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Compilation of Data Sources Used to Construct Mine Warfare Data Bases for the Northern Arabian Sea, Celebes Sea, and Makassar Strait

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14. ABSTRACT

The purpose of this report is to document the data sources that were used to construct maps and digital databases of bottom-sediment type for the Northern Arabian Sea, Celebes Sea, and Makassar Strait (see the attached figures showing the approximate boundaries of the mapped areas).

15. SUBJECT TERMS

Sediment maps; Mine warfare; Database; Arabian Sea; Celebes Sea; Makassar Strait

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CONTENTS

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Objective

The purpose of this report is to document the data sources that were used to construct maps and digital databases of bottom-sediment type for the Northern Arabian Sea, Celebes Sea, and Makassar Strait (see the attached figures showing the approximate boundaries of the mapped areas).

Approach

The following is a brief outline of the approach used to construct bottom-sediment maps for each region. For a more detailed discussion see Bowles and Phelps (1999; Naval Research Laboratory Report NRL/MR/7432—99-8223).

1. National Imagery and Mapping Agency (NIMA) nautical charts are used as the working (base) charts for each region. These charts are readily available from the NAVOCEANO library and feature bottom sediment data in addition to bathymetric data and coastlines.
2. An extensive literature and institutional search is performed to identity and acquire existing bottom-sediment data in each region. These data are in the form of point data (core, dredge, grab samples) with associated sediment-type descriptors, or existing sediment-type boundary maps.
3. As data is acquired, it is carefully assessed, geo-referenced (in the case of existing sediment maps) and transferred to the base charts. Once all the data is transferred, boundaries are drawn around the point data designating areas (provinces) of similar sediment type. These province boundaries are then merged with the boundaries from existing sediment maps.
4. Upon completion of the maps, the information on each map is digitized. The digitized information consists of separate files for land boundaries, sediment-province boundaries, and point data. The point data files consist of individual files for sand, silt, clay, rock, etc. The sediment nomenclature used to identify bottom type follows the enhanced "200 Categories" set defined in the current NAVOCEANO Master Sediment Tables.

Manuscript approved November 29, 2004.

Discussion

It should be noted that the primary difficulties encountered in mapping the regions below are (1) poor sample density, and (2) difficulty in obtaining foreign data in a reasonable timeframe, if at all. Moreover, it is difficult to know which foreign publications to acquire. Many that where obtained did not contain useful information (e.g., core locations with descriptions or analyses, sediment-province maps,). Therefore, it is difficult to assess whether the time invested in acquiring all the foreign data would result in significant improvements to the present sediment-province maps.

NORTHERN ARABIAN SEA

NIMA Charts

62353	62310	62093	92040
62350	62306	62092	
62344	62302	62091	
62342	62302(plan)	62091(plan)	
62340	62105	62090	
62330	62100	62080	
62320	62098	62070	
62313	62097	62050	
62312	62094	62046	

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CELEBES SEA – MAKASSAR STRAIT:

NIMA Charts - Celebes Sea

92280	92200	72143
92270	92190	72142
92260	92180	72142(plan)
92240	92170	72141
92230	92170(plan)	72130
92220	92101	72120
92216	73012	92242-plans A,B,C
92214	72173	73341-plan A
92210	72150	73341-plan J (includes plans B-H, K)
		73441-plan L (includes plans M, N)

NIMA Charts - Makassar Strait

72186	72085
72181	72084
72171	72084(plan)
72131(plan)	72080
72110	72075
72109	72070
92109(plans A,B)	
72107	
72105	
72103	
72101	
72100	

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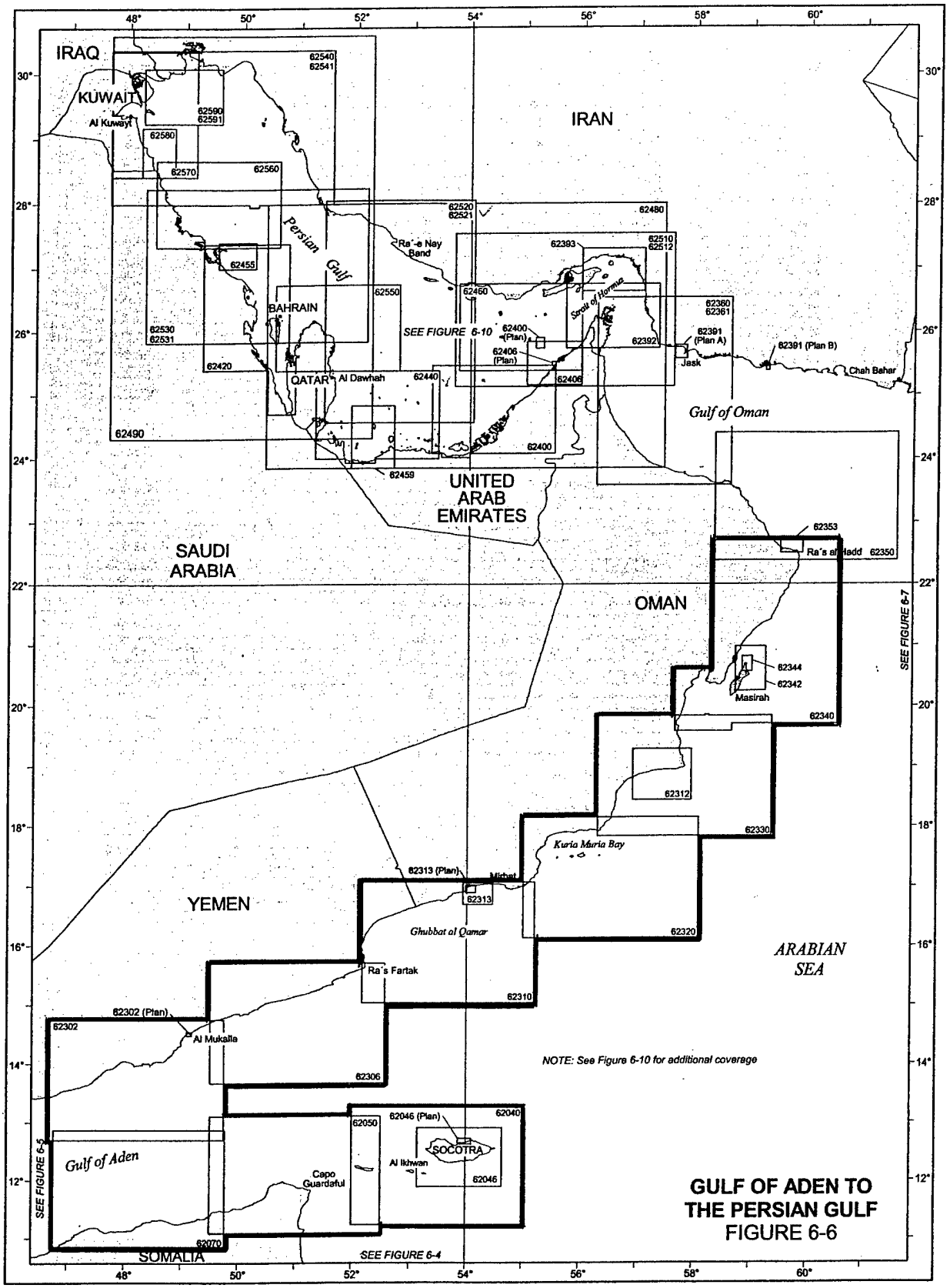


GULF OF ADEN TO THE PERSIAN GULF
FIGURE 6-6

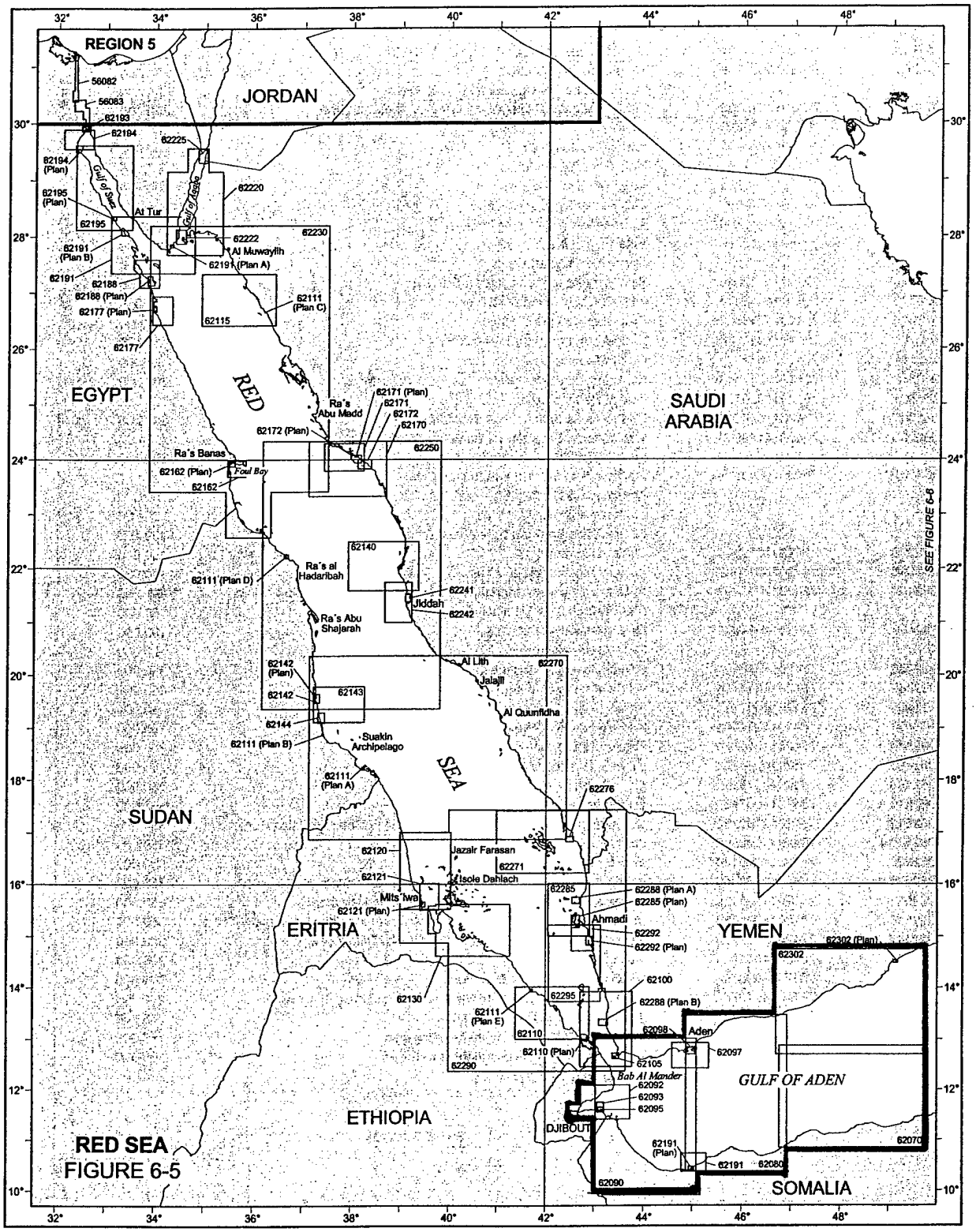
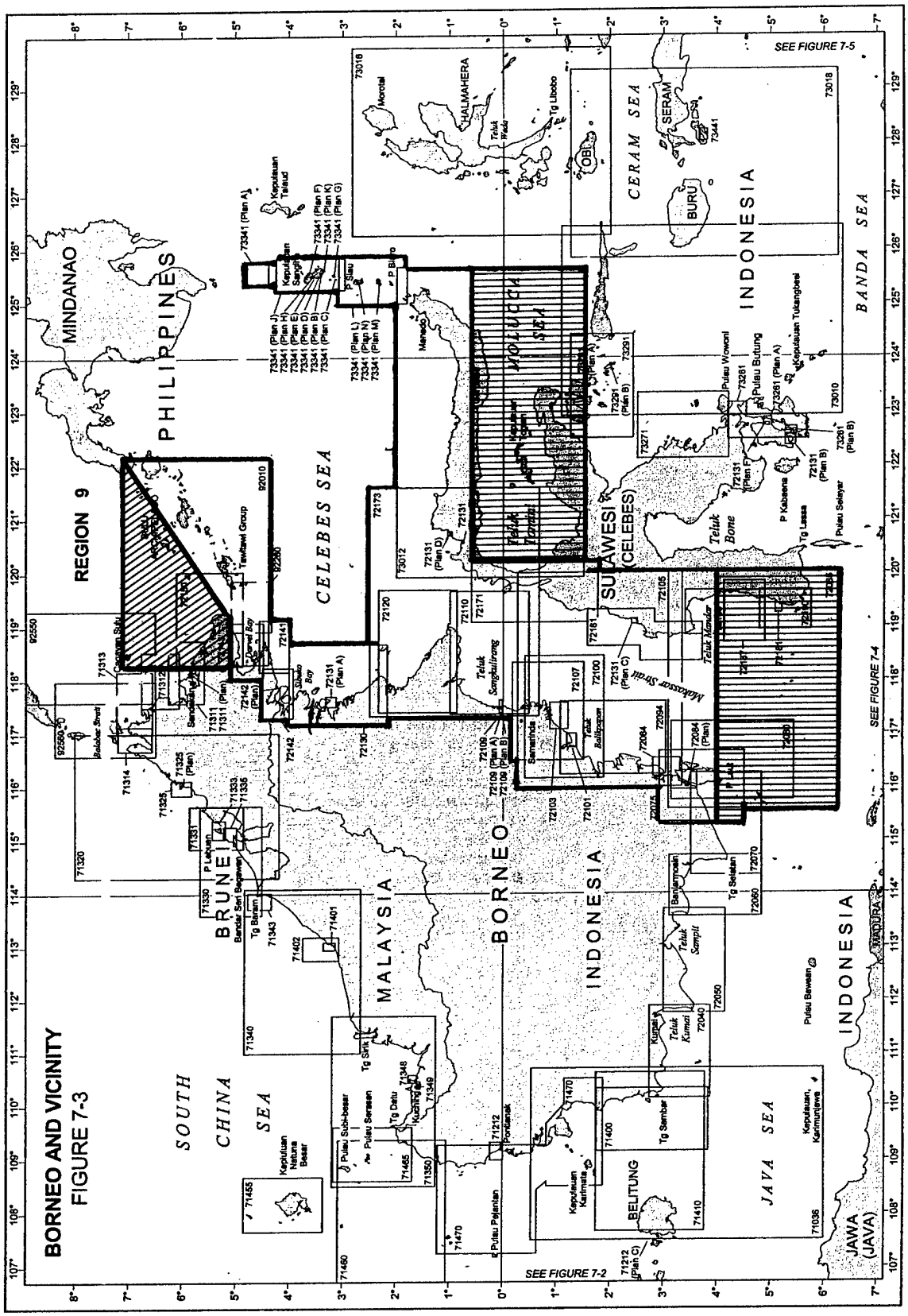
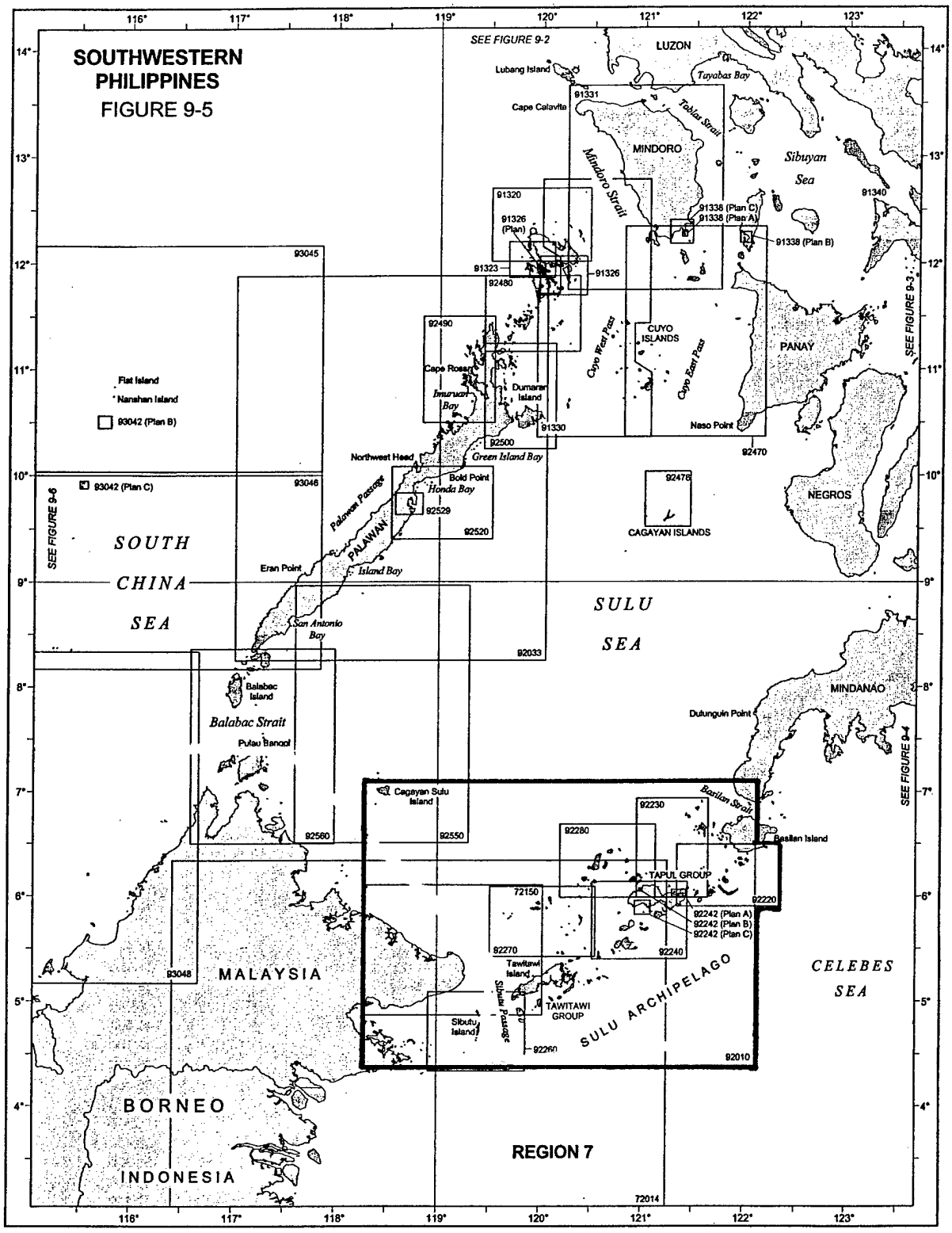
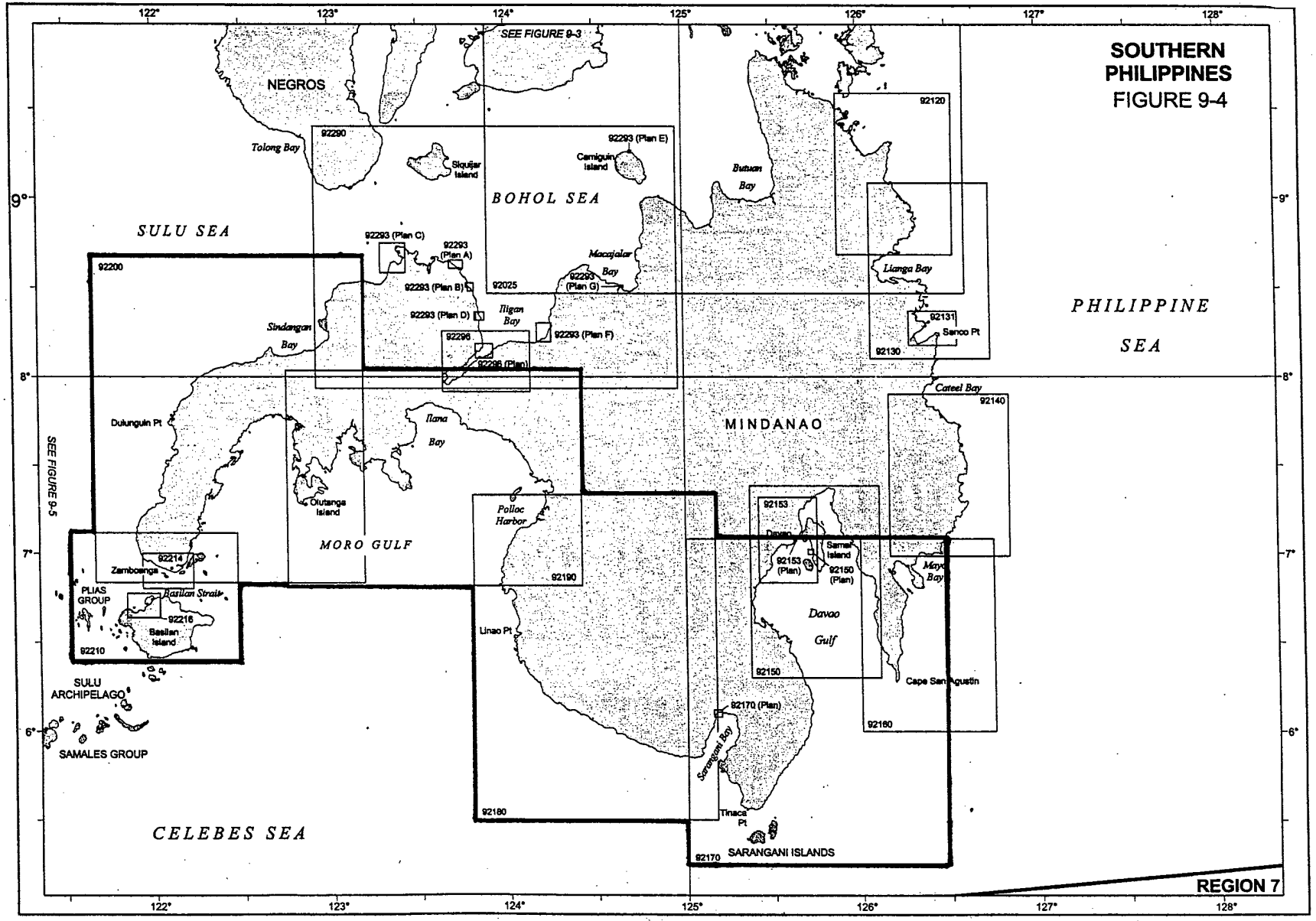

REGION 5
JORDAN
EGYPT
SAUDI ARABIA
RED SEA
SUDAN
ERITRIA
ETHIOPIA
YEMEN
DJIBOUTI
SOMALIA
GULF OF ADEN
Gulf of Suez
Gulf of Aqaba
Al Tur
Al Muwaylih
Ra's Abu Madd
Ra's Banas
Foul Bay
Ra's al Hadaribah
Jiddah
Ra's Abu Shajarah
Al Lith
Jalajil
Al Quunfidha
Suakin Archipelago
Jazair Farasan
Isole Dahlach
Mits'iwa
Ahmadi
Aden
Bab Al Mander
SEE FIGURE 6-6
56082
56083
62193
62194
62225
62194 (Plan)
62195 (Plan)
62195
62220
62222
62191 (Plan B)
62191
62188
62188 (Plan)
62177 (Plan)
62177
62230
62219 (Plan A)
62115
62111 (Plan C)
62171 (Plan)
62171
62172
62170
62172 (Plan)
62250
62162 (Plan)
62162
62140
62111 (Plan D)
62241
62242
62142 (Plan)
62142
62143
62144
62111 (Plan B)
62111 (Plan A)
62270
62276
62120
62271
62121
62121 (Plan)
62285
62288 (Plan A)
62285 (Plan)
62292
62292 (Plan)
62302
62302 (Plan)
62100
62295
62288 (Plan B)
62130
62111 (Plan E)
62110
62110 (Plan)
62098
62105
62097
62290
62092
62093
62095
62191 (Plan)
62191
62080
62070
62090

FIGURE 6-5


BORNEO AND VICINITY
FIGURE 7-3
REGION 9
PHILIPPINES
MINDANAO
CELEBES SEA
SULAWESI (CELEBES)
INDONESIA
MALAYSIA
BRUNEI
BORNEO
SOUTH CHINA SEA
CERAM SEA
BANDA SEA
JAVA SEA
MOLUCCA SEA
HALMAHERA
SERAM
BURU
OBI
MADURA
JAWA (JAVA)
BELITUNG
SEE FIGURE 7-5
SEE FIGURE 7-4
SEE FIGURE 7-2


SOUTHWESTERN PHILIPPINES
FIGURE 9-5
SEE FIGURE 9-2
LUZON
Lubang Island
Tayabas Bay
Cape Calavite
91331
Tablas Strait
MINDORO
Mindoro Strait
Sibuyan Sea
91340
91320
91326 (Plan)
91338 (Plan C)
91338 (Plan A)
91338 (Plan B)
91323
91326
92480
93045
92490
CUYO ISLANDS
Cuyo West Pass
Cuyo East Pass
PANAY
SEE FIGURE 9-3
Cape Rosario
Dumaran Island
Imuruan Bay
91330
Naso Point
92470
Flat Island
Nanshan Island
93042 (Plan B)
92500
Northwest Head
Green Island Bay
93042 (Plan C)
93046
Bold Point
Honda Bay
92529
92520
92478
NEGROS
CAGAYAN ISLANDS
SEE FIGURE 9-6
Palawan Passage
PALAWAN
Eran Point
Island Bay
SOUTH CHINA SEA
SULU SEA
San Antonio Bay
92033
Balabac Island
Balabac Strait
Pulau Banggi
MINDANAO
Dutungutin Point
SEE FIGURE 9-4
Cagayan Sulu Island
92230
Basilan Strait
92280
92550
92560
Basilan Island
TAPUL GROUP
72150
92220
92242 (Plan A)
92242 (Plan B)
92242 (Plan C)
92270
92240
93048
MALAYSIA
Tawitawi Island
Sibutu Passage
TAWITAWI GROUP
SULU ARCHIPELAGO
CELEBES SEA
Sibutu Island
92260
92010
BORNEO
INDONESIA
REGION 7
72014


SOUTHERN PHILIPPINES
FIGURE 9-4
SEE FIGURE 9-3
NEGROS
Tolong Bay
92290
Siquijor Island
92293 (Plan E)
Camiguin Island
BOHOL SEA
Butuan Bay
92120
SULU SEA
92293 (Plan C)
92293 (Plan A)
92293 (Plan B)
92293 (Plan D)
92293 (Plan G)
Macajalar Bay
92025
Liangga Bay
92131
Senco Pt
92130
PHILIPPINE SEA
92200
Sindangan Bay
Iligan Bay
92296
92293 (Plan F)
92296 (Plan)
Cateel Bay
92140
MINDANAO
Dulunguin Pt
Ilana Bay
Olutanga Island
MORO GULF
Polloc Harbor
92190
92153
Davao
Samal Island
92153 (Plan)
92150 (Plan)
Mayo Bay
SEE FIGURE 9-5
92214
Zamboanga
PLIAS GROUP
Basilan Strait
92216
Basilan Island
92210
Davao Gulf
92150
Linao Pt
Cape San Agustin
92160
92170 (Plan)
SULU ARCHIPELAGO
SAMALES GROUP
Sarangani Bay
92180
Tinaca Pt
CELEBES SEA
92170
SARANGANI ISLANDS
REGION 7
122°
123°
124°
125°
126°
127°
128°
9°
8°
7°
6°