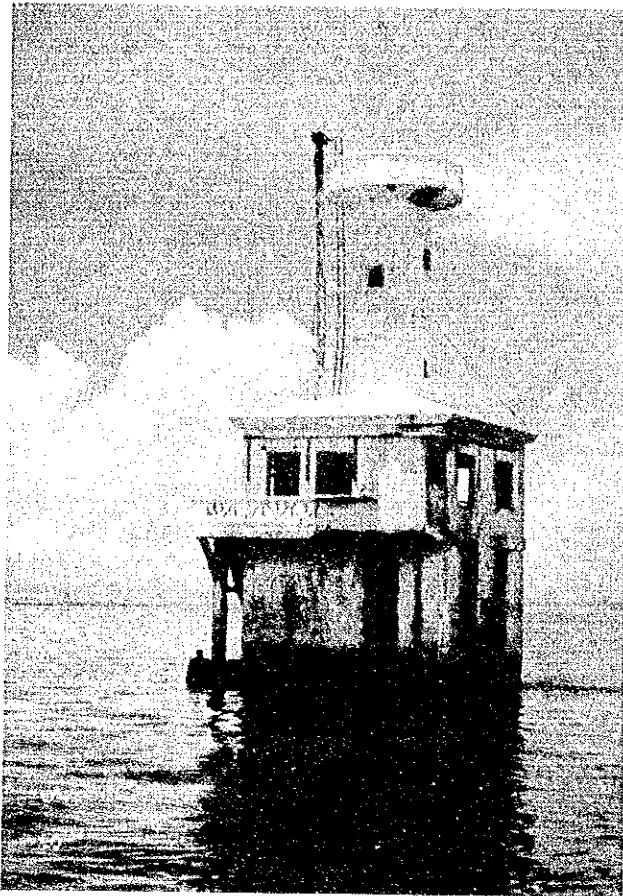
Picture 5-1
Overview of Calapan
Lightbeacon



Picture 6-1 : The site of tower
construction in Batangas

Seq. No.	Name	Louis Ledge LII	Survey Date	May 9, 1991	Location	Cebu Port
<u>Outline of Facility</u>						
Tower : The structure base was well constructed. : Upper part of the power room, apparatus room and some storage rooms are almost destroyed. : Many parts of the ceiling/wall are broken down, with reinforcing steels bars of concrete wall/ceiling exposed.						
Lighting : Lighting apparatus functioning well.						
Apparatus : Lead battery not kept in good condition. : Base plate of lantern covered with rust. : No spare parts and tools for maintenance/operation.						
Lantern : There is no lantern house; a small lantern is temporarily used. : There is not enough space for a standard lantern.						
Others : Concrete handrail missing.						
<u>Evaluation</u>	Excel- lent	Good	Ave- rage	Poor	Very Poor	<u>Recommendation for Improvement</u>
1) Location		v				- A large size lantern should be installed.
2) Building				v		- Luminous intensity should be much higher.
3) Light			v			- The windows should be enclosed with glass bricks.
4) Operation					v	- A jetty has should be installed on the other side of the tower.
5) Maintenance				v		- A handrail should be installed.

Seq. No.	Name	Panguian Pt.	Survey Date	May 9, 1991	Location	Mactan Island, Cebu
<u>Site Examination</u>						
- Panguian Pt. is the bifurcation point between the north entrance of Cebu Port and Hihitangan Channel. - It is located at the northernmost tip of Mactan Island. - Land elevation is less than 5 meters above sea level and the terrain is flat.						
<u>Proposal for Construction</u>						
- A medium size light beacon should be installed. - Solar power should be used for power supply. - An access path should be provided for maintenance.						



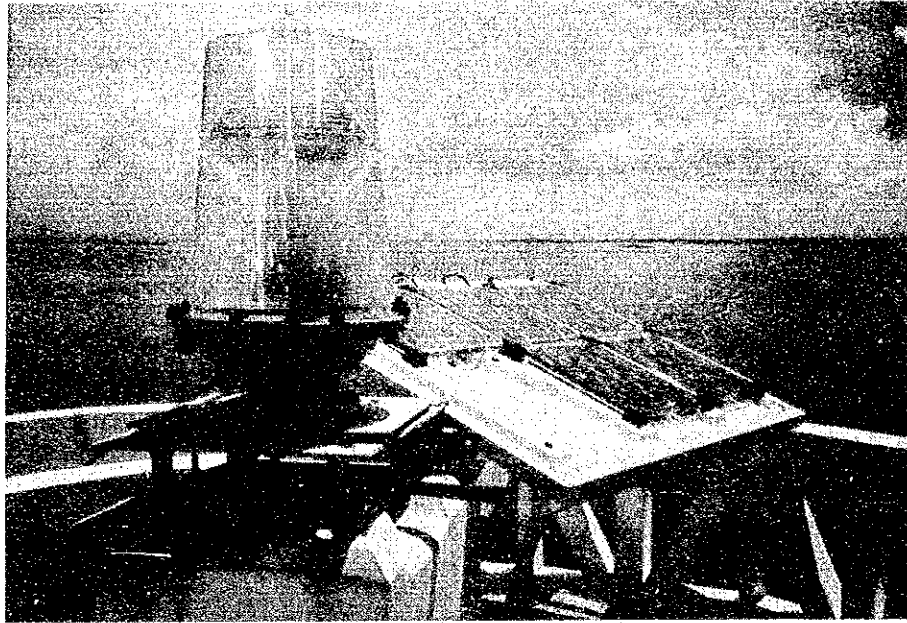
Picture 7-1

Overview of Laois
Ledge LH

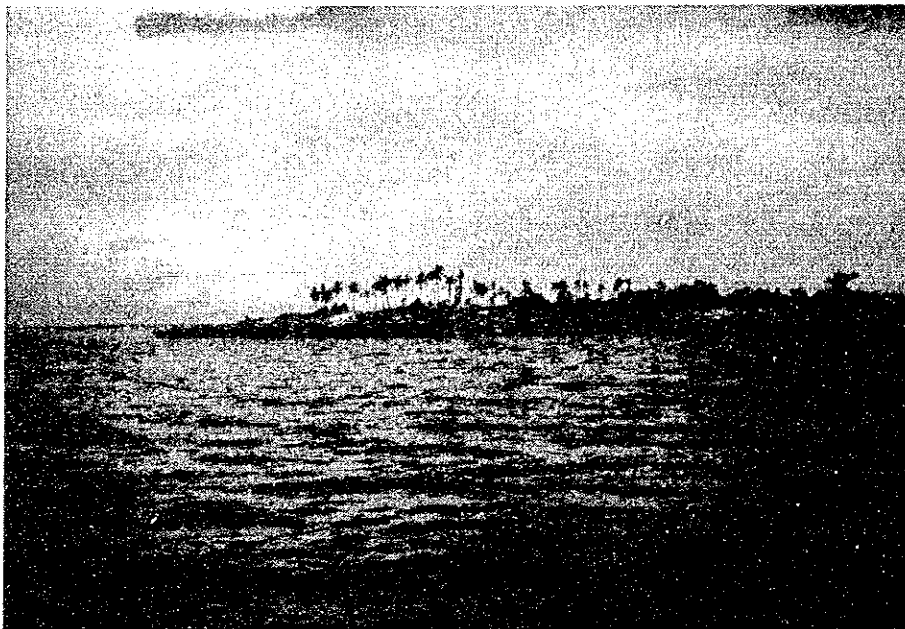


Picture 7-2

Damaged Starway



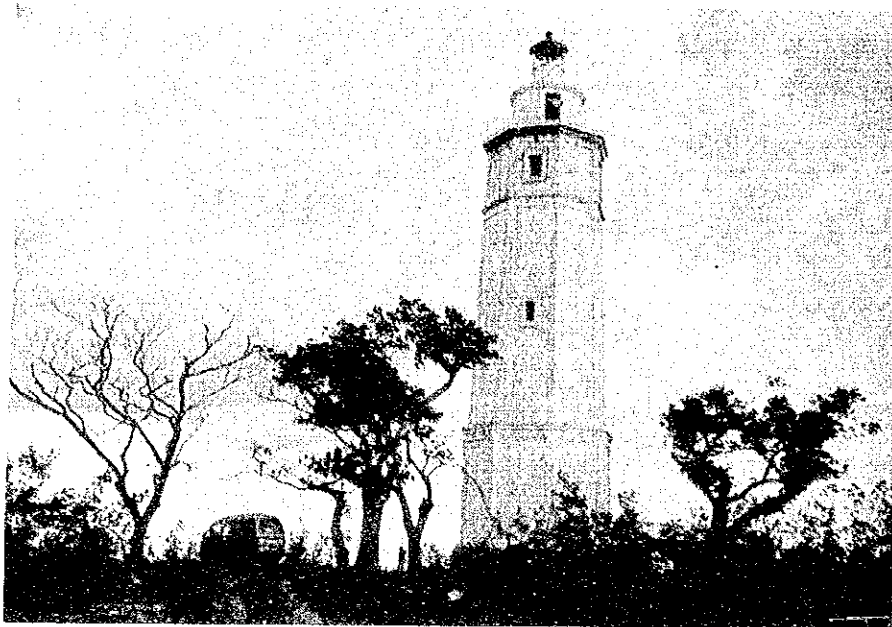
Picture 7-3 : Lantern and Solar Pannel



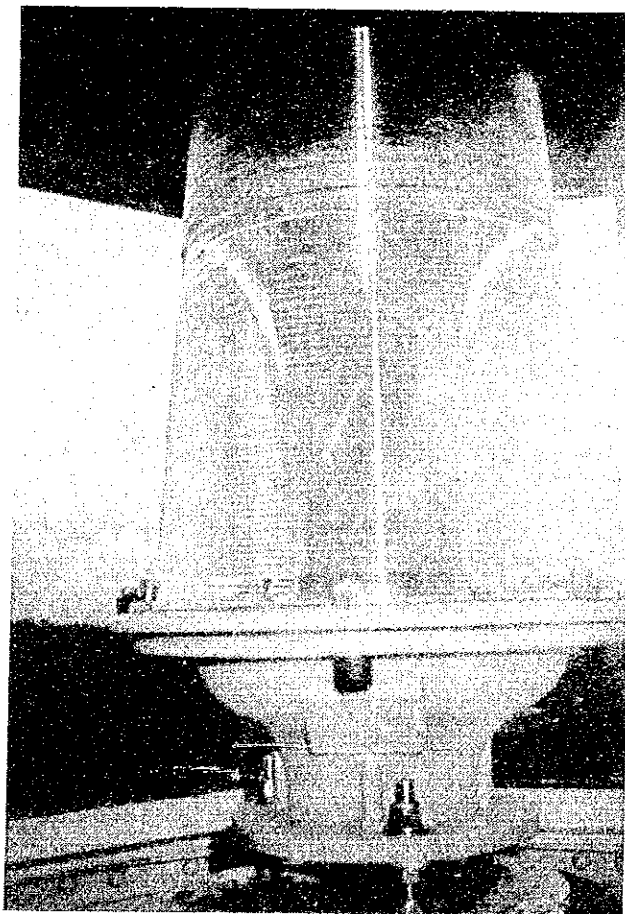
Picture 8-1 : Proposed Site at
Panguian Pt.

Seq. No.	Name	Bagacay LH	Survey Date	May 9, 1991	Location	Lilo-an, Cebu
<u>Outline of Facility</u>						
Tower	:	Tower was built in 1904; structure is still good. : Windows are broken; some closed with wooden boards. : There are no lighting rod and appropriate wiring. : Rain leaks through broken windows, lower platform. : Upper door can not be completely closed due to broken hinge. : Platform floor has cracks, allowing water to seep through, causing decay of concrete structures below.				
Building	:	Lightkeeper's house destroyed by strong typhoon and is unlivable. : Power supply house roof also destroyed by typhoon; engine is wet every time it rains.				
Light Apparatus	:	Old apparatus not functioning. : Spare parts and tools not available. : New light is in good operation, although luminous intensity is very poor, as a landfall mark, considering that this is a major lighthouse. : Lantern glasses are unsealed.				
<u>Evaluation</u>		Excel- lent	Good Ave- range	Poor 	Very Poor	<u>Recommendation for Improvement</u>
1. Location			v			- The platform floor should be immediated replaced with a water-proof concrete floor immediately.
2. Building				v		- Temporary apparatus should be replaced with rotary lighting system, and local electricity should be introduced for main power supply system. Engine/generator should be used for emergency power supply.
3. Light					v	- The original apparatus should be placed in other facilities (e.g. museum).
4. Operation					v	- The destroyed house/power supply building should be reconstructed.
5. Maintenance					v	

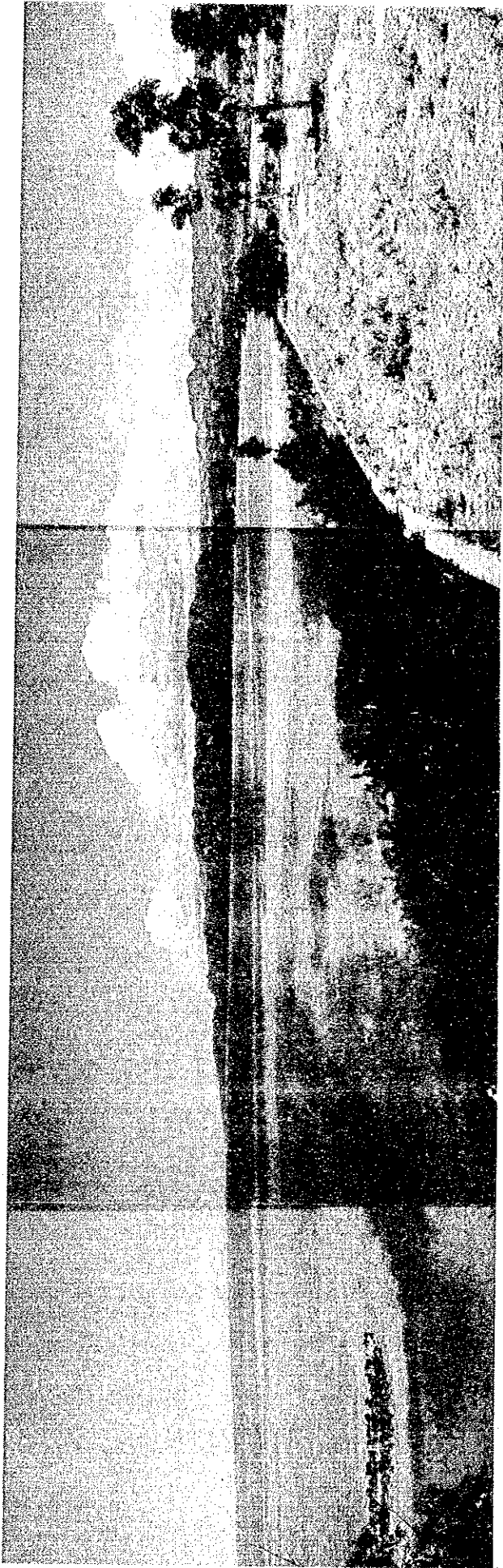
Seq. No.	Name	Binongkalan Pt.	Survey Date	May 10, 1991	Location	Binongkalan, Cebu
<u>Site Examination</u>						
- Point faces main traffic route between Manila to Cebu. - Point is situated between two major lighthouses (i.e., Capitancillo and Bagacay Pt.). - Luminous ranges of both lighthouses do not overlap. - Site has inadequate land elevation.						
<u>Proposal for Construction</u>						
- A large type of light beacon should be built. - Local power source should be used for main power supply.						



Picture 9-1 : Overview of Bagacay Lighthouse



Picture 9-2 Lantern Apparatus



Picture 10-1 Proposed Site