

NAVAL POSTGRADUATE SCHOOL  
Monterey, California

AD-A277 225



94-09266



DTIC  
ELECTE  
MAR 25 1994  
S E D

THESIS

INTERNATIONAL AND REGIONAL TRENDS  
IN MARITIME PIRACY 1989-1993

by

Mark C. Farley

December, 1993

Thesis Advisor:

Gordon H. McCormick

Approved for public release; distribution is unlimited.

04 3 24 075

DTIC QUALITY INSPECTED 1

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.			
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE December 1993.	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE INTERNATIONAL AND REGIONAL TRENDS IN MARITIME PIRACY 1989-1993		5. FUNDING NUMBERS	
6. AUTHOR(S) Mark C. Farley			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey CA 93943-5000		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.			
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.		12b. DISTRIBUTION CODE *A	
13. ABSTRACT (maximum 200 words) This thesis records the results of a data-based analysis of worldwide maritime piracy incidents against commercial merchant shipping from January 1989 to September 1993. The intent of developing this database was to create the framework that permits a rigorous statistical analysis of maritime piracy. It begins with a <i>descriptive</i> assessment of the scope and impact of piracy worldwide. Next, it identifies the statistically supportable regional and international trends in maritime piracy over the last five years. The database has been designed at the unclassified level to allow maximum access by the intelligence community and the commercial shipping industry. The database includes 523 reported cases of piracy. Piracy is defined as the act of boarding any vessel with the intent to commit theft or other crime and with the capability to use force in the furtherance of the act. Both incident details and ship characteristics have been incorporated in the database. The ultimate goal has been to develop a comprehensive statistical picture of where piracy occurs and how pirate attacks are carried out.			
14. SUBJECT TERMS Maritime Piracy		15. NUMBER OF PAGES * 83	16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)

Prescribed by ANSI Std. Z39-18

Approved for public release; distribution is unlimited.

INTERNATIONAL AND REGIONAL TRENDS  
IN MARITIME PIRACY 1989-1993

by

Mark C. Farley  
Lieutenant Commander, United States Navy  
B.A., University of the State of New York, 1981

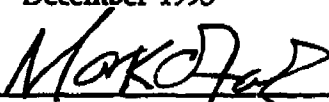
Submitted in partial fulfillment  
of the requirements for the degree of

MASTER OF ARTS IN NATIONAL SECURITY AFFAIRS

from the

NAVAL POSTGRADUATE SCHOOL  
December 1993

Author:

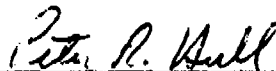


Mark C. Farley

Approved by:



Gordon H. McCormick, Thesis Advisor



Peter R. Hull, Second Reader



Thomas C. Bruneau, Chairman  
Department of National Security Affairs

## ABSTRACT

This thesis records the results of a data-based analysis of worldwide maritime piracy incidents against commercial merchant shipping from January 1989 to September 1993. The intent of developing this database was to create the framework that permits a rigorous statistical analysis of maritime piracy. It begins with a *descriptive* assessment of the scope and impact of piracy worldwide. Next, it identifies the statistically supportable regional and international trends in maritime piracy over the last five years. The database has been designed at the unclassified level to allow maximum access by the intelligence community and the commercial shipping industry. The database includes 523 reported cases of piracy. Piracy is defined as the act of boarding any vessel with the intent to commit theft or other crime and with the capability to use force in the furtherance of the act. Both incident details and ship characteristics have been incorporated in the database. The ultimate goal has been to develop a comprehensive statistical picture of where piracy occurs and how pirate attacks are carried out.

Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input checked="" type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	.....
By .....	
Distribution /	
Availability Codes	
Dist	Avail and / or Special
A-1	

## TABLE OF CONTENTS

<b>I.</b>	<b>MARITIME PIRACY - BACKGROUND AND IMPORTANCE.....</b>	<b>1</b>
<b>A.</b>	<b>THE VIOLENCE AT SEA (VAS) DATABASE.....</b>	<b>6</b>
<b>B.</b>	<b>DEFINITIONS.....</b>	<b>11</b>
<b>C.</b>	<b>DATABASE PARTICULARS.....</b>	<b>12</b>
<b>D.</b>	<b>ASSESSMENT PARAMETERS.....</b>	<b>13</b>
<b>1.</b>	<b>International Assessment.....</b>	<b>13</b>
<b>2.</b>	<b>Regional Assessment.....</b>	<b>13</b>
<b>II.</b>	<b>INTERNATIONAL ASSESSMENT REPORT.....</b>	<b>15</b>
<b>A.</b>	<b>OVERVIEW.....</b>	<b>15</b>
<b>B.</b>	<b>ASSESSMENT.....</b>	<b>16</b>
<b>III.</b>	<b>REGIONAL ASSESSMENT REPORT.....</b>	<b>27</b>
<b>A.</b>	<b>OVERVIEW.....</b>	<b>27</b>
<b>B.</b>	<b>REGIONAL ASSESSMENT.....</b>	<b>28</b>
<b>1.</b>	<b>Region 1: South/East Asia.....</b>	<b>28</b>
<b>2.</b>	<b>Region 2: Northeast Asia.....</b>	<b>30</b>
<b>3.</b>	<b>Region 3: Indonesia.....</b>	<b>32</b>
<b>4.</b>	<b>Region 5: West Africa.....</b>	<b>34</b>
<b>5.</b>	<b>Region 8: South America.....</b>	<b>36</b>

<b>IV. CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER STUDY.....</b>	<b>38</b>
<b>A. REVIEW.....</b>	<b>38</b>
<b>B. CONCLUSIONS.....</b>	<b>39</b>
<b>APPENDIX A (VIOLENCE AT SEA DATA INSTRUMENT).....</b>	<b>41</b>
<b>APPENDIX B (FIGURES).....</b>	<b>48</b>
<b>INITIAL DISTRIBUTION.....</b>	<b>71</b>

## EXECUTIVE SUMMARY

This thesis presents a data-based assessment of international and regional trends in maritime piracy between 1989-1993. The assessment was carried out using the Violence At Sea (VAS) database. VAS is an original database developed by the author under the sponsorship of and in cooperation with the Office of Naval Intelligence. The VAS database is structurally complex, it contains 118 data fields. The large number of fields are necessary to capture the wide variety of information which is available from the shipping industry and other maritime data sources. VAS contains data from 523 reports of pirate attacks on commercial merchant shipping worldwide between 1989-1993. The data were compiled using multiple independent sources which report on the incidence of piracy. VAS was designed to be compatible with the interagency Joint Maritime Information Element, which is an on-line maritime data resource available to users at the secret level. The VAS database is unclassified.

This study begins with a general descriptive assessment of the scope of piracy worldwide. The author does not speculate on possible solutions for eliminating or reducing the level of piracy, nor is general threat an area of assessment. One cannot presume to suggest what measures are appropriate in any region without first taking into account the financial, material and political

constraints that face those countries that are confronted with a piracy threat. Such factors were not pertinent to the focus of this assessment. For the purposes of this study, piracy is defined as "the act of boarding any vessel with the intent to commit theft or other crime and with the capability to use force in the furtherance of the act." This definition will therefore include cases of robbery which occur in a state's territorial waters. It also includes cases of interdiction, i.e., the stopping and boarding of ships in territorial or international waters by state authorities. Classic "high seas" piracy is not observed nearly as frequently in the modern maritime world.

Next, VAS reports briefly on international and regional trends in maritime piracy. International trends are assessed broadly as a function of the shifting patterns of pirate activity and the *modus operandi* of the pirates. Data have been compiled on an annual basis and separated into general regions. Although trends which show apparent "migration" of pirates across different regions are observable given one interpretation of the data, the reader is cautioned not to infer from this that the same pirates move from one location to another. Piracy is a completely local phenomenon. Hence, the reader must be careful not to accept the generalizations presented, even for a single region, as applicable throughout that region. Assessment variables for the international level of analysis were chosen to allow the reader to view the results from the operational



perspective of the mariner.

Regional analysis was made possible by first separating pirate attacks into 12 regions. The regions were delineated *after* the attacks were coded. Of the 12 regions, only five (with 88% of the total) contained enough data to allow for a trends analysis. The regional analysis was aimed primarily at identifying and detailing the conditions which exist during a pirate attack. The South/East Asia region was by far the area with the largest number of incidents, with over 54% of the total number of attacks worldwide being reported there. Northeast Asia, Indonesia, West Africa and South America were also examined in some detail.

Understanding the scope of maritime piracy is a prerequisite for being able to assess its impact on international maritime trade. The results presented in this study represent a first level assessment of the data on piracy over the last five years. There is a wealth of additional information available in the VAS database. Its analytical value will grow as the database is gradually extended over time. Ultimately, VAS will be expanded to assess all elements of maritime violence.

## I. MARITIME PIRACY - BACKGROUND AND IMPORTANCE

Maritime piracy is a phenomenon about which most individuals not associated with the maritime community know very little. The common perception of the general public on piracy is that it is any act of violence occurring anywhere on the oceans.<sup>1</sup> In fact, by the classic legal definition, true "piracy" occurs only on the high seas. There have been over 500 reported acts of piracy committed against merchant shipping interests worldwide during the last five years. This level of piracy is not unprecedented in recent history however. In the early 1980s, there was a dramatic increase in the incidence of piracy worldwide. In fact, the number of piracy attacks between 1981-1983 is roughly comparable to the high levels recorded in 1991.<sup>2</sup> The heart of this thesis is the Violence At Sea (VAS) database. It was specifically designed to assess piracy between 1989-1993. The best reporting for acts of piracy is for the 1991-1993 time

---

<sup>1</sup>I. R. Hyslop, "Contemporary Piracy," in Eric Ellen (ed.), *Piracy At Sea* (London: ICC Publishing SA, 1989). 7.

<sup>2</sup>See the International Maritime Bureau Chronology of Pirate Attacks on Merchant Vessels for 1981-1987 in *Piracy At Sea*, Eric Ellen (ed.), London: ICC Publishing, SA, 1989, Appendix 1.

period. Reports in 1989 and 1990 are disproportionately small. Anecdotal evidence, however, suggests that the entire period for VAS is underreported.<sup>3</sup>

Until the shipping industry begins to place greater emphasis on the human rather than the simple economic costs of piracy, little is likely to change. There have been some notable efforts to curb pirate attacks in selected regions around the globe, but pirates are inclined to follow the path of least resistance, and such paths are abundant worldwide. That is not to suggest that pirates migrate to areas less well policed, but rather that they are prudent not to challenge an authoritative presence dedicated to countering them in a particular region. The odds that a pirate attack will be successful is high. Pirates routinely intimidate their victims and the maritime community at large. With few exceptions, piracy is robbery, nothing more.

Although the shipping industry has been forced to acknowledge the fact of piracy, there is still great reluctance on its part to address the problem directly. Thus far, the impact of piracy has not presented an economic hardship for the shipping industry at large. Piracy is largely regarded by those who control the industry as a low-level criminal nuisance. The percentage of maritime trade that is affected by pirates is insignificant compared to the total volume of trade and

---

<sup>3</sup>Estimates on the under reporting factor in piracy range from 20-50%.

associated profits magnitude of profits of shipping interests worldwide.<sup>4</sup> Consequently, controlling elements in the shipping industry have little incentive to report pirate attacks. The principal victims of piracy are the mariners who operate the vessels at sea. Many masters who have been victims of piracy *never* return to sea following their encounters with pirates.<sup>5</sup>

There are many reasons why attacks are not reported. Masters often fear that being a victim of piracy reflects unfavorably on their discipline and watchkeeping. Similarly, they fear the associated port delays which are frequently necessitated by the investigation process. Also, by highlighting themselves, they believe their risk of further attack is increased. Ship's owners often feel their credibility is compromised when their vessels are attacked by pirates. There is also the problem of causing diplomatic offense to the country where they must regularly trade. The possibility of rising insurance costs is a problem, as is the demand by unions and crews for hazard pay in areas of increased risk. Finally, the states themselves may want to keep attacks secret for

---

<sup>4</sup>Additionally, the likelihood of being attacked by pirates, even in areas of high pirate activity, is about 1 in 1000.

<sup>5</sup>This is according to a retired master who is still associated with the shipping industry. The statement was made during the Royal Navy Anti-Piracy Seminar held at HMS Dryad, 7-8 September 1993.

reasons of commercial or national security.<sup>6</sup> But for the individual mariner that must come face-to-face with pirates at the operational level, the reality is quite different.

The potential for an environmental disaster directly or indirectly related to a pirate attack is increasing as a function of the relative numbers of incidents. Merchant vessels that have been victimized by pirates in the recent past have at times been "not under command" for extended periods in crowded, narrow straits. Scenarios have involved Very Large Crude Carrier (VLCC) tanker assets that have been fully loaded with petroleum products at the time of attack.<sup>7</sup> During such an attack, pirates are not concerned with the ship's navigation, their interest is confined to a very limited range of concerns while they are onboard.

"The United States imports forty-five to fifty per cent of its petroleum needs, and a very significant proportion of those imports arrive by tanker."<sup>8</sup> This reality highlights the need to be conscious of the threat to tanker traffic worldwide. Over 25 percent of the pirate attacks recorded in the Violence At Sea<sup>9</sup> database

---

<sup>6</sup>I. R. Hyslop, "Contemporary Piracy," 5.

<sup>7</sup>On November 10, 1991, while underway in the Phillip Channel near Singapore, the 275,551 DWT Panamanian-flagged tanker *Eastern Power*, fully loaded with crude oil, was attacked by pirates and not under navigation by its crew (who had been tied up) for 15-20 minutes.

<sup>8</sup>U.S. Department of Energy, Office of Intelligence, Office of Threat Assessment. *Piracy: The Threat to Tanker Traffic*, March, 1993.

<sup>9</sup>The VAS database is the exclusive tool for analysis in this thesis.

were against a tanker of some description. One or several tanker attacks, even if they resulted in a total loss of cargo, however, would not appreciably impact the overall volume of oil which is imported by the United States. However, a repeat of a disaster comparable to the Exxon Valdez spill in Alaska several years ago would have catastrophic consequences on all aspects of life for residents of a congested area such as Singapore. The implication of repeated incidents of this type would be devastating at the regional level.<sup>10</sup>

At issue is the threat that piracy represents to the interests of all nations, not just those involved directly in maritime commerce. Nations that do not operate extensive merchant shipping fleets and even nations that have no coastline whatsoever are still affected. Maritime trade is the primary means by which nations interact economically, and since piracy affects that trade, it impacts *all* nations. Therefore, it is important to analyze piracy in complete detail to afford researchers the best opportunity to explain what can be done to limit its impact in the future.

This thesis is *not* an assessment of the threat to merchant traffic *per se*. On the surface, it is a very brief review of a worldwide analysis of the piracy phenomenon. Behind this review is a complex database which will continue to provide the basis for assessments of piracy and maritime violence. This Violence

---

<sup>10</sup>Merchant traffic in the Straits areas near Singapore is the heaviest in the world. At least 30,000 large merchant vessels transit the area annually.

**At Sea (VAS) database** was developed by the author. The data contained in it have been compiled using a wide variety of reporting sources on pirate attacks worldwide.<sup>11</sup> This thesis will not detail an extensive plan for the eradication of piracy. Its first purpose is descriptive. Its second purpose is to lay the analytical groundwork for a continuing data-based assessment of international and regional trends in piracy. This effort will be carried on and extended by the Center for the Study of Political Violence at the Naval Postgraduate School in association with the Office of Naval Intelligence.

#### **A. THE VIOLENCE AT SEA (VAS) DATABASE**

##### **1. Concept/Scope/Purpose/Limitations.**

The VAS database was designed exclusively for the purpose of analyzing piracy and other acts of maritime violence. It presently operates at the unclassified level. Its structure was designed with the ultimate goal of being

---

<sup>11</sup>Sources were: Office of Naval Intelligence (ONI) data, Defense Mapping Agency Hydrographic/Topographic Center NAVINFONET Anti-Shipping Activity Messages, U.S. Department of Energy-Piracy: *The Threat to Tanker Traffic*, International Maritime Bureau (IMB) reports and publications, including the Far East Regional Office periodic reports, International Maritime Organization (IMO) quarterly reports, *Lloyd's Weekly Casualty Reports*, *Lloyd's List*, Selected open press reporting, Ship's masters reports, Shipowner Associations data, Ship Management Company reports, Official Investigations, Hong Kong Marine Rescue and Coordination Centre (HKMRCC) data, and a private chronology of incidents at sea entitled *An Analysis of Incidents of Post-War Terrorism, Piracy, Sabotage, and other forms of Violence relating to Ports, Harbors and Roadsteads*, compiled by Samuel P. Menefee of the University of Virginia School of Law.

incorporated into the interagency Joint Maritime Information Element (JMIE).<sup>12</sup> Hence, many of the database's fields are set up to be easily translated into a JMIE-compatible format. In its present form, the database is comprised of 118 data fields. Appendix A is a reproduction of the data collection instrument which was used as the hard-copy record of individual incidents that were consolidated in VAS. The large number of fields are necessary to capture the variety of information which is available from the many sources which currently report on attacks of piracy. Although numerous formats have been proposed and used to report these attacks, there is still no standard which is commonly used.

After reviewing a sample of the type of piracy data that *were* available, a database concept was formulated and the data collection instrument that appears as Figure 1 was created. Despite the author's thorough review of the available source information before VAS was designed, it was still necessary to modify it on many occasions after the initial structure was developed. Many piracy experts were consulted during every step.<sup>13</sup> For analysis purposes, it is important to note that this database contains the population (1989-1993) of known,

---

<sup>12</sup>JMIE is a secret level on-line system capable of being accessed by up to 100 remote workstations. Users can download query-controlled raw data for analytical purposes. The list of maritime information sources which provide data to JMIE is extensive.

<sup>13</sup>Analysts at the Office of Naval Intelligence (ONI-21) and members of the Naval Postgraduate School faculty and staff were the key contributors in this development.



reported attacks of piracy. It is not a sample. When examining the available data, it is also important to note that data for 1993 cover only the period through September. Although it is *possible* to perform a linear extrapolation of the data to arrive at an estimate for the number of attacks for the entire year, given the seasonal variance in pirate attacks, this was not done.

The data instrument was designed to capture information that was reported in nearly every attack (such as date, time category, vessel name/flag/status, and general region where the attack occurred) as well as bits of data which were more esoteric in nature (vessel speed, crew size, and last and destination ports of call). The source(s) used for coding each attack were very carefully documented in the SOURCE field of VAS. All information in VAS was meticulously cross-referenced and no piece of information was accepted at face value. In addition, the information was arranged in the computer database to permit easy access and convenient data entry.<sup>14</sup> Nevertheless, the nature of the sources of raw data was such that coding decisions were constantly required to allow for a consistent coding process.<sup>15</sup>

---

<sup>14</sup>It is improbable that a machine-readable format can be developed for VAS. The sources of information on piracy are simply too diverse. There is no substitute for the manual process that a researcher must follow in this case.

<sup>15</sup>A ten-page *Coding Instructions* booklet was produced to ensure that future researchers continue with a consistent coding process.

Although much of the information contained in the VAS database is already available to the user elsewhere in a raw or processed form, VAS has consolidated it into a single user-friendly location.<sup>16</sup> When the database is incorporated onto the JMIE host, its availability will greatly expand. Although more data is undoubtedly available at higher levels of classification, the decision to keep VAS unclassified was made to permit the greatest possible access.<sup>17</sup> One of the primary benefactors of VAS will be the shipping industry.

Because of the very large numbers of fields, the possible combinations of single or multi-variable analysis which can legitimately be queried using VAS is enormous. However, many fields do not presently contain enough data to allow those queries to be done. For this analysis, the author made the decisions on which single and multi-variable combinations to use. For the international analysis, fields were normally selected which had the greatest number of responses. This allowed for the most accurate generalizations to be made. In the regional analysis section, the *percentage* of total responses for that region was the yardstick for selection.

---

<sup>16</sup>The database software in use for VAS is **Superbase** version 2.0 for *Windows*.

<sup>17</sup>Although JMIE is a secret on-line system, periodic unclassified reporting will be made available to agencies which request it.

VAS incorporates the most comprehensive, thoroughly cross-referenced piracy source compilation now available. In many cases however, an individual attack is still only addressed by a *single* data source. As expected, data from various sources on a given incident were frequently different. In some cases, where the data were *significantly* different, it became necessary to make a determination about which information would be entered into the database. In these cases, an extensive manual and computer assisted cross-referencing of information was performed. The coding procedure for this first iteration of VAS was done *exclusively* by the author. Also, as more cases were examined, the experience of dealing with the data became even more useful in the complicated deconfliction process that was necessary. There was an exhaustive attempt to deconflict incidents long after they were first recorded in VAS. As a result, many incidents were consolidated based on the similarity of the information available from the separate data sources.

The classification of the general regions (GRL\_REGION) was the most important organizational decision concerning the VAS structure. 12 general regions were established (see Figure 1). These regions were generated *after* the data were coded. Therefore, the regions were designated to permit a neat

geographical fit of the attacks. Attacks were included as part of a land mass when they occurred within 30 nautical miles of the *mainland* of that land mass.<sup>18</sup>

## B. DEFINITIONS.

No attempt has been made to make a legal distinction between piracy<sup>19</sup> and simple maritime robbery, which is technically what the majority of cases in this study are. However, such distinctions are quite transparent to the unfortunate victims of piracy. Consequently, piracy is defined (using a 1992 International Maritime Bureau definition) without regard to the location where it occurred:

The act of boarding any vessel with the intent to commit theft or other crime and with the capability to use force in the furtherance of the act.<sup>20</sup>

Cases of interdiction<sup>21</sup> are included in this definition of piracy. The attacks have been categorized according to whether or not they occurred in international or territorial waters, and analysis was performed on this field. Once again, the classification of exactly *whose* waters were involved is often difficult because of

---

<sup>18</sup>Limited exceptions to this general rule did occur, particularly when the land mass was an isolated island in open ocean areas.

<sup>19</sup>Classic piracy occurs on the "high seas," not within the territorial waters of any state.

<sup>20</sup>*Special Report - Piracy*, ICC International Maritime Bureau publication, June, 1992, 2.

<sup>21</sup>Interdiction (i.e. Interception), as defined by the Hong Kong Government Secretariat, is *the stopping and boarding of ships in territorial or international waters by state authorities*.

overlapping jurisdictions and variable claims of sovereignty. The area near Singapore is especially troublesome (See Figure 2). Additionally, no attempt was made to calculate distance from shore in the Phillip Channel, a scene of numerous attacks, and the majority of cases occurring in the Singapore Strait. The proximity to land for attacks in these areas and calculations of average distance are not meaningful.

### **C. DATABASE PARTICULARS.**

Although no minimum vessel size has been established to qualify an attack for inclusion into this database, the vast majority of cases involve large (greater than 500 tons) commercial merchant vessels that have been victimized by pirates. Cases of attacks on refugees (i.e., "boat people") are omitted, but not because they are considered unimportant but because they are thought to represent a different facet of the piracy phenomenon which requires independent attention. Likewise, attacks on private yachts have been omitted, with the exception of one case.<sup>22</sup>

For the purposes of this database, pirate attacks have been divided into three time spans. Short term seizures typically last less than one hour but occasionally continue for up to four hours. For example, underway attacks are characterized by longer short term duration, because vessels are frequently chased for several hours before a boarding can be attempted or made. Long term seizures normally

---

<sup>22</sup>This attack occurred 20 miles south of Nice, France, an area presumably free from piracy. A yacht valued at one million dollars was permanently seized.

last for as long as it takes the pirates to transload the victim vessel's cargo, which, depending on the means available, lasts one day to one week. Permanent seizures are coded according to the ultimate disposition of the targeted vessel.

#### **D. ASSESSMENT PARAMETERS.**

##### **1. International Assessment.**

The overview of international trends focuses on data which have been compiled on an annual basis and separated into general regions. Raw numbers have been included for reference, but generally, the analytical results will be presented on the basis of a percentage of the total number of cases reporting each variable. The chapter on international analysis will begin with a general descriptive overview. This will enable the reader to become familiar with the basic scope of modern maritime piracy. Once an understanding is gained about the level of the problem, one can better appreciate the trends that emerge from the analysis. International trends will be assessed broadly as a function of the shifting patterns of pirate activity and the *modus operandi* of the pirates. This assessment will incorporate a selection of variables that lend themselves to useful analysis based on the amount of data available on that variable.

##### **2. Regional Assessment.**

Regional analysis will concentrate on only five of the 12 defined regions. (See Figure 1) Attacks in these regions comprise 88% of the attacks worldwide for the entire period. Although some effort will be made to compare

across regions, this will be done primarily in the international analysis section. Regional analysis will follow a format which will permit the reader to compare similar phenomena and data for each region. The regional analysis will focus primarily on South/East Asia because attacks there represent over 54% of the total attacks worldwide. It is important to understand that, with a few exceptions,<sup>23</sup> these regions are completely distinct. Pirates do not belong to an international syndicate that cooperates by sharing information and technique. Even pirates that are operating in the same region as defined in this study are, in virtually every instance, independent actors. Hence, while the regional analysis attempts to group elements together within a particular region, this does not always mean that those generalizations are completely applicable throughout the region.

---

<sup>23</sup>The area near Singapore for example.

## II. INTERNATIONAL ASSESSMENT REPORT

### A. OVERVIEW.

Although the incidence of pirate attacks have been separated into 12 general regions, only the South/East Asia (Region 1), Northeast Asia (Region 2), Indonesia (Region 3), West Africa (Region 5) and South America (Region 8) areas contain sufficient numbers of attacks to permit useful analysis. Figure 3 depicts the number of attacks per region for the entire period of investigation, and Figure 4 graphs the percentage of the total that these attacks represent for the top five regions. Before presenting the results of the analysis, it is necessary to present an overall picture of piracy at the international level, i.e., characteristics and descriptions which generalize about the big picture of piracy. As throughout this thesis, all data were highly dependent on the level of reporting that was available for use. While the actual numbers of attacks are certainly larger, we can reasonably assume that they are *proportionally* greater for all years under consideration.

For the international level of analysis, variables were chosen which provide the reader with an opportunity to view the results operationally. For example, if it can be shown that pirates are much less likely to board when they are detected beforehand, no matter whether attacks take place during the day or at



night, underway or otherwise, owners might be encouraged to accept the additional financial burden associated with manning a full-time deck watch. Similarly, the chance that crew resistance will prevent boardings must be balanced against the risks associated with potential confrontations between crews and armed pirates, with its associated consequences.

#### **B. ASSESSMENT.**

Although there is no evidence to suggest that vessels of a specific flag are being targeted in any given region, Figure 5 is included for the purpose of showing the *variety* of flags (47 separate countries) that have been attacked. Of considerable interest here is the number of U.S.-flagged vessels that have been victims of pirate attacks. Given the small total number of U.S. flagged vessels, the fact that 21 were attacked over a five year period represents a very high number.

Pirates are not loners. Except in one case where only one pirate was *able* to actually board a vessel (accomplices were in a nearby boat), every recorded attack involved at least 2 pirates. Although women are presumably involved in some capacity as pirates, no mention was ever found in the data sources of their involvement during *this* period of investigation. In many cases (47%), no mention whatsoever was made regarding the pirates being armed, but in no case was there a specific reference to the pirates being *unarmed*. In a large percentage of cases, pirates were described simply as "armed" (33%, 92/277). Although direct

reference to threats being made against crew members was not often made in the data, it is presumed that threats are a usual part of the pirate scheme. The intimidation factor must necessarily be a large part of a pirate's *modus operandi*.

Although there were only 34 recorded cases where the pirate boarding location was recorded, 61.7% of these were from the stern of the ship. Motherships<sup>24</sup> were used in six separate attacks. In the 54 cases where a pirate warning of some kind was made, all but two of these *eventually* took the form of shots being fired. In several cases, this was an escalatory process, i.e., if visual, verbal, or radio communications signals did not convince the vessel to stop, the more immediate tactic (shots fired *at* the ship) was used. The type of pirate craft was identified in 144 cases. By far the largest percentage was listed as "speedboat" (35.4%), although the 22.9% listed simply as "boat" could presumably add to this total. Naval craft and fishing boats were recorded as pirate craft 13 times each, but no other type was mentioned in sufficient quantity to warrant mention.

In 16 cases, the ship's crew felt threatened to the point where they decided to send a distress signal during the course of the attack or immediately after. Reports of an attack in progress were made in 20.4% (21/103) of the attacks. In

---

<sup>24</sup>Defined as a support vessel for another craft which is used to commit an act of piracy.

fact, six crews, anticipating an attack by a suspicious vessel, actually reported that attack *before* it occurred.

The exact duration of attack, in the case of short term seizures, was recorded only 11.1% of the time. The average length of time for these responses was 66 minutes. In one case, a vessel was chased for over four hours before the pirates gave up.<sup>25</sup> Certain vessel types (especially tankers), employ enough crewmembers for caretaker duties only. Anti-piracy watches, especially while underway, are normally not possible given the lack of available manpower. Therefore, it is understandable why, in seven cases, the pirates boarded, escaped with loot of some kind, and were never observed by anyone on board. In some cases, there is absolutely no discernable logic to what the pirates have targeted. In one attack, for example, an entire set of chairs was stolen, and in another, the only thing stolen was 50 pairs of shoes which were removed from a deck-loaded container. This suggests that there is frequently no prior knowledge on the part of the pirates about what the vessel cargo is. On the other hand, pirates are

---

<sup>25</sup>Duration of attack is *not* a record of time spent onboard only, Rather, it is a measure of the total period of time when a vessel was pursued *plus* the time spent onboard by the pirates.

sometimes quite clear on what they want, whether it is weapons and ammunition or currency of only a specific type.<sup>26</sup>

The difficulty of policing one's vessel while pierside is evidenced by the fact that in the 34 cases of pierside attacks, only once were the pirates detected before they boarded. The problem of distinguishing between pirates and ship-contracted workers is complicated by the fact that in some cases they are one in the same.

The pirate's chose a wide variety of means (depending on the status of the vessel) to board an intended victim. The preferred method was by grappling hook (37% of the time). One case indicating prior preparation on the part of the pirates involved three stowaways who were subsequently joined by about 15 other accomplices once the ship was underway.<sup>27</sup>

It was interesting to note that mooring lines and various other types of ship's line were often targeted. These lines are sometimes unraveled and sold to fishermen for net making, or to other private consumers for use as materials in *wigs*. In many cases, when the pirates were not able to open the ship's safe immediately, the *entire safe* was removed from the ship. This points to a lack of

---

<sup>26</sup>In one case, pirates boarded a vessel and they were "offered" several types of currency. They "refused" these because they were only interested in Chinese cash.

<sup>27</sup>This occurred in the Philippines and was attributed to the Emilio Changco maritime crime ring. The attack was a permanent seizure. The pirates seized the vessel for the purpose of committing maritime fraud.

security for ship's safes that might possibly be corrected by increasing their weight. For the 36.5% of cases (85 total) where the ship's safe *was* targeted and where the currency stolen was recorded in U.S. dollars, the average take was \$12,585.00, with a maximum single robbery amount of \$41,000.00.

There were only five cases on record where the crew responded with firearms, pyrotechnics, or other explosive devices. In one case a Russian naval amphibious craft was attacked and she responded with rounds from a small caliber gun which quickly convinced the pirates to abort their attack. Ships' "rockets," flares, a master's pistol, and one homemade "bomb" were also used by the more proactive crews determined to prevent pirates from boarding.

In 14 separate cases, the safety-minded crews simply retreated behind locked accommodation doors and allowed the pirates to come aboard. In these cases, crew safety obviously took priority over all other considerations. Crews were taken hostage by attacking pirates in only ten cases. In general, pirates will not burden themselves with hostages during short term seizures. On many occasions during short term attacks, crews *were* bound or otherwise incapacitated while pirates robbed the vessel. Some pirates apparently felt compelled to hide their identity by wearing masks (16 cases). In cases where this occurred, all but two were categorized as short term attacks. Injuries occurred in only 15.8% of attacks.

There were seven recorded cases of vessels being "not under command" for some period of time during or after a pirate attack. In three of these seven cases,

the vessels were tankers of some description, and two of those three attacks occurred in the heavily-trafficked waters of the Phillip Channel.

There were 20 cases in which a vessel was attacked for a second time.<sup>28</sup> Except in cases where these repeat attacks occurred on the same or consecutive days, this is most likely coincidental. The numbers and percentages of attacks by vessel type (see Figure 6) are presented only as a means for comparison. The highest incidences of attack are merely a reflection of the relative numbers of that type vessel that operate on the world's oceans. Although certain vessel types have characteristics and modes of operation that make them more likely to be attacked (i.e., freeboard height and transit speed), and the level of counter-piracy measures in place will certainly affect its susceptibility to attack, accurate analysis of this combination of factors was not possible within the constraints of this database. Nevertheless, several "curious" results are mentioned later on region-vessel type correlations.

Stationary vessels obviously present a more attractive target to pirates, boarding a vessel while underway is not a simple task. However, attempts to board were made even at speeds of up to 21 knots, and successful boardings were achieved at speeds of 18 knots. More commonly however, pirates were inclined

---

<sup>28</sup>This number represents only cases of repeat attack in the five year period. Given the difficulty of tracking a single vessel (name changes frequently occur several times a year), this total is probably higher.

to fire shots at an underway vessel in an effort to get the master to stop and be boarded. The tactics of increasing speed and using evasive ship movements in an attempt to prevent boarding was used frequently as a means of deterring pirate attacks (57 cases). This tactic was successful 87.8% of the time. Radar contact with incoming pirate vessels was not often reported, either because a radar watch was not posted or because the sea state or pirate craft type did not permit easy "painting" of a single, small incoming craft.

Raw numbers of pirate attacks by year are summarized in Figure 7. Well over half of the attacks (54.2%) occurred in South/East Asia during the five year period under review. Only Northeast Asia, which experienced an explosive increase in the number of attacks in 1993, has shown a consistent pattern of increase (See Figure 11). In nearly every case, piracy has been a *local* phenomenon. There is no evidence to suggest that the pirates themselves are migrating to different regions. It is more likely that it is simply the combination of local conditions that permit piracy to flourish in any region.

Another characteristic which is clearly typical by region is that of vessel status at the time of attack. In general, attacks on underway vessels are far more likely to occur in Asia than in West Africa or South America (see figure 8). Because vessels not underway are typically either berthed pierside or awaiting berthing at an anchorage, they are almost always in territorial waters when attacks occur while not underway.

Vessels are less inclined to report attacks in areas where the master feels that a response from shore authorities is unlikely (in East Africa for example), or counterproductive. However, the Hong Kong Marine Rescue and Coordination Centre (HKMRCC), the Regional Piracy Centre (Kuala Lumpur, Malaysia),<sup>29</sup> and the Singapore authorities, are frequently contacted with reports of pirate attacks. This is true even when the attack does not occur in the immediate vicinity of those locations. Their record of past action with respect to prompt and conscientious investigations is well documented.

With the exception of longer term interdiction cases and the occasional permanent seizure, attacks have overwhelmingly been of the short term variety (350 of 370 reported cases). A clear majority of attacks (61.8%) occur in territorial waters of some country and 81.5% of cases happen at night. 78% of boardings overall are successful but this number is reduced to 62% when ships are attacked while underway. This can be contrasted with a 91.2% figure of successful boardings when ships are stationary. Vessels are twice as likely to be successfully boarded at night (whether stationary *or* underway) than during the day (81.1% versus 40%). Despite the high rate of successful boardings, in 15.4% of the attacks

---

<sup>29</sup>Established in October 1992 through the efforts of the International Maritime Bureau and funded by private sources, the Centre provides 24-hour service to the merchant shipping community.



(48 times), the pirates left without taking *anything*. (see Figure 9 for a summary of these findings).

When pirates were detected before boarding they were successful in gaining access to the target in less than one third the registered cases (combined day and night, 20 versus 63). Ship damage (from slight to a sunken vessel) occurred 11% of the time and 15.8% of attacks resulted in casualties to crew members. Crews resisted the pirates in 10.9% of the attacks. Overall, crews were least likely to resist in South/East Asia (6.7%) and nearly twice as likely to offer resistance in India (38.1%) as compared to *any* other region. Casualties were reported twice as often when the crew did resist.<sup>30</sup> Of the 15 total deaths worldwide (5.5%, 15/272 cases reporting an injury), only one occurred in conjunction with crew resistance. The death rate was unusually high in East Africa (15.4%, 2/13 cases).

One detail of piracy attacks that is indicative of the sponsorship of those attacks is the distance from shore where they occur. For example, in the Indonesian region, the average distance from shore for attacks was only 11.55 nautical miles. By contrast, in Northeast Asia, that figure jumped to 68 nautical miles. Incidents occurring in the South China Sea subregion of South/East Asia

---

<sup>30</sup>Guidelines published by many international maritime organizations (IMO, IMB, Baltic & International Maritime Council (BIMCO), International Shipping Federation (ISF), U.S. Maritime Administration (MARAD) *et. al.*) highlight the importance of *not* resisting a pirate attack if the pirates successfully board. Merchant crews are not equipped or trained to do so. In addition, pirates are invariably better armed, and much more likely to use violence during an attack.

averaged 94.4 nautical miles from shore. Sponsorship of attacks occurring over 50 nautical miles out to sea is not the work of small independent operators. It is simply not economical to mount an operation that far out to sea given the typical amount of gain that results. Commercial fishermen are frequently behind such attacks (often attempting to disguise themselves as military or customs officials), as well as government patrol craft and customs officials, who are acting well outside the bounds of the 12-mile territorial waters limit recognized by most states.

An estimate of the degree of sophistication that the pirates employ is the type of weaponry they use during their attacks. The use of firearms suggests a level of "professionalization" that is not shared by those who use weapons of opportunity which are readily available to them in the course of his daily life (i.e., knives or machetes). This analysis must be limited in 35.6% (92/258) of these cases in which weapons were mentioned, pirates were described only as "armed." No reference to the specific types of weapons employed was made. In South/East Asia, Indonesia and West Africa, the percentage of cases where firearms were used is 55.5%, 30%, and 38.5% respectively, see Figure 10). In Northeast Asia, however, in every case where a weapon was specified, it was a firearm of some sort. And in South America, firearms were used in 76.2% of the cases.

The preceding general review of worldwide piracy was provided for the purpose of allowing the reader to put the regional analysis that follows into perspective. Generalizations about piracy at the international level must be accepted as exactly that (generalizations). This information is provided to the reader to give the necessary background for presenting the regional analysis, it is not intended to stand alone.

### III. REGIONAL ASSESSMENT REPORT

#### A. OVERVIEW.

All piracy attacks in the VAS database have been separated into one or another of 12 general regions. Regional trends analyzed were carried out for only five of these regions. Consequently, although the data from attacks in the seven excluded regions are part of the overall data set, they will not be addressed separately. The regions which *do* lend themselves to useful analysis are: South/East Asia (General Region 1), Northeast Asia (General Region 2), Indonesia (General Region 3), West Africa (General Region 5) and South America (General Region 8).

Regional assessments were approached systematically, but data peculiarities associated with individual regions sometimes prevented strict adherence to a single format. Unique variable combinations within a region of interest also highlighted the need to deviate from a common analytical format for all regions. In general, queries which produced information of immediate concern to ship's masters and crews (such as level of violence/likelihood of injury during pirate attacks) were the focus of analytical inquiry for the regional analysis. Results are also presented on the location of pirate attacks. Identifying the "typical" pirate attack for each region was the goal of the analysis.

A subregional breakout of each general region is outlined in Figure 1. In the case of South/East Asia, six of the subregions also contained enough attacks to allow for a meaningful trends analysis. Although the 12 regions are conveniently grouped by their geography, they independently cover extremely large areas of sea space. As explained earlier however, piracy is locally oriented. Some patterns remain typical throughout the same region and some do not.

## **B. REGIONAL ASSESSMENT.**

### **1. Region 1: South/East Asia.**

This region deserves special attention for two reasons. First, over 54% of the attacks in this study occurred there. Second, this region has received the most international attention. Consequently, the available data are the most complete. Therefore, this region yields the best possible analytical results.

As Figure 11 shows, the peak year for region 1 was 1991. A series of bilateral agreements between Indonesia, Malaysia and Singapore following the 1991 spike, resulted in a dramatic decrease in piracy in this region. This decrease is best illustrated by examining the frequency of attacks in the areas of the Singapore Strait, Phillip Channel and Malacca Strait for the 1991-1993 time period (Figure 12). There have been no reported attacks in the Singapore Strait or Phillip Channel in 1993, and all three of the attacks reported in the Malacca Strait occurred in the northern portion of that waterway. As Figure 12 also

demonstrates, pirate activity in the Anambas Islands,<sup>31</sup> (which are Indonesian<sup>32</sup>), was nearly eliminated following three years of steadily increasing pirate activity until 1991. By contrast, activity near Philippine waters has steadily *increased*, this being primarily due to the *relative* lack of attention (when compared to the Straits measures) given to the piracy problem by Philippine authorities.

By examining Figure 13, it is clear why pirates in the Singapore area practice their trade with virtual immunity in the absence of effective anti-piracy measures. The Straits area is the most heavily trafficked maritime crossroads in the world.<sup>33</sup> The long established Singapore Strait traffic separation scheme requires certain eastbound vessels to use the Phillip Channel. The traffic density and hazards associated with this transit require vessels to slow down to negotiate these tricky waters, making them prime targets for pirates. Tankers have been targeted worldwide 25.5% of the time, but 38.5% of attacks in the Phillip Channel were made against tanker assets. This suggests that the mandatory traffic separation scheme did help influence pirate target selection in that area.

---

<sup>31</sup>The Kepaulaun Anambas island group (See Figure 2) is located approximately 160 nm NE of Singapore. Ships traveling from Singapore to Hong Kong, Taiwan, Japan, Korea and China must pass near these islands.

<sup>32</sup>These islands are part of the South/East region.

<sup>33</sup>Approximately 200 vessels transit this area daily.

Pirates in region 1 have typically targeted personal items (72 cases), the master's safe (52 cases), and personal cash (38 cases) during their attacks. Electrical goods, such as televisions, video cassette recorders and stereos (7 cases only), have rarely been a target of the pirates here. Ship's cargo (12 cases) and ship's equipment (19 cases) have been targeted less often. Pirate preference in this region is for the less bulky cash and personal valuables.

Pirates have typically kept their numbers small in this region, the average number per attack (111 reported cases) was just 7.32. Attacks have traditionally been at night, but as Figure 14 clearly demonstrates, this percentage has dropped off sharply in 1993. The decrease in the number of attacks in the Singapore area is coincident with an increase in piracy in the South China Sea during the same period (where attacks occur more often during the day). Nevertheless, the underway percentage has remained high over the years. (see Figure 15) This same trend is responsible for the sharp increase in the percentage of attacks taking place in international waters (see Figure 16). Clearly, the overall percentage of attacks occurring in Region 1 is again on the increase. (See Figure 17) One final manifestation of this shift in pirate activity in region 1 is the boarding success rate (see Figure 18).

## **2. Region 2: Northeast Asia.**

Northeast Asia presents a very interesting case for study because 80.7% of all attacks (25/31) recorded there occurred in 1993. This in itself is the most

dramatic trend for the region. Additionally, there are quite a number of unusual facts that emerge from the region 2 analysis. For example, although 100% of the cases which report a weapon used during an attack listed it as some kind of firearm (15 cases), the injury rate in these cases was only 5.9%, well below the 15.8% average for all regions. Determining a distance from shore at the time of attack was possible in 25 of the 31 attacks and the average distance was 68 nautical miles. 84.6% of the attacks took place on underway vessels (22/26) and two of the remaining cases involved ships that were "drifting."

Although fishing vessels account for only 5.7% of all targeted vessels worldwide, 34.5% of the victim craft in Northeast Asia were of that type. Nearly 96% (21/22) of the attacks were short term seizures, but a target was identified in only six of those cases. Boarding success in this region was only 51.8%, compared with 78.3% overall, and the time of attack was split nearly evenly, with ten of 19 attacks occurring at night. 82.2% of the attacks occurred in international waters and all five cases of attack in territorial waters occurred in China. Two of these five cases were interdiction. During four successful boardings, no loot was stolen.

Although only 21 Russian-flagged vessels have been attacked worldwide during the reporting period, 12 of them were among the 25 cases in this region where a flag was reported. Part of the reason for this can be attributed to the proximity of Russia to this region. Nevertheless, the territorial



disputes that have intensified between Russia and China may also be partly to blame for this unusually high incidence of Russian vessel victimization. Of the 16 cases where pirates were detected before boarding, nine of the boarding attempts were unsuccessful (43.7% success rate, double the international average). Crews either increased their speed or used evasive movement 11 times, and eight of these times, the pirates did not successfully board. There were 19 cases where the type of craft was recorded and nine of these responses involved military craft (seven naval craft or patrol boats and two "former" naval craft). But of the nine cases, only three involved interdiction.

The number of pirates were logged in ten cases and the average number of pirates per attack was 9.5, slightly higher than the international average of 7.98. Pirates gave a warning in this region 45.2% of the time (14 times), and in every case, shots were fired. Ship damage occurred 38.5% of the time, close to the 35.8% average for all attacks in every region. Although attacks appear to have "migrated" into this region (from Region 1) and portions of the northern South China Sea, one is again cautioned not to infer that these incidents were carried out by the *same* pirates who, in the face of countermeasures, simply transferred their base of operations.

### **3. Region 3: Indonesia.**

Analysis of attacks in Region 3 also uncovered some unusual results. The "Vicinity Bintan Island" subregion was created to classify the incidents that

occurred near Singapore, but were distinct from the more congested areas in its *immediate* vicinity (see Figure 13). When vessels approach Horsburgh Light headed eastbound (approximately 35 nautical miles from Singapore), they travel through one of three separate channels depending on their destination. Those vessels heading south or southeast, which remain near Bintan and Mapor islands run a much higher risk of being pirated in this region. A total of 22 attacks were classified here over the five year period. As with all attacks in the Indonesian area of responsibility, frequency dropped off dramatically between 1992 and 1993 (see Figure 19). Of all regions that recorded attacks involving deaths, Indonesia had the lowest overall percentage (3.1%). Injuries of some sort, however, were more common here (19.3% compared with the 15.8% international average).

Attacks occurred at night 88% of the time, but attacks in territorial (47.7%) and international waters (52.3%) occurred with nearly the same frequency. Underway assaults were attempted 64.3% of the time. 95.1% of all region 3 attacks were short term seizures. Targets were typically limited to small, light and transportable items (cash, personal effects, and safe contents). Electrical goods were rarely targeted (only 5.5% of the time), but ship's equipment was taken in over 30% of the cases. Attackers were able to successfully board on 72.1% of their attempts, but this success rate dropped to one third of that average (23.1%) when they were detected before trying to board. Crews resisted in eight cases. In seven of these cases, boarding was thwarted, with no injury to the

crews. But in the one case where boarding was successful, one crewmember was slightly injured. Pirates were unlikely to provide a warning before boarding, but in both cases where one *was* issued, shots were fired. There were no cases of interdiction.

Knives, machetes, or swords were used exclusively in 37.5% of the region 3 attacks, and firearms were used with the least frequency in any of the top five regions (18.75%). Ship damage occurred in only 20% of the cases, well below the international average of 35.8%. In general, Indonesian pirates were less well armed, and less likely to commit indiscriminate violence than pirates in the other main regions under review.

#### 4. Region 5: West Africa.

Pirate attacks in West Africa follow a very predictable pattern. Illustrating trends for individual countries is difficult because even in the areas where merchants are most often victimized, there are still relatively few attacks overall. However, a general description of attacks can be made. Nigerian ports recorded the most attacks in this region (11), with eight of these taking place in Lagos. There were nine attacks in Cameroon, eight of these occurred in Douala (See Figure 20). The remainder of the attacks were spread over six other countries (Angola-6, Ivory Coast-5, Senegal-4, Guinea-2, Sierra Leone-2, and Ghana-1). Nearly half (16) the total number of attacks occurred in 1992, and six of the eight attacks which took place overall in Douala, occurred that year. The

only other anomaly occurred in 1990. In that year, three of the five Abidjan, Ivory Coast attacks were recorded.

Injuries of some severity were sustained by crew members only 13.6% of the time (15.8% is the average over all regions), and crew resistance was reported 17.5% of the time (well above the overall average of 10.9%). All but three of the 34 attacks reporting a time category occurred at night, and only one of 37 took place in international waters. Likewise, only one attack was launched against a vessel that was underway. As one would expect, vessels that were attacked while stationary were all short term seizures, and a warning was given in only one case. Nearly twice as many attacks occurred in an anchorage (23) as pierside (12) and one took place while the vessel was moored. Given the static conditions of attack, it is not surprising that boarding was successful 91.9% of the time (the highest of any region). Pirates were detected before they attempted boarding at night five times (14.7%), which was about average for stationary vessels (14.1%).

Of the 29 cases where *something* was targeted, 62.1% (18 times) it was ship's equipment. Cargo was taken seven times and the ship's safe was robbed only once. In two separate cases, 100 pirates were reported to have boarded a vessel. Attacks in West Africa offer no real surprises to those familiar with piracy, but the *modus operandi* is notably different than for Asia. The capability of governments in West Africa to counter pirate attacks is virtually non-existent

and local pirates take advantage of that fact. The attacks are really just unsophisticated maritime robbery, and the likelihood of a dramatic change in the level, scope, and *modus operandi* of these attacks in the near future is doubtful.

#### 5. Region 8: South America.

This region is quite similar in many respects to West Africa. As in the case of West Africa, one can be fairly confident about how a pirate attack will be carried out. The other regional constant is the indifference of local authorities to those attacks. Attacks in South American waters are essentially low scale crime, but the potential for violence is especially high. Brazil saw the greatest concentration of attacks in this region (26 total), and this accounted for 61.9% of all attacks in South America (see Figure 21). 53.8% of the Brazilian attacks took place in Rio de Janeiro, but pirates attacked in seven different locations around the country. Although only one attack was reported in Santos, Brazil in *this* database, attacks of port *violence* there are consistently reported at epidemic levels.

All 42 of the cases in South America occurred in territorial waters and 93.3% took place at night. Only 8.1% of attacks were conducted on underway vessels, 27% were pierside, and 64.8% happened in an anchorage. In every case reporting a duration of attack (38 cases), it was a short term seizure. All types of loot were targeted by South American pirates, including safes, which were hit eight times of the 30 times that a target was specified. The average number of pirates (reported 71.4% of the time) was 7.7 per attack, and just as in West Africa,

the pirates gave no warnings before boarding. Boarding success was recorded at 89.5%, and pirates were detected before boarding 21.4% of the time. In the three cases that pirates were detected before boarding, the crew prevented them from coming aboard. The injury rate was 26% (the international average is 15.8%), a reflection of the high percentage that firearms were used in this region.

#### IV. CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER STUDY

##### A. REVIEW.

During the proposal phase of this project, the author was warned by many observers not to expect to locate the kind of quality data required to complete the Violence At Sea database. Although the sources used in the assembly of this database were by no means totally exhaustive, the level of detail achieved as a product of those sources is much more comprehensive than one could have expected given the predictions of those associated with *individual* data sources. Frequent reference was also made to the traditional reluctance on the part of shipowners and other maritime agencies to provide data. Time constraints did not permit a full exploitation of the data that is certainly available, but those individuals and organizations that were contacted were uniformly helpful and provided as much data as they possessed. As future researchers become more familiar with available data sources and develop strong cooperative relationships with various maritime agencies, source availability will undoubtedly expand.

This five-year overview of the depth and breadth of maritime piracy will educate those who are unfamiliar with piracy. One must appreciate the scope of piracy to be able to assess its potential impact on international maritime trade. Pirates will continue to plague merchant shipping for the foreseeable future.

Closer examination of the results from the VAS database will prepare the prudent mariner for the prospect of pirate attacks. Although the results presented in this study represent a first level assessment of the data on piracy over the last five years, the full utility of the VAS database has yet to be tested. There is a wealth of information in the VAS database that is available to the innovative researcher. The analytical value of this source will grow as the database is gradually extended in time.

#### **B. CONCLUSIONS.**

The dramatic downturn of piracy following the 1991-1992 peak in the Malacca Strait/Singapore Strait/Phillip Channel area is attributable to the combined effect of international pressure by the coastal states of Indonesia, Malaysia and Singapore, and the concerted efforts of maritime players everywhere. Hot pursuit agreements between unusually cooperative nations in that region, in particular, contributed to the unprecedented decrease in pirate attacks. Although there is no simple explanation for why piracy breeds in certain areas, one thing is certain, industry pressure and governmental action are key factors in its suppression.

This assessment has not attempted to speculate in detail about specific ways in which attacks of piracy can be reduced. Piracy, with few exceptions, represents simple criminal activity. Consequently, to defeat it, there can be no substitute for



effective law enforcement. The solution, however, will prove to be more difficult than defining the problem. One cannot presume to suggest what measures are appropriate in any region without first taking into account the financial, material, and political constraints that face those countries that are confronted with a piracy threat. Describing the attacks as they typically occur in each region is the first step in formulating a plan of action.

The purpose of this thesis was to create a comprehensive database on piracy. The resulting Violence At Sea database is the most complete data repository of its kind. The summary contained in this assessment was designed to give the reader a brief introduction to the way in which the VAS database can contribute the larger analytical examination of maritime piracy.

APPENDIX A

VIOLENCE AT SEA DATABASE

VAS\_ID: |\_|\_|\_|\_|

DATE: |\_|\_|\_|\_|\_|\_|\_|\_|  
Y Y M M D D

VESSEL\_NAME: \_\_\_\_\_

FLAG: |\_|\_|

OWNER: \_\_\_\_\_

TIME\_CAT: 1. Day 2. Night

TIME: |\_|\_|\_|\_|\_|  
Time/Local

DMA\_REG (DMA Geographical Subregion): |\_|\_|

LATITUDE: |\_|\_|\_|\_|\_|\_|\_|\_|

LONGITUDE: |\_|\_|\_|\_|\_|\_|\_|\_|

GRL\_REGION/SUB\_REG\_: *See Codebook*

\_\_\_ / \_\_\_

WATERS: 1. International 2. Territorial

**WATERS-CNTRY:** |\_\_|\_\_| Country

**DIST\_SHORE:** |\_\_|\_\_|\_\_|. |\_\_| Nautical Miles

**LAND\_NAME:** \_\_\_\_\_

**PORT\_TEXT:** \_\_\_\_\_

**VESSEL INFORMATION**

**VESSEL STATUS:**

1. Underway    2. Pierside    3. At anchor    4. Under Tow  
5. Drifting    6. At an Anchorage  
7. Disabled (Non-manueverable)    8. Moored

**VESSEL\_SPEED:** Actual Speed (Knots) |\_\_|\_\_|

**TYPE\_TEXT:** \_\_\_\_\_

**TONNAGE\_DWT:** |\_\_|\_\_|\_\_|\_\_|\_\_|

**TONNAGE\_GR:** |\_\_|\_\_|\_\_|\_\_|\_\_|

**TONNAGE\_GRT:** |\_\_|\_\_|\_\_|\_\_|\_\_|

**CREW\_SIZE:** |\_\_|\_\_|

**CREW\_NAT\_M:** |\_\_|\_\_|    **CREW\_NAT\_OFF:** |\_\_|\_\_|    **CREW\_NAT\_C:** |\_\_|\_\_|

**SHIP\_LGTH:** |\_\_|\_\_|\_\_| (Meters)

**PAST\_ATT:** (Previous History of Pirate Attack): 1. Yes    2. No

**PAST\_RT:** (Same Route): 1. Yes 2. No

**PURPOSE:** 1. Short Term 2. Long Term 3. Permanent

**PUR\_TIME:** **PUR\_TIME\_S** **PUR\_TIME\_L**

|\_|\_|\_|  
Minutes

|\_|\_|\_|  
Days

**PERM\_CODE:**

1. Scuttled
2. Reregistered
3. Nothing Heard
4. Recovered

**THEFT TARGET:**  
(Short Term)

1. **TAR\_CASH**

2. **TAR\_ELEC** (Electronics)

3. **TAR\_CARGO** (Specific Cargo)

**LOOT\_CARGO:** \$|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|

4. **TAR\_PERS** (Personal Effects)

**LOOT\_PERS:** (Personal Cash/Belongings) \$|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|

5. **TAR\_EQUIP** (Ship's Equipment)

**LOOT\_SH\_EQUIP:** \$|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|

6. **TAR\_SAFE** (Master's Safe)

**LOOT\_MAS\_SAFE:** \$|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|

7. **TAR\_OTHER** 1. Yes

**LOOT\_TOTAL:** \$|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|

PREVENTIVE MEASURES USED

USE\_LIGHT |\_\_| USE\_WATCANON |\_\_| USE\_ALARM |\_\_|  
USE\_WATCH (Deck) |\_\_| USE\_WATCH (Bridge) USE\_RADAR |\_\_|  
USE\_INCSPEED |\_\_| USE\_CREWRESIS |\_\_| USE\_WEAPONS |\_\_|  
USE\_EVASMVT |\_\_| (Evasive Movement)

PROTECTIVE MEASURES

PRO\_BARR\_U 1. Yes 2. No

PRO\_BARR: Protective Barricade Location for the Crew

ATTACKERS:

NUM\_PIRATES: |\_\_|\_\_|\_\_|

BOARD\_SUCCESS: 1. Yes 2. No 3. No Attempt  
(Boarding Successful)

PIR\_OBS: 1. Yes 2. No [Pirates Observed while onboard, or  
attempting to board?]

PIR\_ARMED: 1. Yes 2. No 3. Unknown

PIR\_WPNS\_USED: (Weapons used) |\_\_|\_\_| *Code Book (most dangerous)*

APP\_NAT: (Appearance, Nationality) |\_\_|\_\_|

APP\_MASKED: 1. Yes 2. No

METHOD\_BRDING: (Method of Boarding) |\_\_| *See Code Book*

PLACE\_BOARD: (Place of Boarding) 1. Bow 2. Stern 3. Amidships  
4. Port 5. Starboard

**SPONSOR:** |\_\_|

**SPONSOR\_CTRY:** |\_\_|\_\_|

1. Unauthorized Military
2. Impersonating Military
3. Authorized Military
4. Country Sanctioned/Non-military
5. Organized Crime
6. Independent Operator
7. Unknown

**SHORE\_CORRUPT:** (Shore-based Collusion/Corruption)

1. Insider (Already on board)
2. Shipping Administration
3. Law Enforcement/Military

**DET\_BEF\_BOARD:** (Presence Detected Before Boarding) 1. Yes 2. No

**PIR\_VES\_BASING:** 1. Land 2. Sea 3. Man-made Fixed Based

**BASE\_COUNTRY:** |\_\_|\_\_|

**MOM\_USED:** (Mothership Used): 1. Yes 2. No 3. Self-Supporting

**MOM\_IDENT:** \_\_\_\_\_

**PIRATE\_WARN:** 1. Yes 2. No (Pirate Warning given before boarding)

**TYPE\_PIR\_WARN:** 1. Verbal 2. Elec Comms 3. Shots Fired 4. Visual/Light

**TYPE\_PIR\_CRAFT:** |\_\_|\_\_| *See Code Book*

**CRAFT\_FEAT1:** |\_\_|\_\_| **CRAFT\_FEAT2:** |\_\_|\_\_| **CRAFT\_FEAT3:**

(Color)

(Hull Construction)

(Other)

*See Code Book*

**PIR\_CRAFT\_CAP:** (Speed Capability) |\_\_|\_\_| [Knots]

**PIR\_CRAFT\_LEN:** (Length) |\_\_|\_\_|\_\_| [Meters]

## CASUALTIES

**CASUALTIES:** 1. Yes 2. No

**MAS\_INJ:** 1. Yes 2. No

**MAS\_DEATH:** 1. Yes 2. No

**OFF\_INJ:** 1. Yes 2. No

**OFF\_DEATH:** 1. Yes 2. No

**NUM\_OFF\_INJ:** |\_\_|

**NUM\_OFF-DEAD:** |\_\_|

**CREW\_INJ:** 1. Yes 2. No

**CREW\_DEATH:** 1. Yes 2. No

**NUM\_CREW\_INJ:** |\_\_|\_\_|

**NUM\_CREW\_DEAD:** |\_\_|\_\_|

**HOSTAGE\_TAKEN:** 1. Yes 2. No

**CLASS\_INJURIES:**

1. No Injuries

2. Minor Injuries

*Code as most serious*

3. Medium Injuries (attended to on board)

4. Serious Injuries (major attention, medevac reqd)

5. Death

## RESPONSE

**VERB\_REPORT:** 1. Before Attack 2. During Attack

3. Immediately After Attack

**REPORT\_WATERS:** 1. Territorial Waters 2. International Waters

**REP\_PORT:** 1. Yes 2. No

**REP\_SHORE:** 1. Yes 2. No

**REP\_SHIPOWNER:** 1. Yes 2. No

**REP\_IMO:** 1. Yes 2. No

**REP\_RCC:** 1. Yes 2. No [Rescue & Coordination Center]

REP\_IMB: 1. Yes 2. No

REP\_OTHER: |\_\_|\_\_| \_\_\_\_\_

INVESTIGATION: 1. Territorial State 2. Internal (Shipowner)  
3. Other Party \_\_\_\_\_

SHIP\_DAM: 1. Yes 2. No

SHIP\_DAMAGE: \$|\_\_|\_\_|\_\_|\_\_|\_\_|\_\_|

MOVEMENT DATA

LAST\_PORT: \_\_\_\_\_

DEST\_PORT: \_\_\_\_\_

PORT\_DIRECT: |\_\_| (Port Direction)

1. Inbound 2. Outbound 3. At Sea 4. In Port 5. In an anchorage

COMMENTS/MISCELLANEOUS

SOURCE: *See Codebook*

VESSEL\_U\_CMD: 1. Yes 2. No

PIR\_CAUGHT: 1. Yes 2. No

ACT\_COAST\_ST: \_\_\_\_\_

THREATS\_MADE: 1. Yes 2. No

INTERDICTION: 1. Yes 2. No

NOTES:



## APPENDIX B

Figure 1

### GENERAL REGION BREAKOUT

1. **South/East Asia**
  1. Anambas Islands
  2. Burma (BM)
  3. South China Sea
  4. East Malaysia
  5. Gulf of Thailand
  6. Malaysia (MY)
  8. Hong Kong (HK)
  9. Malacca Strait
  10. Pacific Ocean
  11. Philippines (RP)
  12. Phillip Channel
  13. Singapore (SN)
  14. Singapore Strait
  15. Taiwan (TW)
  16. Taiwan Strait
  17. Vietnam (VM)
2. **Northeast Asia**
  1. East China Sea
  2. Sea of Japan
  3. Yellow Sea
  4. China (CH)
  5. Korea Strait
3. **Indonesia**
  1. Andaman Sea
  2. Borneo
  3. Celebes Sea
  4. Java Sea
  5. Sumatra
  6. Java
  7. Vicinity Bintan Island
  8. Kepulauan Lingga
4. **Mediterranean**
  1. Algeria (AG)
  2. Lebanon (LE)
  3. Greece (GR)
  4. France (FR)
5. **West Africa**
  1. Angola (AO)
  2. Ghana (GH)
  3. Guinea (GV)
  4. Ivory Coast (IV)
  5. Nigeria (NI)
  6. Senegal (SG)
  7. Sierra Leone (SL)
  8. Cameroon (CM)
6. **East Africa**
  1. Djibouti (DJ)
  2. Gulf of Aden
  3. Madagascar (MA)
  4. Red Sea
  5. Somalia (SO)
  6. Tanzania (TZ)
  7. Ethiopia (ET)
7. **Central America**
  1. Belize (BH)
  2. Costa Rica (CS)
  3. El Salvador (ES)
  4. Guatemala (GT)
  5. Honduras (HO)
  6. Nicaragua (NU)
  7. Panama (PM)

Figure 1

**GENERAL REGION BREAKOUT**

**8. South America**

1. Brazil (BR)
2. Colombia (CO)
3. Ecuador (EC)
4. Guyana (GY)
5. Paraguay (PA)
6. Peru (PE)
7. Venezuela (VE)

**9. India**

1. Arabian Sea
2. Bangladesh (BG)
3. Bay of Bengal
4. Indian Ocean
5. Sri Lanka (CE)

**10. North Atlantic**

1. Belgium (BE)
2. Germany (GE)

**11. Middle East**

1. Persian Gulf
2. Saudi Arabia (SA)
3. Gulf of Oman
4. Strait of Hormuz

**12. Miscellaneous**

1. Australia/New Zealand
2. Black Sea
3. Caribbean Sea
4. Romania (RO)
5. South Africa (SF)

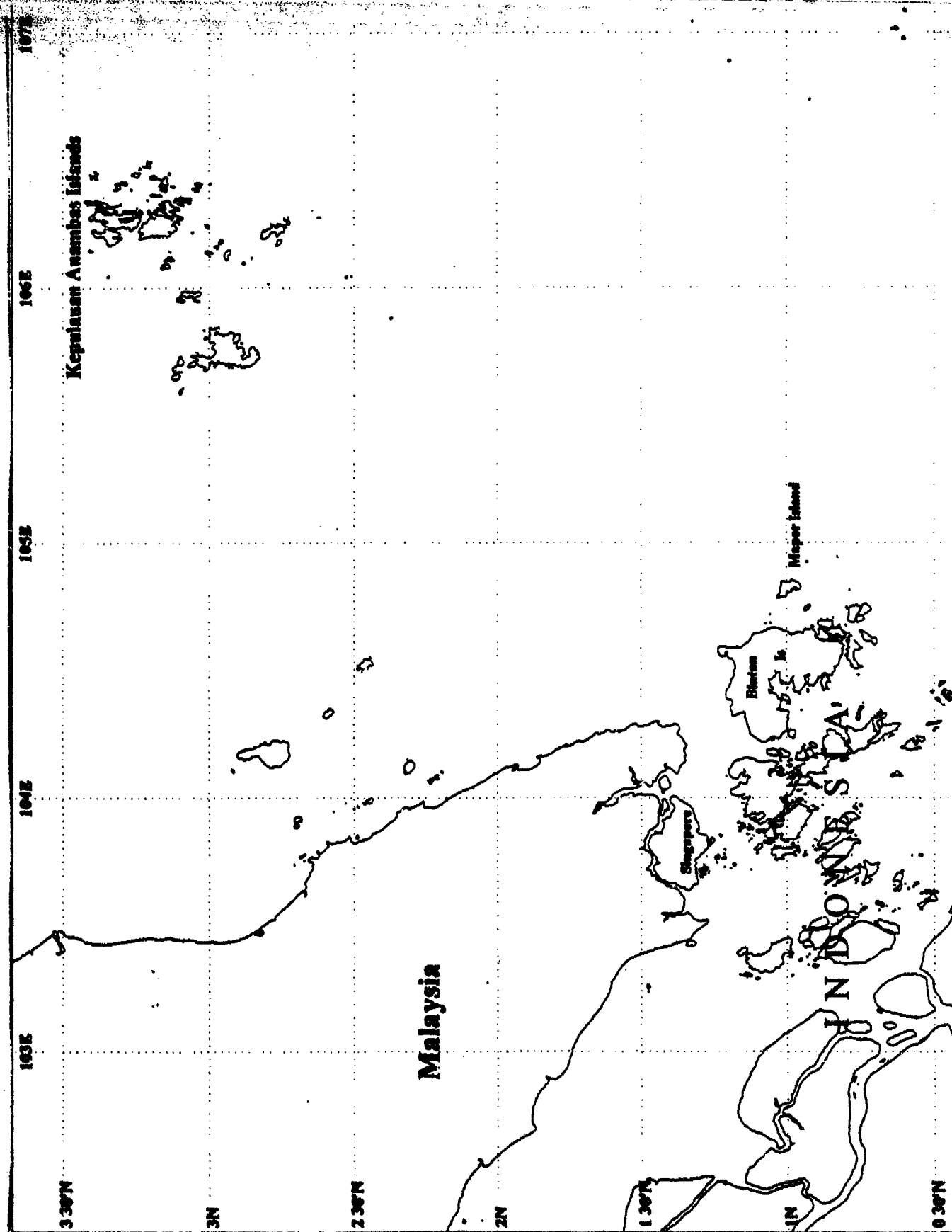


Figure 2

# Attacks By Region By Year 1989-1993

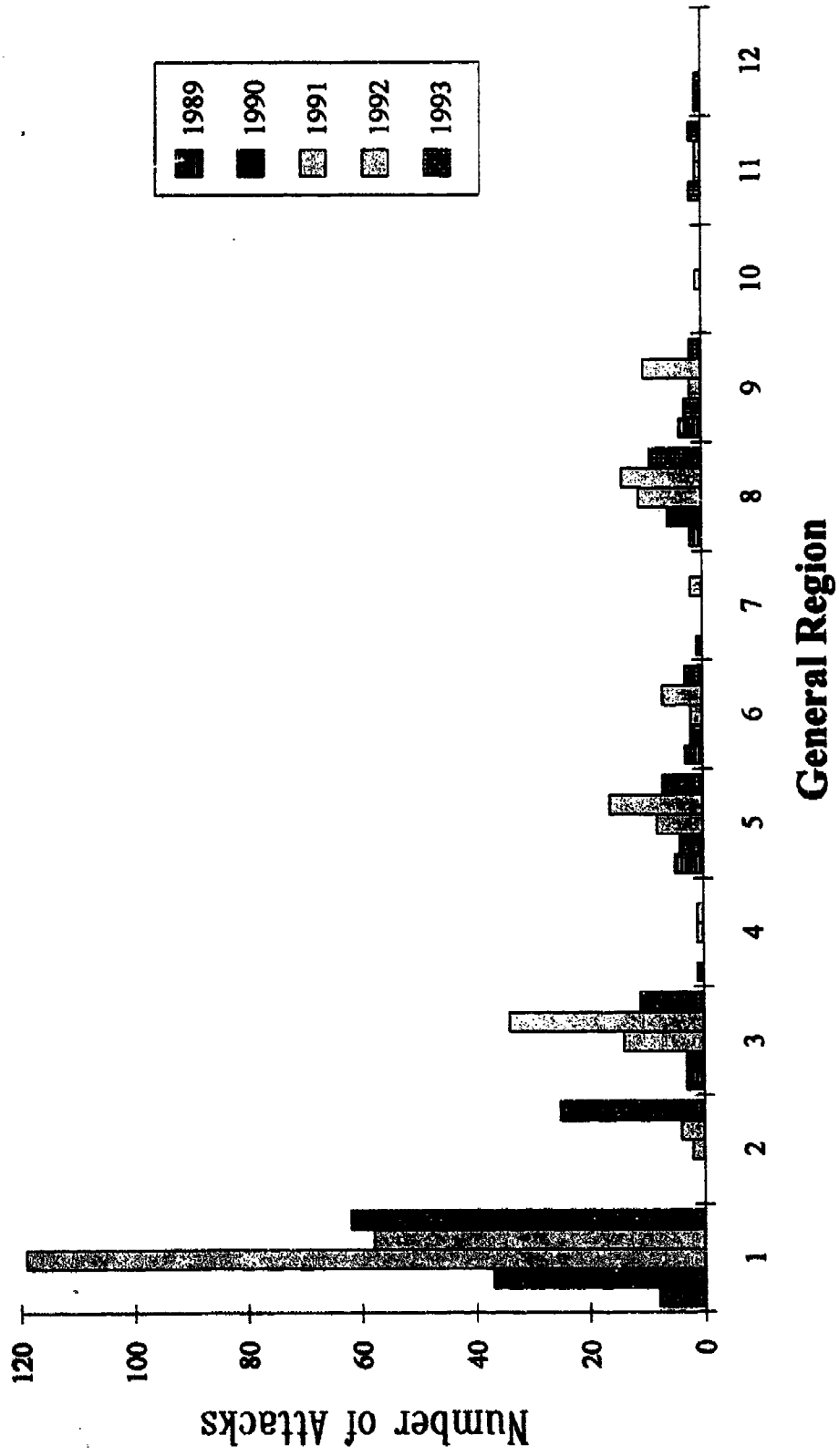


Figure 3

# Attacks By Year - Regional Percentage

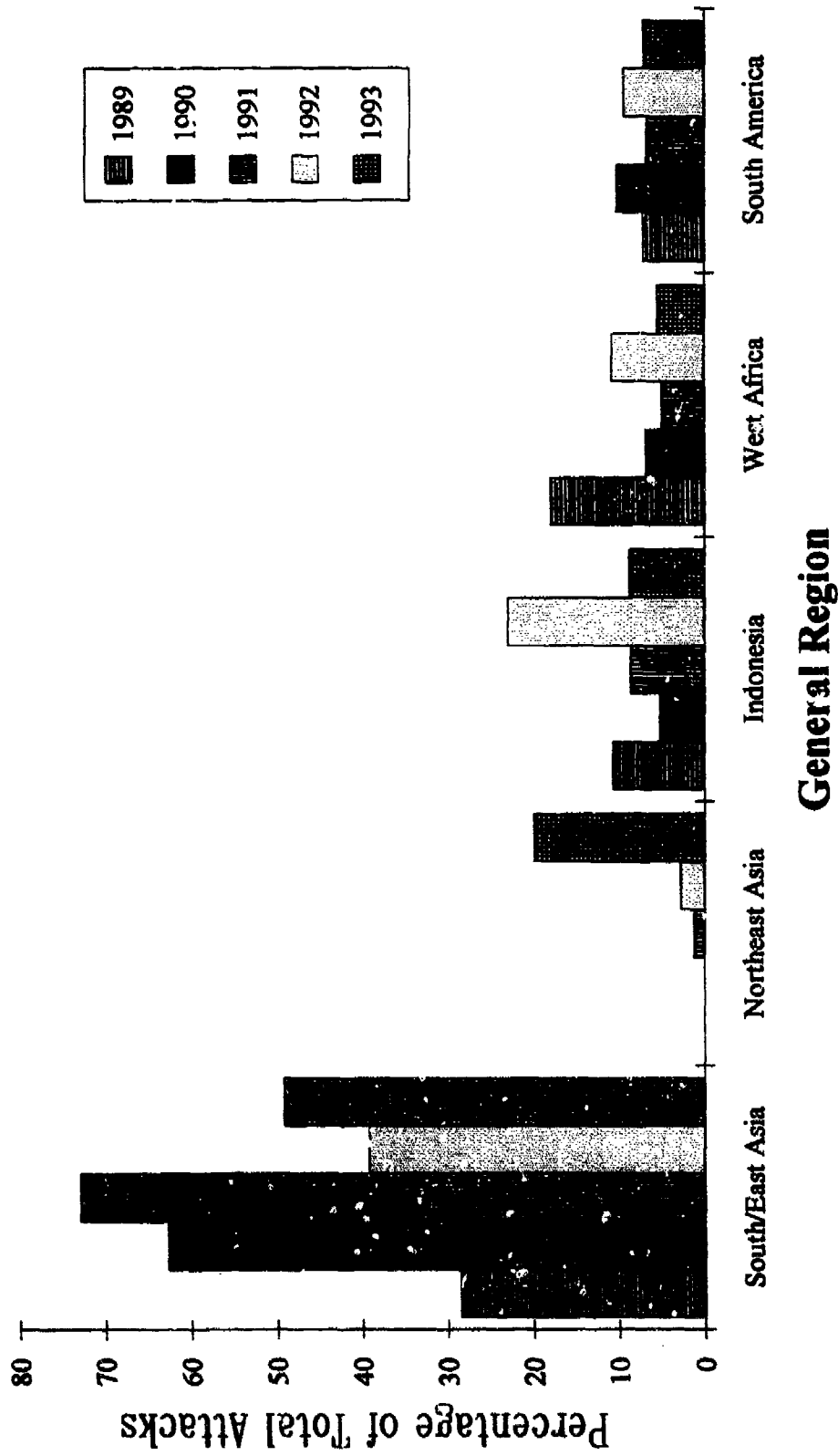


Figure 4

# Attacks By Flag of Vessel

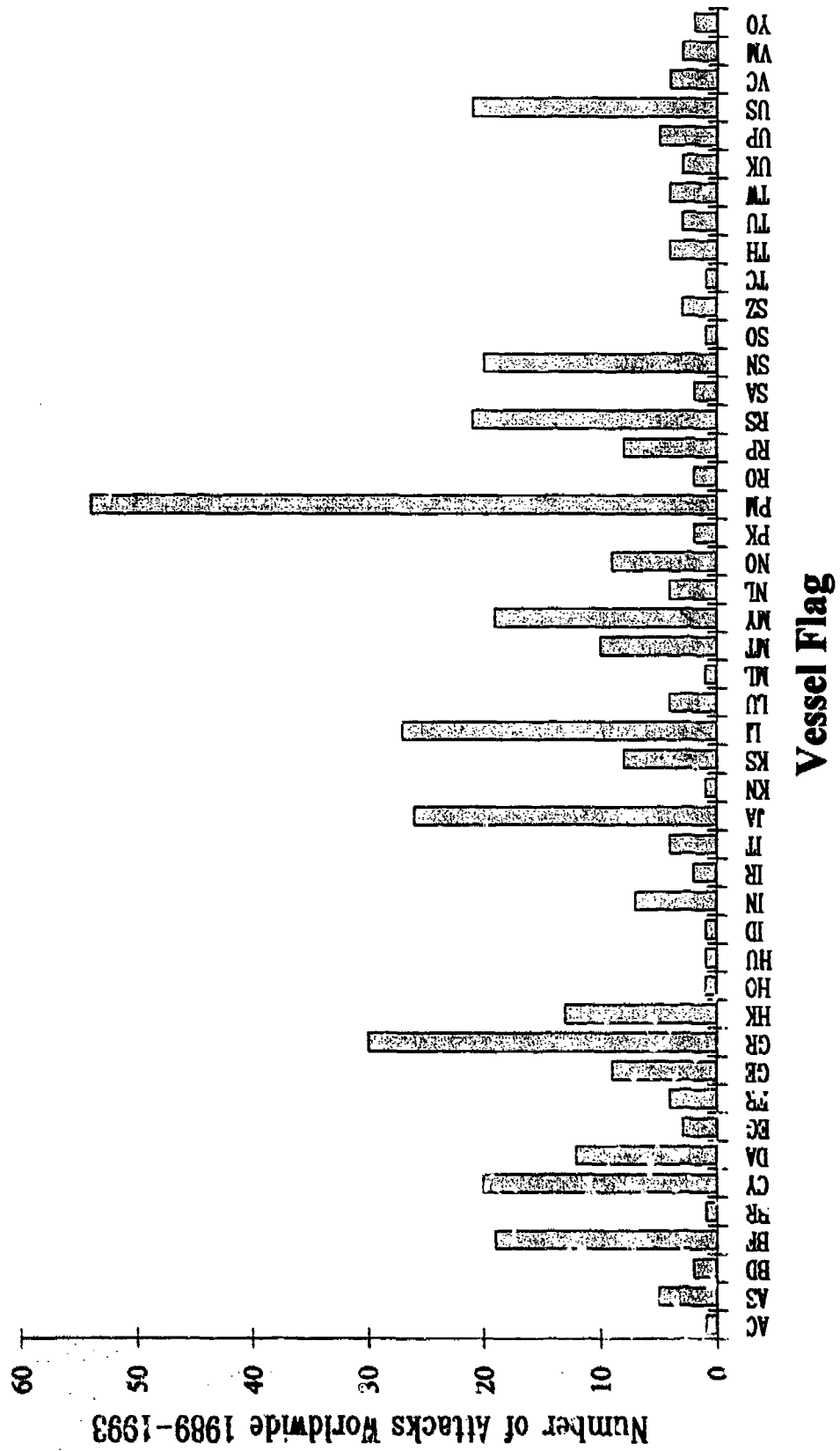
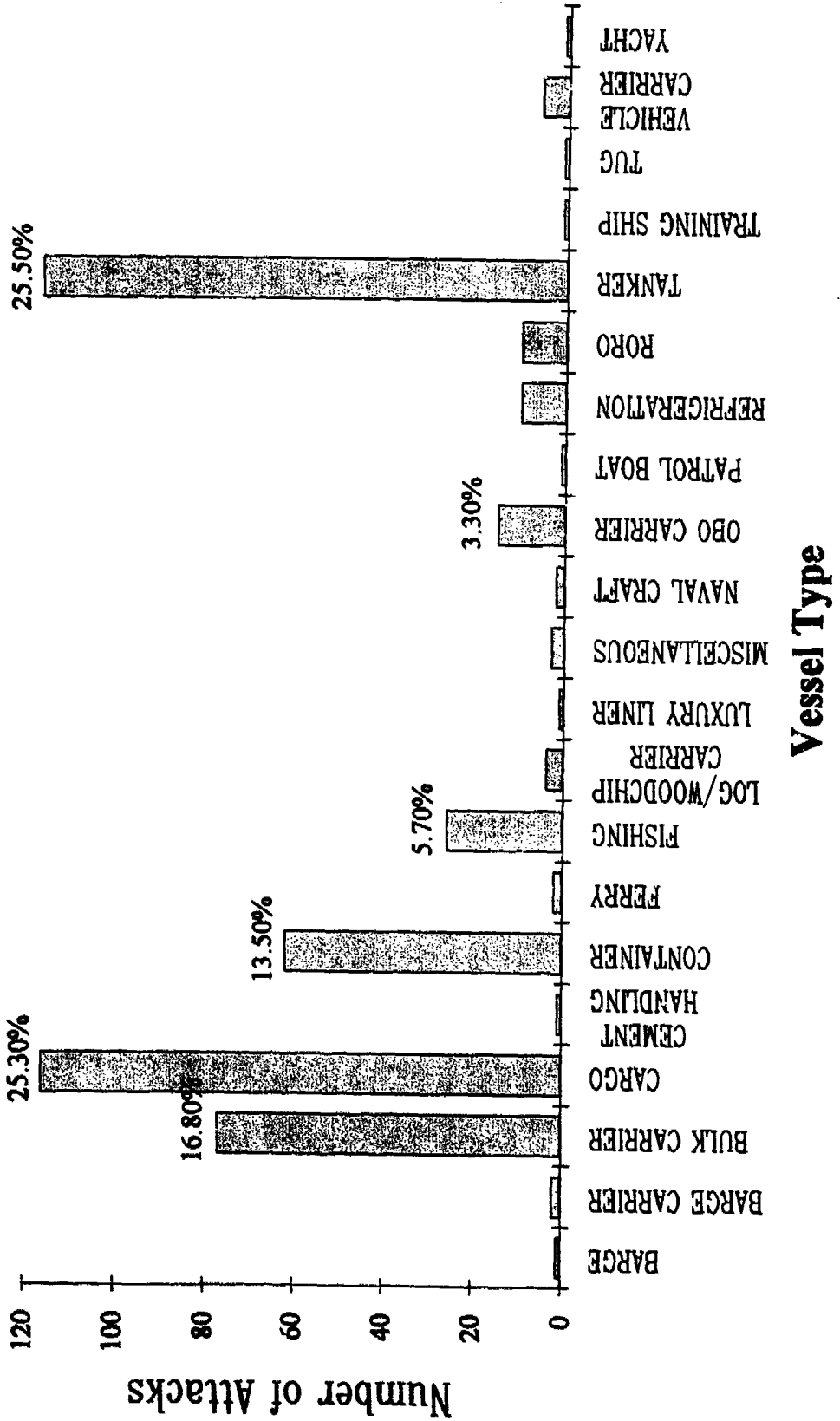


Figure 5

# Attacks By Vessel Type 1989-1993



# Piracy Attacks By Year

523 Total Attacks

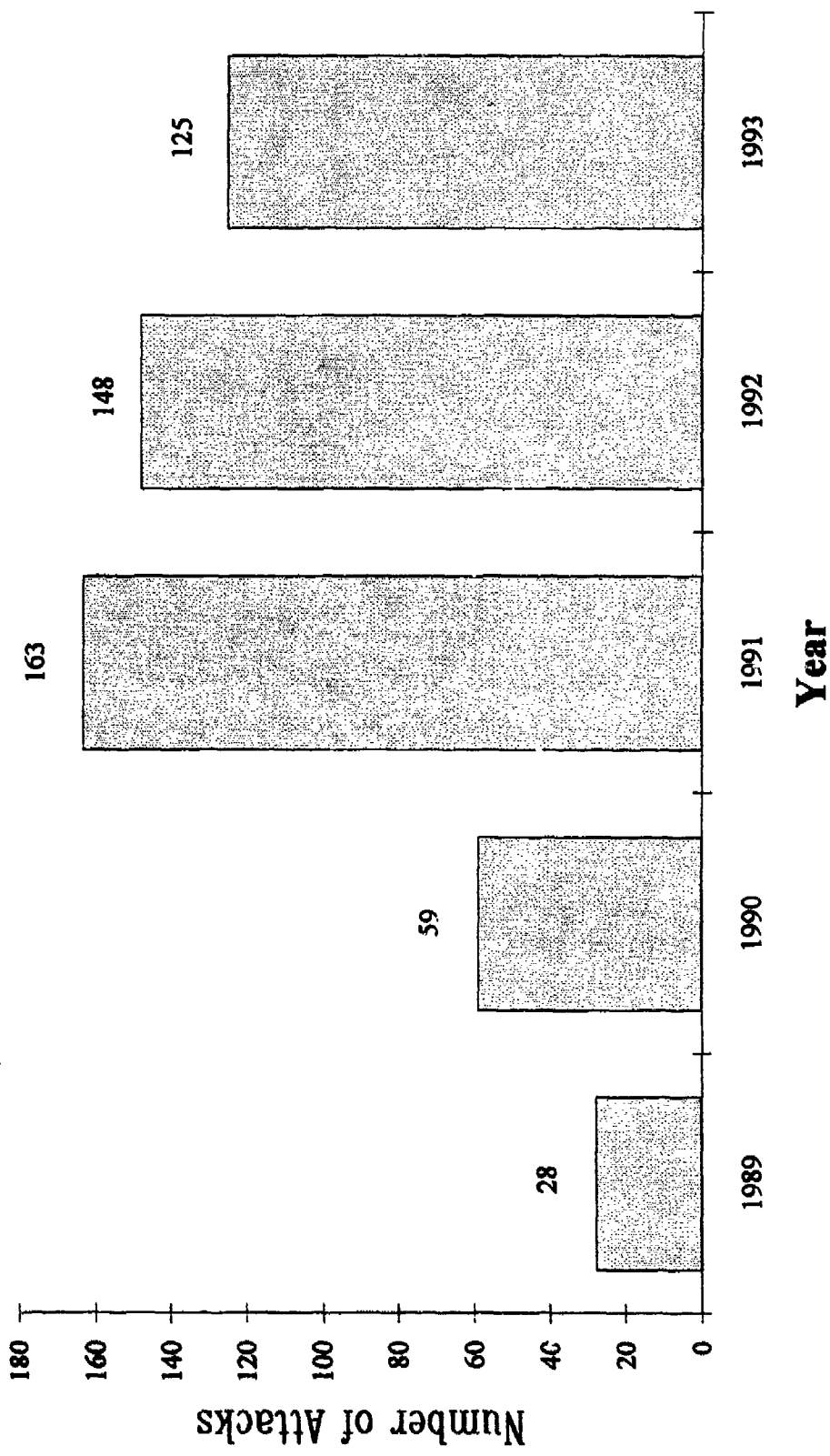
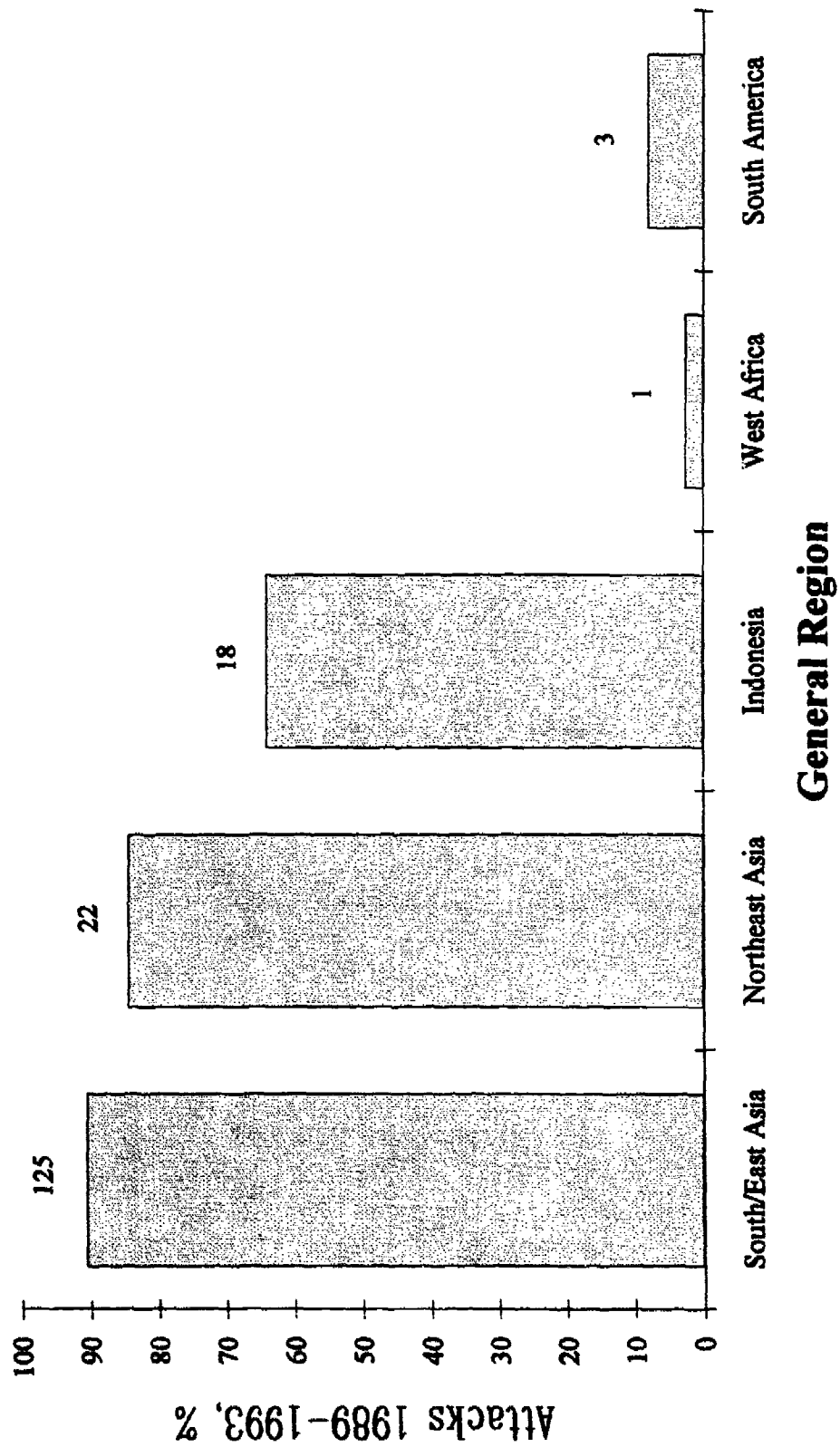


Figure 7



# % Of Underway Attacks By Region



General Region

Figure 8

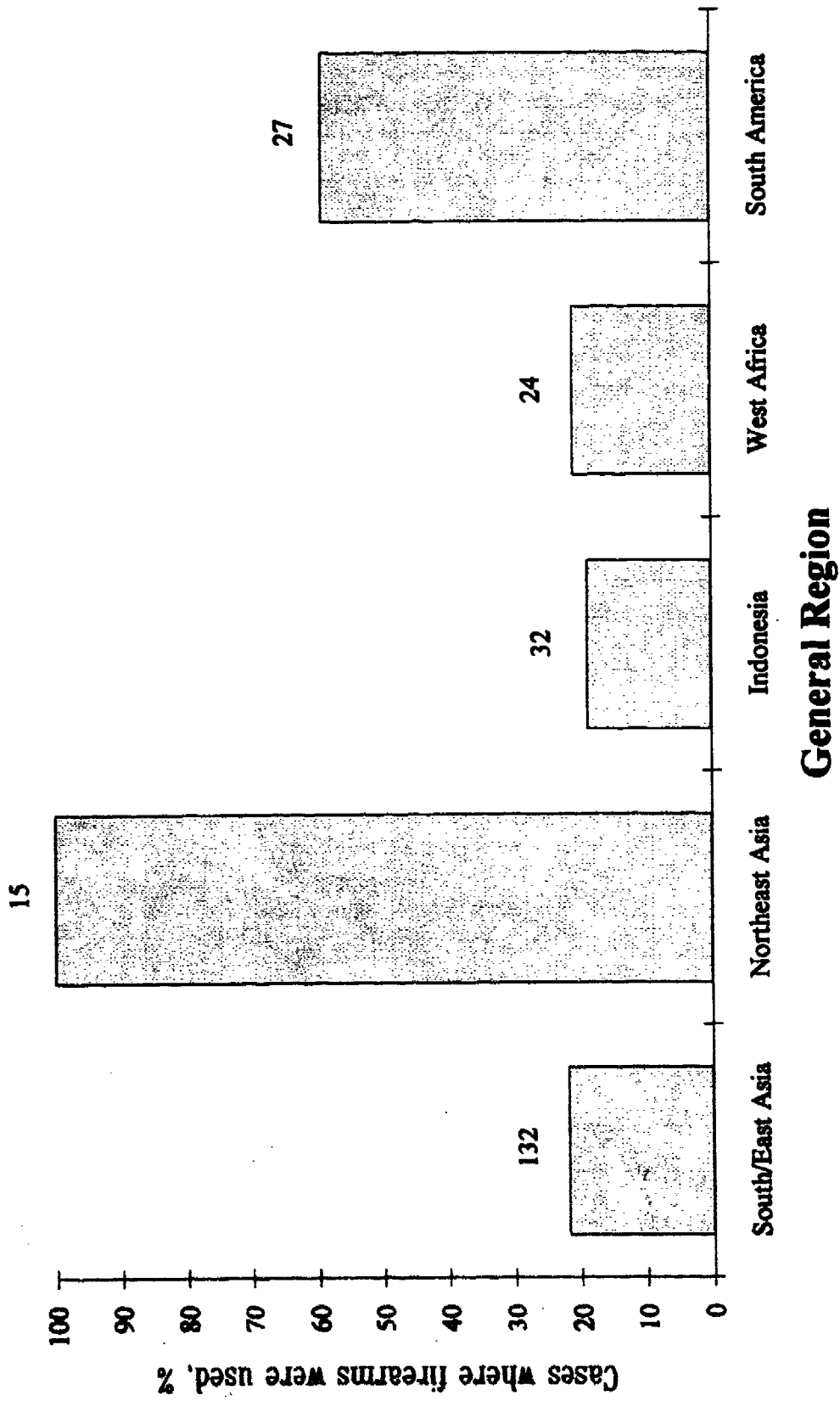
Regions 1, 2, 3, 5, 8 Statistics							
	South/East Asia	Northeast Asia	Indonesia	West Africa	South America	Top 5 Totals	International Totals
<b>Number of Attacks</b>	284	31	65	40	42	462	523
<b>Day</b>	33	9	6	3	2	53	62
<b>Night</b>	127	10	44	31	28	240	272
<b>International Territorial</b>	114 138	23 5	34 31	1 37	0 42	172 253	183 298
<b>Underway Stationary</b>	124 13	22 4	18 10	1 36	3 34	168 97	188 129
<b>Deaths Casualties No Casualties</b>	11 21 120	 1 16	 6 26	 3 19	 7 16	13 38 197	15 43 229
<b>Boarding Successful Boarding Unsuccessful</b>	149 50	14 10	34 11	33 3	34 4	264 78	310 86
<b>Mean Number of Pirates</b>	7.32	9.5	9.42	9.45	7.67	8.03	7.98
<b>Short Term Long Term Permanent</b>	168 9 5	21 1 0	39 2 0	36 0 0	38 0 0	302 12 5	350 14 6
<b>Crew Resisted</b>	19	4	8	7	7	45	57

Figure 9

Regions 1, 2, 3, 5, 8 Statistics						
	South/East Asia	Northeast Asia	Indonesia	West Africa	South America	Top 5 Totals
	Asia	Asia		Africa	America	International Totals
Boarding Successful	149	14	35	33	36	267
Boarding Unsuccessful	51	10	10	3	4	78
Detected Before Boarding	70	16	13	6	3	108
Not Detected Before Boarding	16	0	8	2	11	37
Boarding Success When Detected	11	7	1	2	0	21
Boarding Unsuccessful When Detected	46	7	10	3	3	69
Pirate Warning Given	30	14	2	1	0	47
						54

Figure 9

# Attacks Involving Firearms, %



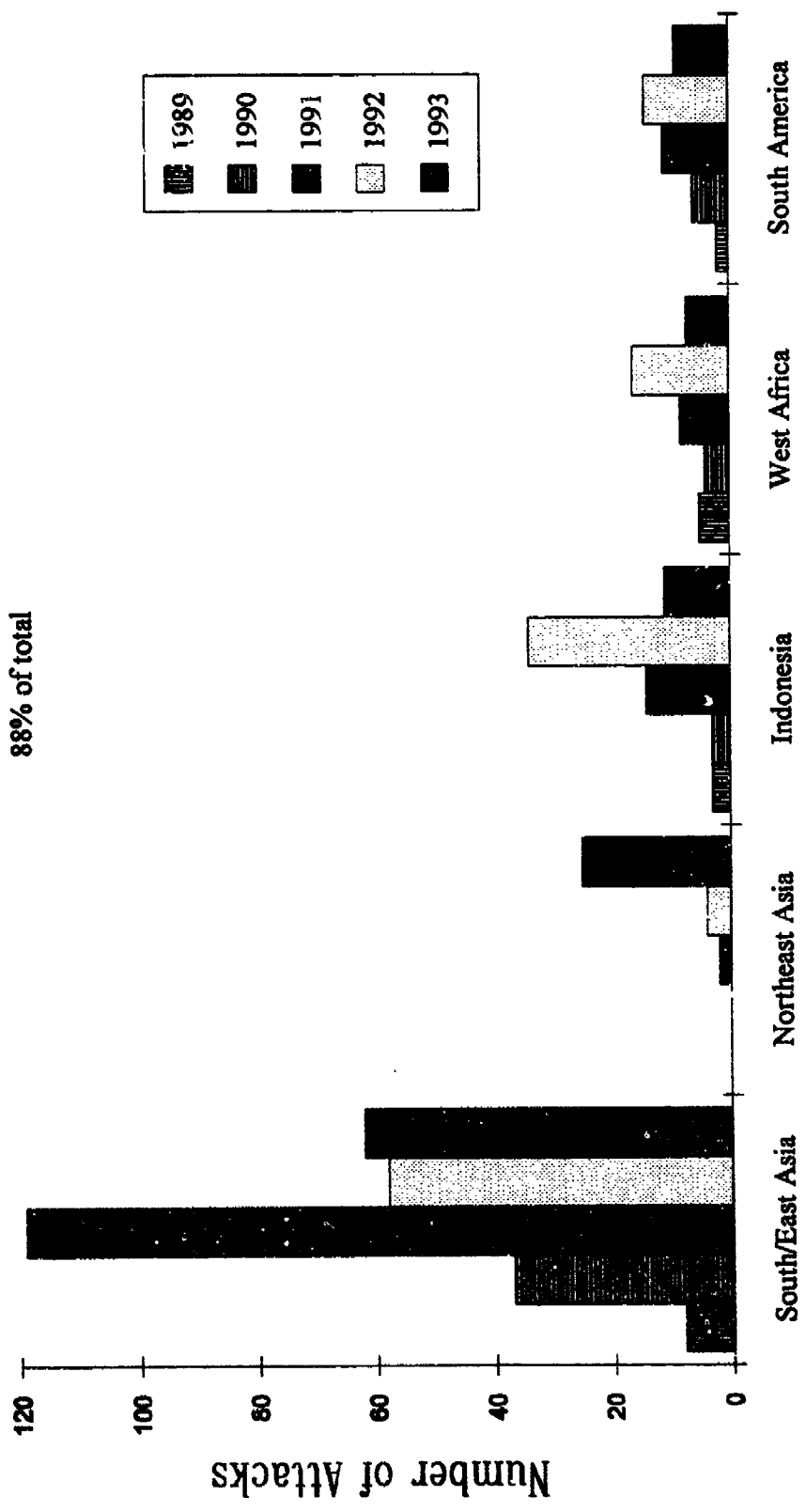
General Region

Figure 10

# Attacks By Region 1989-1993

## Top Five Regions

88% of total



## General Region

Figure 11

# Attacks By Subregion in General Region 1

1989-1993

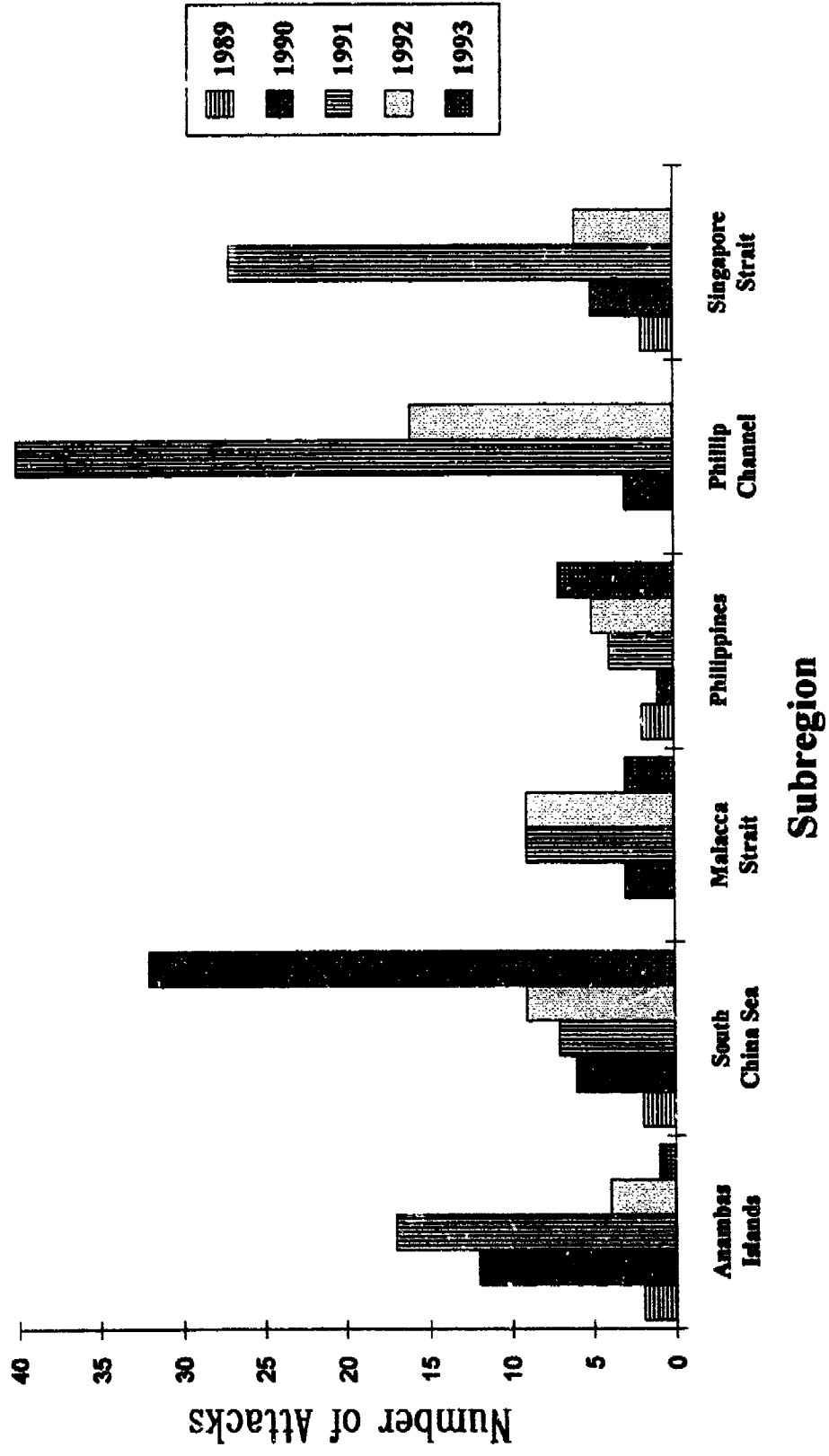


Figure 12

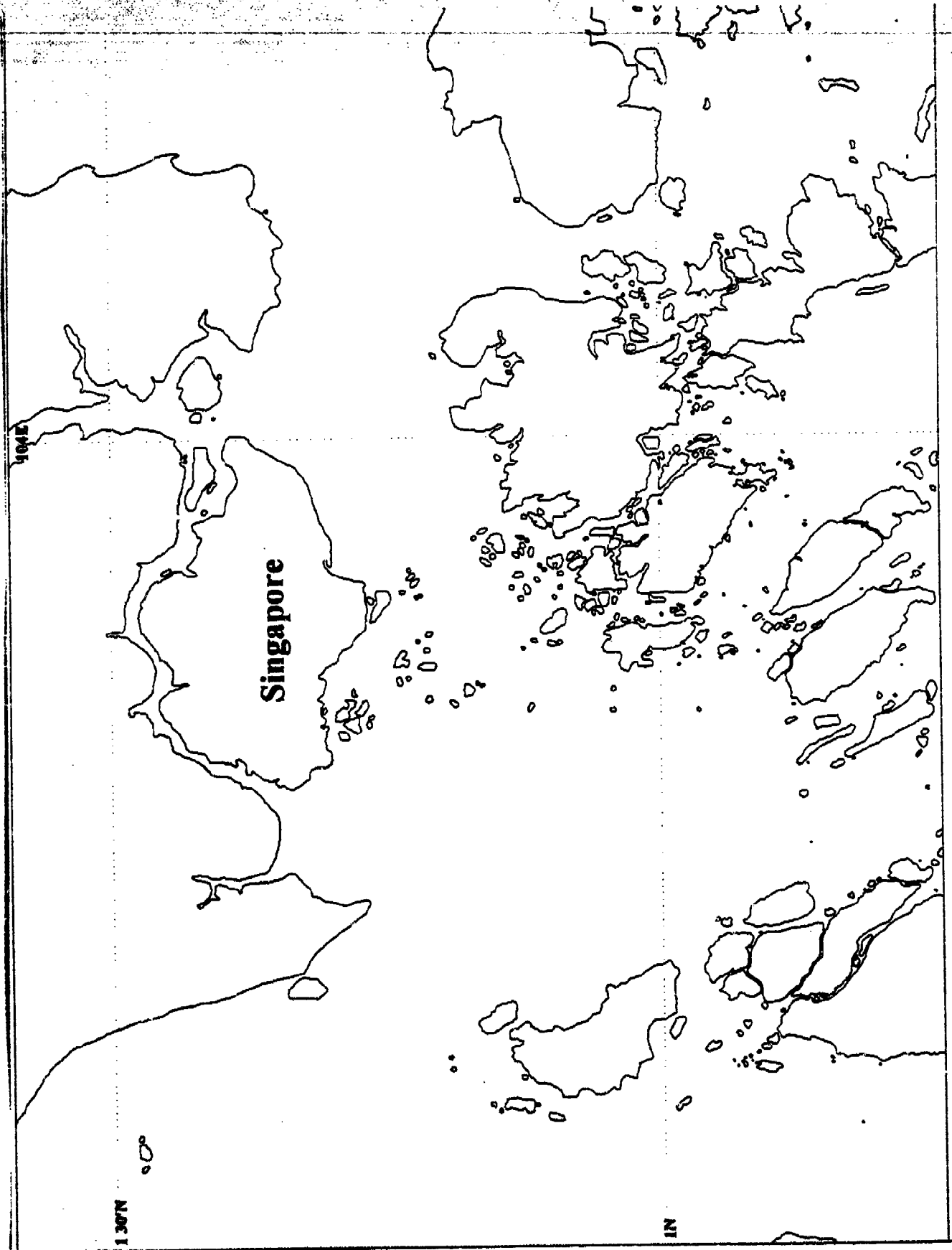


Figure 13

# Region 1 Night Attacks, %

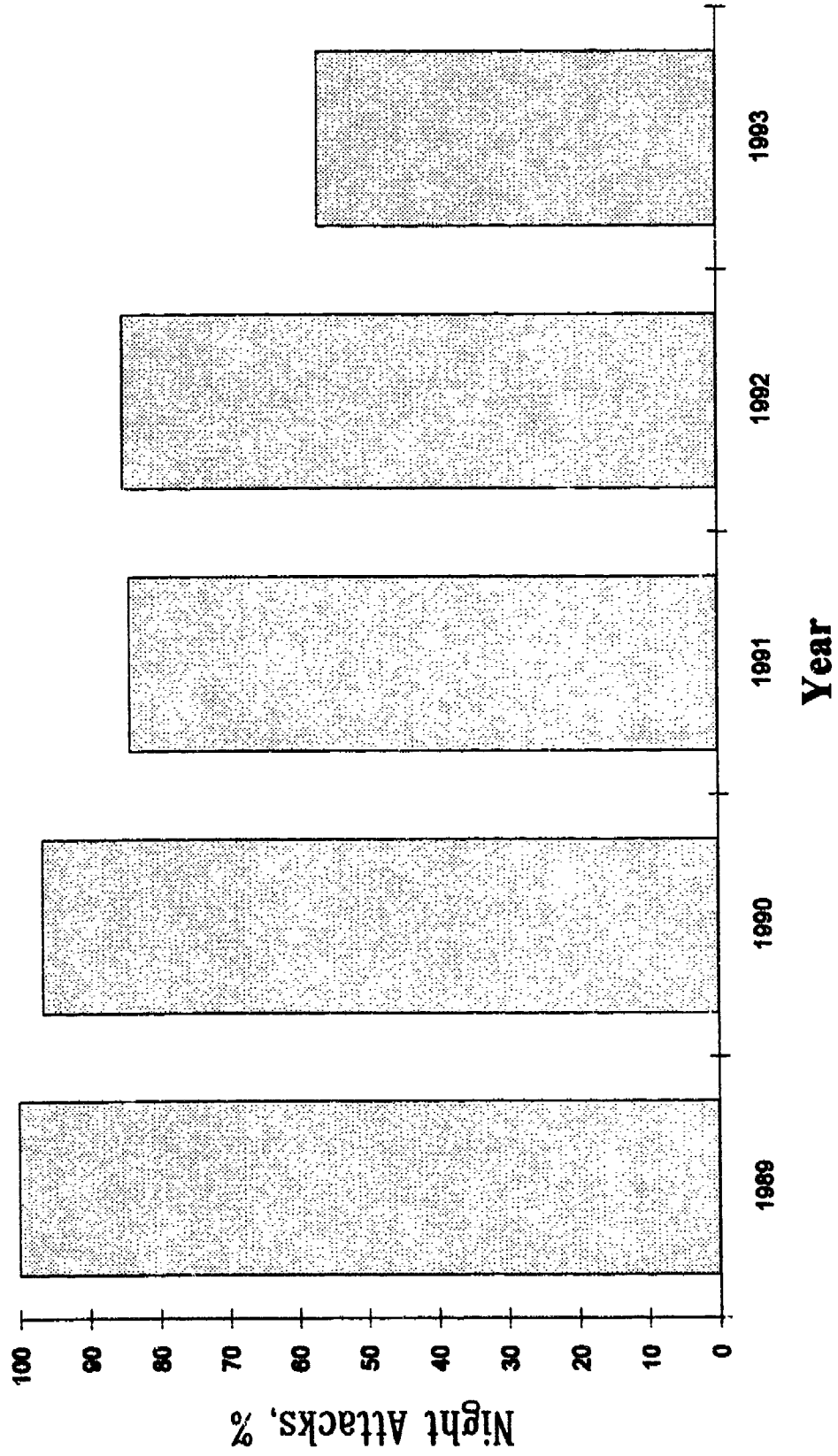


Figure 14



# Region 1 Underway Attacks, %

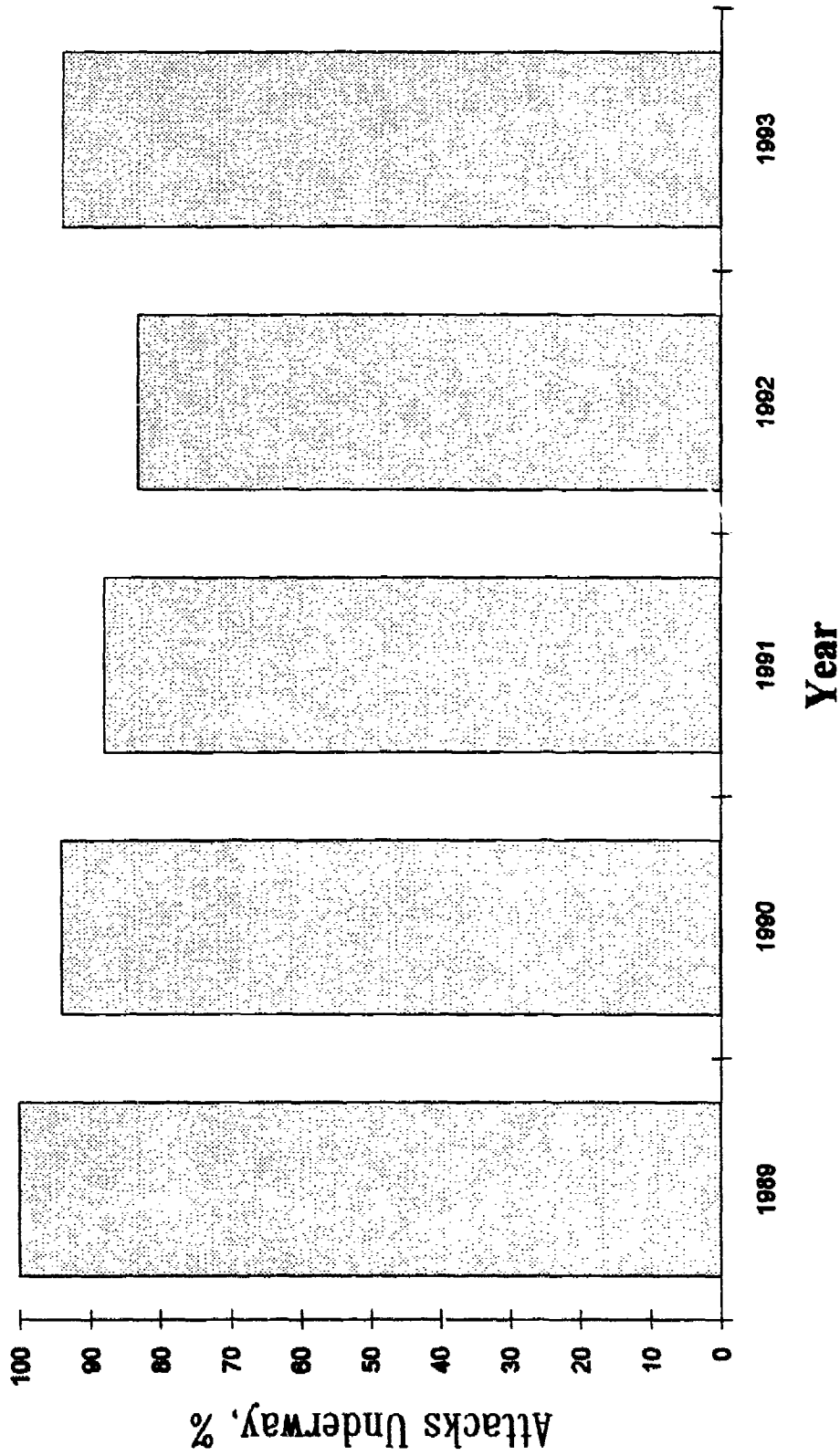
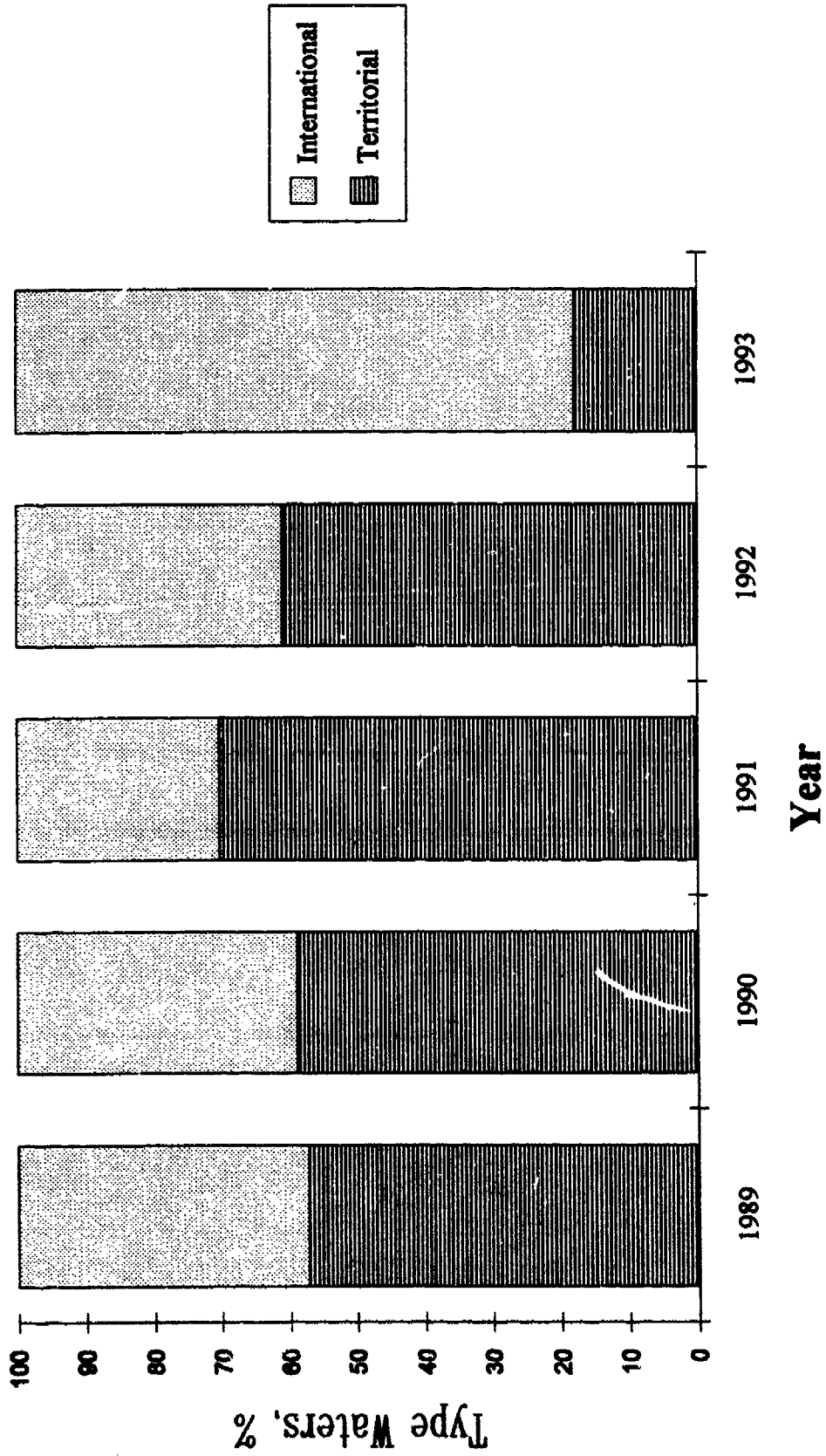


Figure 15

# Region 1 Attacks by Type Waters, %



# Region 1 - Worldwide Attacks, %

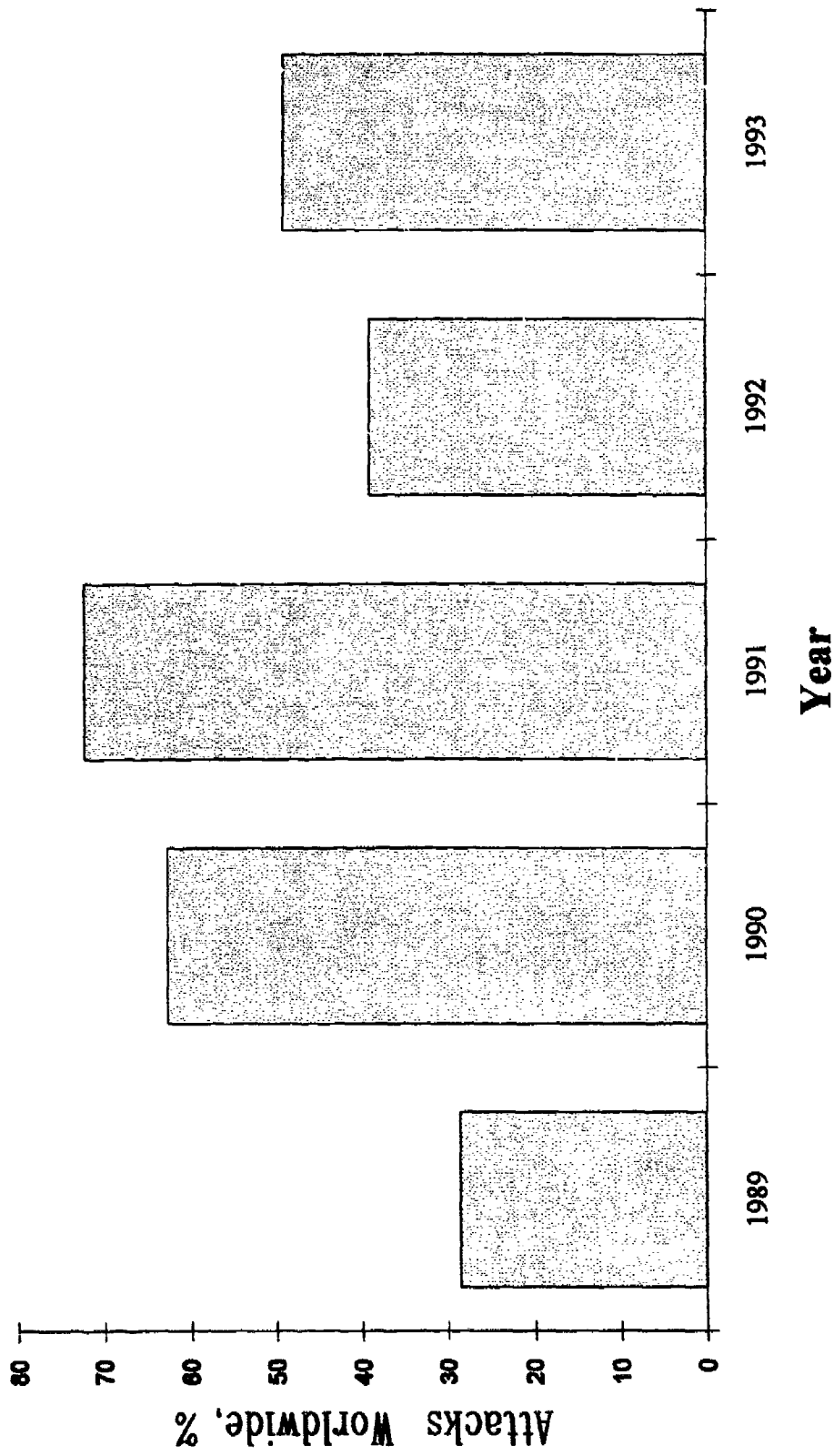


Figure 17

# Region 1 - Boarding Success, %

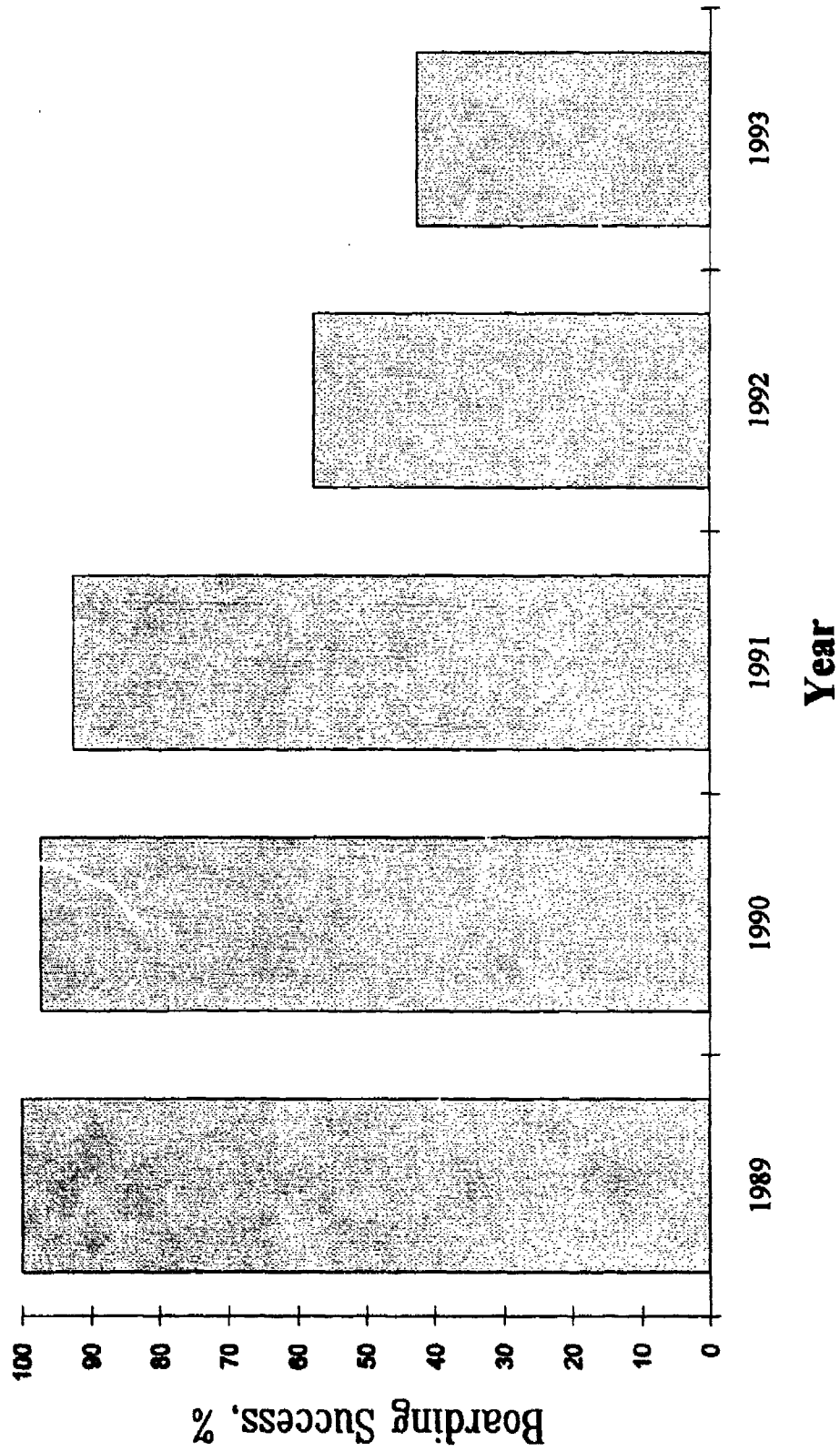


Figure 18

# Region 3 - Attacks By Year

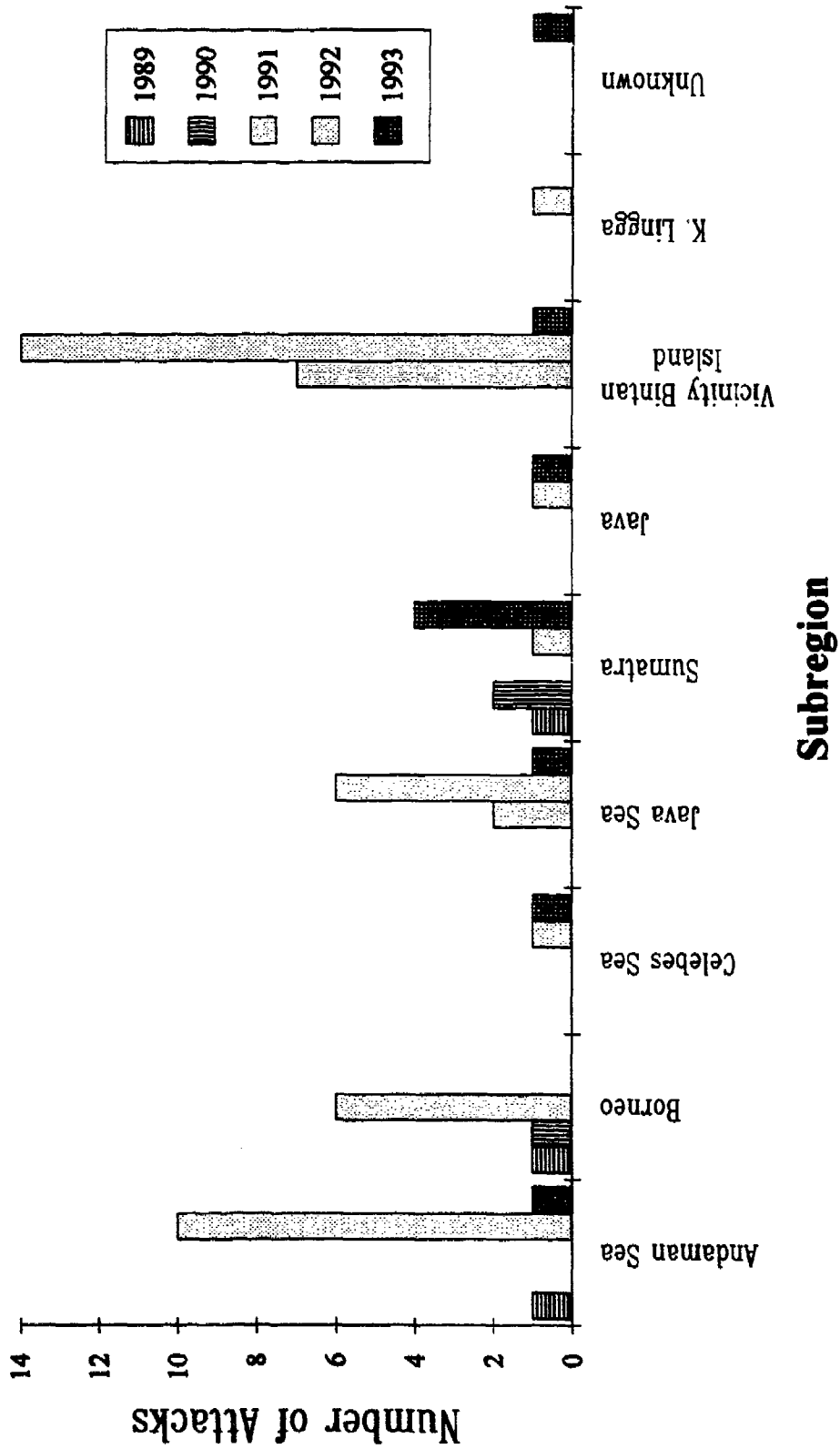


Figure 19

# Region 5 - Attacks By Year

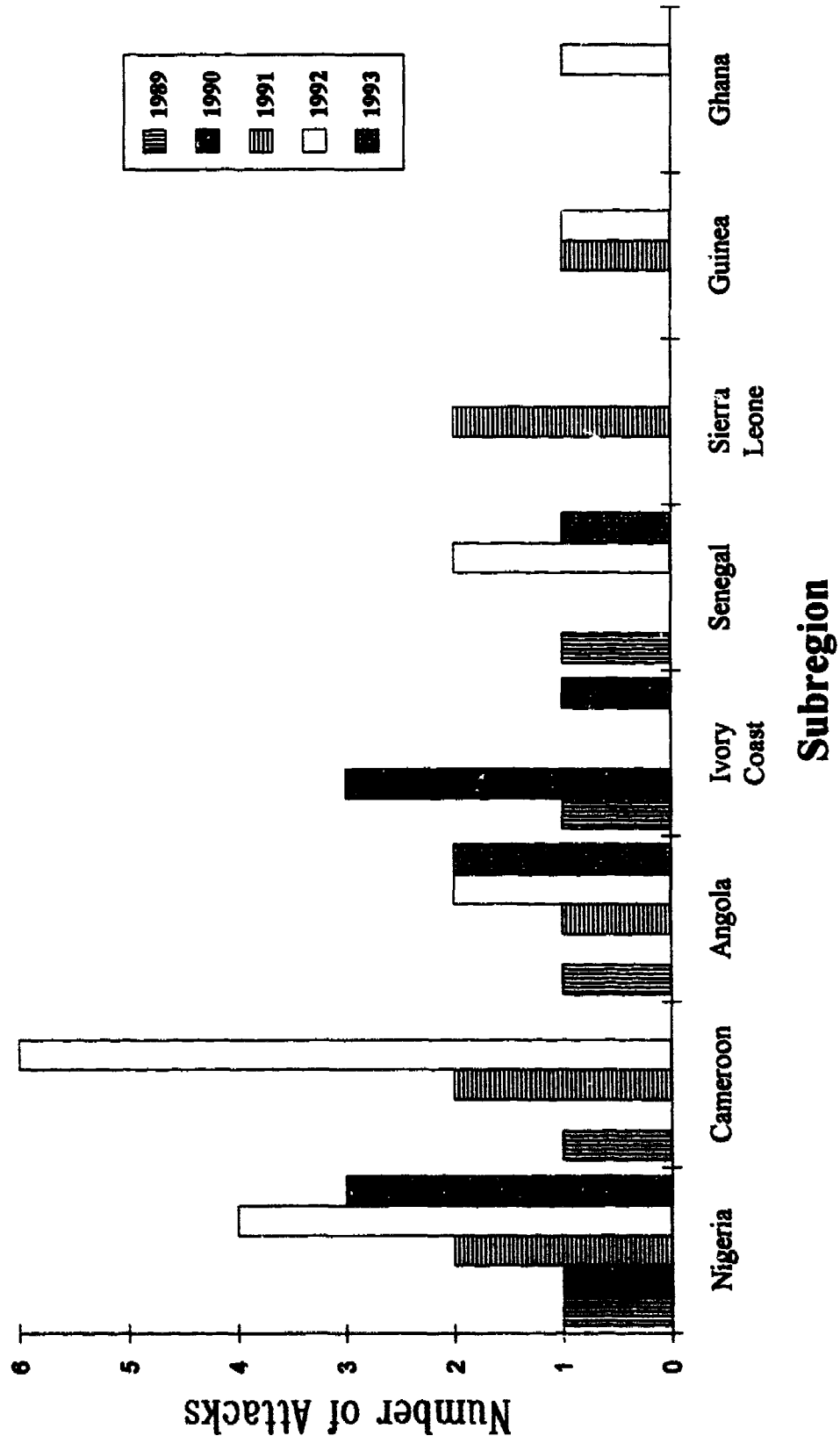


Figure 20

# Region 8 - Attacks by Year

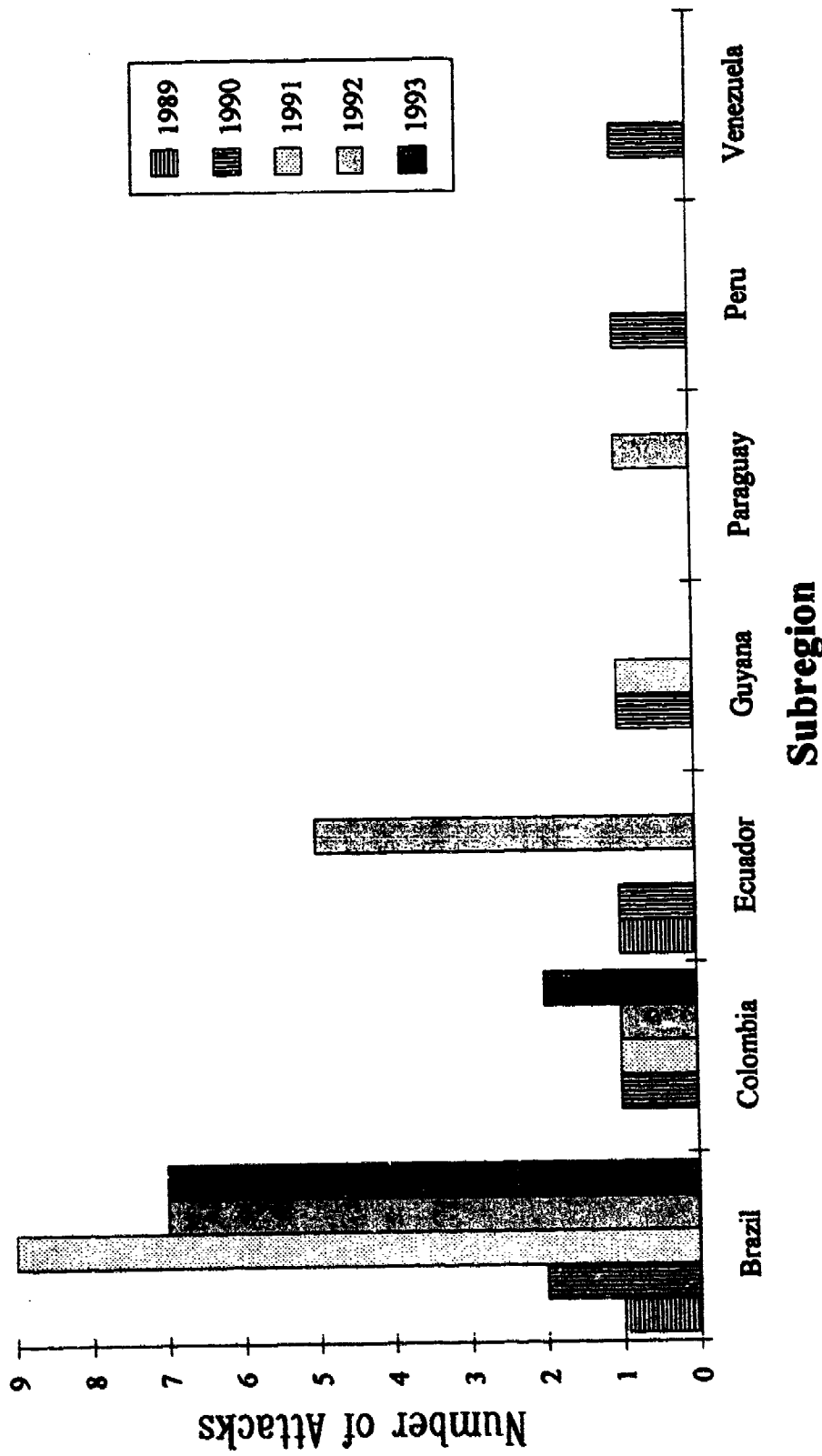


Figure 21

## INITIAL DISTRIBUTION LIST

	<u>No. Copies</u>
1. Defense Technical Information Center Cameron Station Alexandria, VA 22304-6145	2
2. Library Code 0142 Naval Postgraduate School Monterey, CA 93943-5002	2
3. Office of Naval Intelligence (ONI-21) 4301 Suitland Road Washington, D.C. 20395	3
4. Commander in Chief U.S. Special Operations Command ATTN: CAPT Paul Shemella, USN MacDill AFB, FL 33608-6001	1
5. Commander in Chief, U.S. Pacific Command ATTN: J-2 Box 24, Camp H. M. Smith Honolulu, HI 96861-5025	1
6. Commander, Joint Intelligence Center Pacific Box 500 Pearl Harbor, HI 96860-7450	1
7. Commander, Naval Special Warfare Command ATTN: CDR William H. McRaven NAB Coronado San Diego, CA 92155	1
8. Superintendent ATTN: Professor Gordon H. McCormick (Code NS/MC) Naval Postgraduate School Monterey, CA 93943-5000	5



9. **Superintendent** 1  
ATTN: Dr. Thomas C. Bruneau  
(Code NS/BN)  
Naval Postgraduate School  
Monterey, CA 93943-5000
10. **Superintendent** 5  
ATTN: CDR Peter R. Hull  
(Code NS/HL)  
Naval Postgraduate School  
Monterey, CA 93943-5000
11. **Superintendent** 1  
ATTN: CDR R. Mitchell Brown  
(Code NS/BR)  
Naval Postgraduate School  
Monterey, CA 93943-5000
12. **Commanding Officer, ONI-2020** 1  
**Special Security Officer (Code 3SSO)**  
589 Dyer Road, Room 108  
Naval Postgraduate School  
Monterey, CA 93943-5132
13. **Bureau of Naval Personnel (PERS-415)** 1  
ATTN: CDR David Morrison  
Washington, D.C. 20370-5000
14. **Eric Ellen** 1  
**Director, International Maritime Bureau**  
Maritime House, 1 Linton Road  
Barking, Essex IG11 8HG, United Kingdom
15. **Dr. Robert K. Mullen** 1  
IN-30/OTA, US Department of Energy  
1000 Independence Avenue SW, Room GM-097 FORS  
Washington, D.C. 20585
16. **Dr. Samuel P. Menefee** 1  
P.O. Box 5291  
Charlottesville, VA 22905-5291

17. **Defense Mapping Agency Hydrographic/Topographic Center** 1  
ATTN: Bryon K. Reynolds  
Navigation Division/NAVINFONET Staff, ST D 44  
4600 Sangamore Road  
Bethesda, MD 20816-5003
18. **Dion E. Costales** 1  
President, LUMINTEL Corporation  
8150 Leesburg Pike, Suite 700  
Vienna, Virginia 22182
19. **Richard V. Harding** 1  
Executive Agent, Joint Maritime Information Element  
Commandant (G-OIN)  
2100 2nd Street SW  
Washington, D.C. 20593-0001
20. **ICC International Maritime Bureau** 1  
Far East Regional Office  
ATTN: Mazlan Abdul Samad, Regional Manager  
16.03 A Wisma Nusantara, Jalan Punchak  
50250 Kuala Lumpur, Malaysia
21. **David McMunn** 1  
President, Borders Unlimited Corporation  
Suite 330  
7010 Little River Turnpike  
Annandale, VA 22003
22. **Captain W. P. Houghton-Boreham** 1  
Operations Manager  
Blue Star Ship Management LTD  
Albion House, 20 Queen Elizabeth Street  
London SE1 2LS, United Kingdom
23. **Susan Pearson** 1  
International Shipping Policy  
Department of Transport, Room JP2/062  
2 Marsham Street  
Westminster SW1P 3EB  
United Kingdom

24. LCDR Mark C. Farley  
NSWU-2  
PSC 805  
FPO AE 09422-0073

1