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RETENTION IN THE MARINE CORPS:
THE IMPORTANCE OF QUALITY
IN THE CAREER ENLISTED FORCE

by

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This study examines the quality of enlisted marines at their first-term reenlistment point. Of particular interest is to identify if a significant difference exists between the quality of the marines that are retained and the quality of those who depart. The analysis differs from previous studies, in that, performance-based indicators -- proficiency and conduct marks, awards, and educational improvement -- are used to measure quality. Also of importance is the development of a system that can be implemented by Headquarters Marine Corps to assist in identifying quality individuals. This system would incorporate prerformance -based criteria to recognize qualitative factors. The analysis uses data from fiscal 1982 through 1985 and combines different files available from Marine Corps sources. Results from the analysis indicate that there may be a loss of personnel quality at the reenlistment point. It was concluded that the Marine Corps could benefit by targeting quality individuals for reenlistment before they reach their expiration of active service.

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Quality in the Career Enlisted Force
by
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ABSTRACT

This study examines the quality of enlisted marines at their first-term reenlistment point. Of particular interest is to identify if a significant difference exists between the quality of the marines that are retained and the quality of those who depart. The analysis differs from previous studies, in that, performance-based indicators -- proficiency and conduct marks, awards, and educational improvement -- are used to measure quality. Also of importance is the development of a system that can be implemented by Headquarters Marine Corps to assist in identifying quality individuals. This system would incorporate performance-based criteria to recognize qualitative factors. The analysis uses data from fiscal 1982 through 1985 and combines different files available from Marine Corps sources. Results from the analysis indicate that there may be a loss of personnel quality at the reenlistment point. It was concluded that the Marine Corps could benefit by targeting quality individuals for reenlistment before they reach their expiration of active service.

TABLE OF CONTENTS

I. INTRODUCTION

A. BACKGROUND

This thesis examines the policies and procedures used to identify and retain "quality" enlisted marines who reach their first-term reenlistment decision point. The scope of the research for this thesis has been limited to first-term non-prior service enlisted men in the Marine Corps. The focus of the research centers on developing a computer program (model) that uses performance-based indicators along with biographical background data to identify "quality potential" for continued military service. This type of research will become increasingly important during the next ten years as force reductions cause changes within the Marine Corps. These changes imply some "building down" of the Corps to a size and structure that is affordable within congressionally allotted funding levels.

B. OBJECTIVES

The primary objectives of this thesis are threefold. The first objective is to define a "quality" enlisted marine for the purpose of reenlistment. This definition of "quality" will differ from the definition used to predict success for initial enlistees. The use of performance-based indicators, that is, meritorious promotions, proficiency and conduct marks, awards, formal school standings, off-duty education,

leadership awards --will form the basis of defining "quality potential" for continued service. The second objective is to develop a "quality potential" model for use by Headquarters Marine Corps (HQMC) manpower planners to selectively target enlisted marines identified as higher-quality candidates for reenlistment.

A final objective of this thesis is to recommend changes to current policies and procedures contained in Marine Corps Order P1040.31F. This directive is called the Career Planning and Development Guide and it contains the basic eligibility requirements for reenlistment in the Marine Corps. The aim of any policy changes would be to apply reenlistment incentives more efficiently and more equitably.

C. RESEARCH QUESTIONS

The primary research questions, central to this thesis, involve the definition of a "quality" individual and the most efficient application of reenlistment incentives. Is the Marine Corps selecting the best qualified marines for retention? Are the current procedures and policies, used for reenlistment, misdirected at the margin; that is, are incentives attracting marines who are eligible for retention but not the best qualified? What changes can be made to Marine Corps policies to improve the retention of the best qualified marines?

Secondary research questions stemming from the primary questions include: What is the "quality-loss" rate for

recruits entering the Marine Corps during fiscal 1985? What is an acceptable loss rate and what is an unacceptable one? If a "quality potential" model is developed and implemented, what will be the long-term effects on the manpower "profile" of the Marine Corps?

D. SCOPE, LIMITATIONS, AND ASSUMPTIONS

1. Scope

The focus of this study is on the issue of the quality of the labor supply at the first-term reenlistment point. Quality is assessed on the basis of an individual's past performance in the Marine Corps. Because the military career track is a closed system, there is a limited labor supply. The objective is to have a selection process that yields the highest quality of personnel obtainable. This study examines available information to provide an accurate measure of quality that goes beyond the criteria currently used for determining reenlistment eligibility.

2. Limitations

The Marine Corps just recently started to consolidate all of its available historical information in a computerized data base. For that reason the study will use historical data going back to fiscal 1982 to conduct an analysis of quality loss based on biographical criteria. However, performance-based analysis will be limited to data beginning in fiscal 1985 because the availability of the data necessary to construct the performance-based criteria is restricted by data

base management policies. These policies limit the time length in which certain data elements are retained within automated data files.

3. Assumptions

Recent events in the world, lessening tensions between East and West, German reunification, the collapse of the Warsaw Pact, and increasing budget constraints at home have created an unclear picture as to the future of the Armed Forces in general and the Marine Corps in particular. Even so, the following basic assumptions can be made with a reasonable degree of confidence: (a) because of its force structure, the Marine Corps will never need to reenlist 100 percent of the available labor supply at the first reenlistment point; (b) anything short of actual war in the Persian Gulf, the downsizing of the Armed Forces will continue; and (c) reductions to the Armed Forces spell reductions in the size of the Marine Corps, though the extent of the drawdown is still not clear. Looking at past history as well as present and future commitments, the Commandant's proposed end strength of no less than 180,000 is considered a defensible position. (Appleton, 1990)

E. LITERATURE REVIEW AND METHODOLOGY

A comprehensive review of related literature was undertaken. Previous studies that addressed the topic of "quality" in the Armed Forces primarily focused on attributes that indicated success of new enlistees. The findings of the studies were fairly consistent and have proved very effective in recruiting successful enlistees. However, retention standards and quality criteria were not specifically addressed. With the notable exception of one study, previous studies failed to adequately define "quality" for reenlistees. This thesis departs from previous research in the method of defining quality, by attempting to use performance-based criteria for the identification of quality in determining reenlistment potential.

F. ORGANIZATION OF THIS STUDY

The planning process by which the Department of Defense (DoD) determines manpower and materiel requirements is summarized in the following section of the thesis. An understanding of this process along with a brief review of our nation's budgeting process emphasizes the increased importance of higher-quality retention in the planning of the Marine Corps of the 1990s.

Following the section on the planning process, is an historical review of the individual attributes that constitute "quality" for the Armed Services. Past studies conducted on the topic of "quality" are discussed with emphasis on

significant results and applications that have shaped the structure of our All-Volunteer Force (AVF).

Next, the thesis examines the present AVF with respect to projected trends in demographics, changing educational standards and technological skill requirements, and the reality of manpower reductions. These trends are likely to create an increased emphasis on an older and higher-quality career force.

Finally, this thesis defines "quality potential" for enlisted male marines at their first-term reenlistment point. A comprehensive explanation of the collected data, along with a full discussion of the computer model used in the execution of the research, is presented. An analysis of the results obtained and the conclusions and recommendations based on those results completes the study.

II. THE PLANNING PROCESS AND FORCE STRUCTURE

A. DEFENSE BUDGETING PROCESS

The manpower needs of the Marine Corps are derived from the type of mission that the organization is expected to perform. The simple reality is that manpower requirements are constrained by the availability of funds in the budget.

The Defense Department uses a formal process defined within Department of Defense directives to prepare budget submissions for the Executive Branch. This process is known as the Planning, Programming and Budgeting System (PPBS), introduced in 1961 by Secretary of Defense, Robert S. McNamara. The next discussion on how the PPBS works draws heavily from Foelber's guide called "A Defense Budget Primer." (Foelber, 1988) Ideally, PPBS works in the following way:

Planning: The Secretary of Defense and his or her staff along with the Joint Chiefs of Staff prepare a classified document called the Defense Guidance. The Defense Guidance is the most important document in the entire DoD budget process, for it provides the rationale and justification for all DoD programs. (Foelber, 1988) It includes an assessment of the military threat to the United States national security; a statement of the national defense policy and strategy; an outline of the military requirements for defending national interests; and projected material and financial resources

needed for defense programs in the future. The Defense Guidance document is the foundation of the DoD budget process; the strategic goals and national interests of the United States should drive the programs and policies needed to attain those goals and support those interests.

Programming: The Armed Services calculate the number and type of forces needed to support the military requirements outlined within the Defense Guidance. Each department (Army, Navy, and Air Force) submits a detailed list of programs and projects for a five-year period. The five-year planning proposals, called Program Objective Memoranda (POM), are then reviewed by the Defense Resources Board. The Defense Resources Board makes the final decisions and issues its Program Decision Memoranda. The approved programs contained within the Program Decision Memoranda are then organized into the Five-Year Defense Plan.

Budgeting: The Office of Management and Budget (OMB) works closely with the Services throughout the entire process to ensure that realistic cost projections are used in making program decisions. The Five-Year Defense Plan is then submitted to the Secretary of Defense (after OMB reviews and verifies costing criteria for each program) for signature. The President and his staff receive the package and they examine the budget proposal in the context of overall fiscal policy and administration objectives. Final adjustments are

made as directed by the President, and the budget proposal is submitted to Congress for action.

The PPBS process is a slow, deliberate examination of requirements and resources. The complexity of the process should not be underestimated by persons outside the decision matrix. The size and complexity of the DoD structure make it resistant to abrupt changes; radical shifts in policy or programs cause imbalances. The rationale that was used in 1961 to provide a five-year defense plan for controlling the speed and direction of DoD remains valid.

B. CONGRESSIONAL DEFENSE BUDGET PROCESS

The reality of the DoD budget process rests with Congress. Under the 1974 Budget Act, Congressional action can be described in four basic steps. This thesis does not debate the merits of each step or examine each step in detail. Instead, the steps are presented in the order prescribed by the 1974 Budget Act along with the formal timetable for their completion. (Foelber, 1988)

Step 1: The Concurrent Budget Resolution: The Budget Committees from the House of Representatives and the Senate commence hearings on the defense budget. The House Budget Committee reviews the estimates made by the House Armed Services Committee and Sub-committees, along with inputs from the House Appropriations Committees and sub-committees. The House Budget Committee prepares a budget resolution for vote by the entire House of Representatives. The Senate Budget

Committee repeats the exact same process in the Senate. The Senate's resolution is compared to the House's resolution and the discrepancies are forwarded to a Conference Committee for debate. Final details are ironed out and together the Congress passes what is called the Concurrent Budget Resolution. This entire process should be completed by April 15th.

Step 2: Authorization: Congress approves defense authorization bills. Authorization Committees define the scope of programs and authorize maximum funding levels through the passage of legislation called authorization bills. All authorization bills should be completed by 30 June, although no formal deadline is applicable.

Step 3: Appropriations: Appropriations Committees pass the legislation that authorizes the actual expenditure of funds. Funds must be appropriated for each program within the DoD budget. Final date for all appropriations is 30 June.

Step 4: Sequestration: Unacceptably high federal budget deficits led to the passage of the Gramm-Rudman Hollings Act in 1985, as amended in 1987. Basically, this Act provides for automatic spending reductions called sequestration to be enacted if Congressional spending and revenue legislation produces a deficit that exceeds the target specified within the Act. The formula for calculating the automatic spending cuts is complicated and involves many loopholes. But, if sequestration is required, half of the outlays come from

defense programs and half from domestic programs. The final date for avoiding sequestration is October 15th.

C. BUDGET TERMS

A few basic budgeting terms should be explained to better understand the effects of present budget reductions on DoD. First, the term Budget Authority (BA) represents the amount of money that can be obligated for the provision of goods and services. Obligations are incurred by signing contracts, placing orders, hiring personnel, etc. The actual expenditure of payments, the transfer of cash, is called Outlays (OL). The difference between BA and OL is very important. The nature of most DoD programs entail large amounts of funds. For example, the BA for a single aircraft could be $20 million. The contract calls for delivery in 3 years. The OL for the first year is 5 million dollars, 10 million the second year, and the remaining 5 million in the last year. So, in this case, the spend-out rate is 3 years. Budget deficits are calculated using OL not BA. Reductions during any single year must come from the OL. The largest and quickest reductions can be realized from programs that have large OL and large annual spend-out rates. Figure 1 shows that Military Personnel and Operation and Maintenance (O&M) accounts are the most significant of these types of programs.

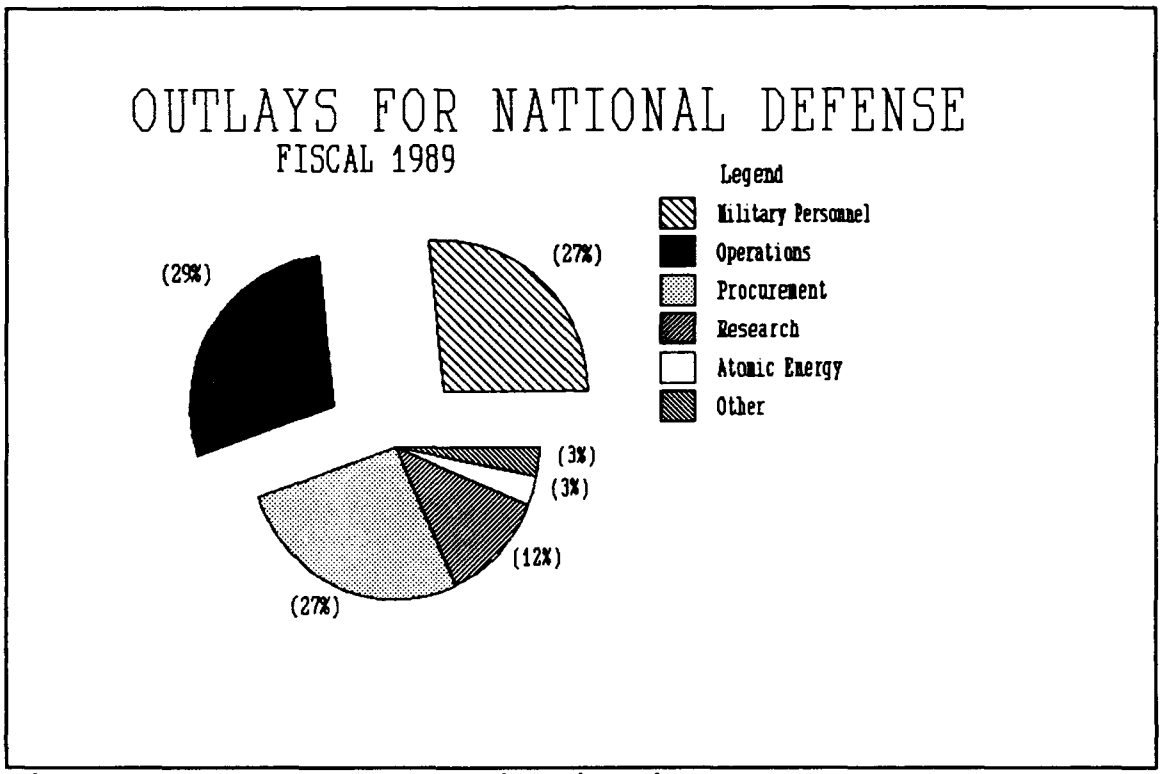

Figure 1: Percentage Distribution of DoD Outlays by Category, Fiscal 1989

Source: FY 91 Budget Proposal, Office of Management and Budget.

D. FORCE STRUCTURE AND OUTLAYS

Figure 2 best shows total defense spending as a percentage of the Gross National Product (GNP) from 1950 through 1990 (with projections through 1995).

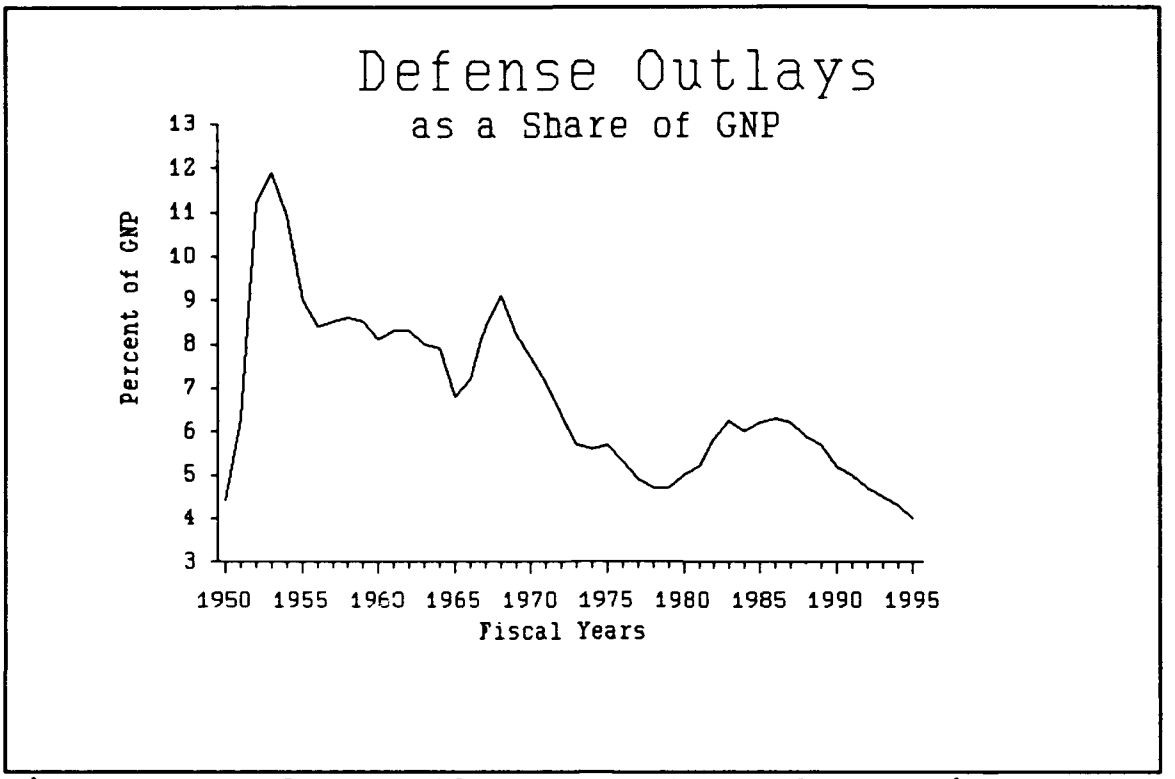

Figure 2: Defense Outlays as a Share of GNP, Fiscal 1950-1995

Source: House Budget Committee, Statement of the Secretary of Defense Dick Cheney, Feb 7, 1990.

As seen in Figure 2, Defense spending is clearly on a downward slide. By 1995, Defense OL as a percentage of GNP will have reached its lowest level since 1950, right after the demobilization following World War II.

Figure 3, below, provides further evidence of the decline of total Defense OL, as measured in 1990 dollars. From Figures 2 and 3 it is clear that, regardless of what measurement is used to show the changes in Defense OL -- percentage of GNP or real dollars -- the results are identical. Defense spending is rapidly declining.

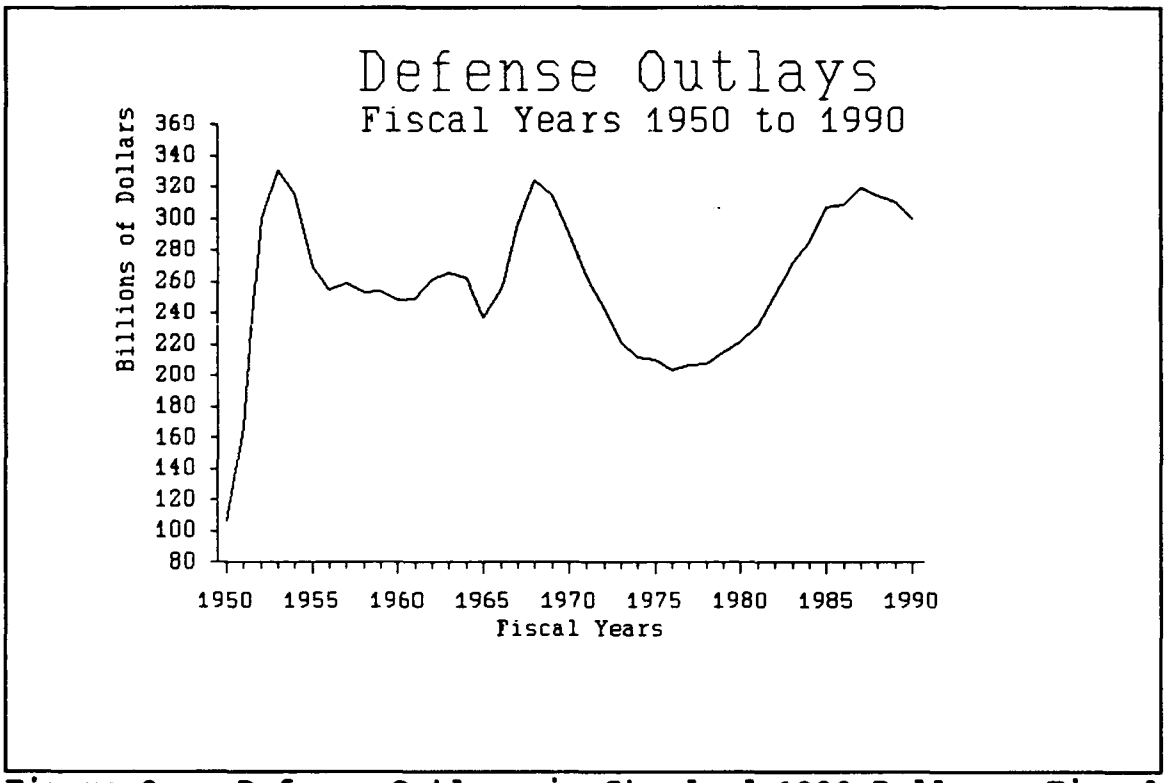

Figure 3: Defense Outlays in Standard 1990 Dollars, Fiscal 1950-1990

Source: House Budget Committee, Statement of the Secretary of Defense Dick Cheney, Feb 7, 1990.

The reality of reduced defense spending along with understanding the entire budget process reveals the vulnerability of manpower accounts. There is a positive correlation between reduced budgets and a decline in total manpower. (Cheney, Feb 1990) The trend is clear to military planners as well as budget analysts; the quickest method of reducing defense outlays is through personnel reductions. Manpower cuts produce OL reductions.

E. FORCE REDUCTIONS

PPBS is supposed to incorporate the three phases of planning, programming, and budgeting systematically to achieve a comprehensive document that stresses the strategic goals of the country. However, in reality this is nothing more than an illusion. The fact is that PPBS no longer treats the three phases equally. Like many other government institutions, DoD has become more preoccupied by the budget process. No sooner is a fiscal year over than the budget "gurus" must begin to look at the next iteration.

To complicate matters, the Services and DoD are required to work with projections. DoD starts to work on a budget about a year before it must be submitted to the Congress. That puts the projections that DoD has to work with at over two fiscal years before the budget is actually implemented; for example, the budget for fiscal 1991 (beginning on 1 October 1990) had to be prepared around October of 1988. The prepared document relies heavily on forecasting -- a craft that makes it difficult to plan for unexpected events.

The years 1989 and 1990 experienced several historical developments that can be classified in the realm of the unexpected. For example, the decline of the Soviet economy, the reunification of Germany, the quickened pace of arms reduction talks with the Soviet Union, the coalition of countries against the Iraqi invasion of Kuwait, and the subsequent surge of gasoline/oil prices have had a profound

impact upon the economy of the U.S. These striking events, that clearly affect the defense position of the country, were not considered at the time DoD, the Administration, or Congress prepared the fiscal 1990 budget, and the events had very little input in DoD's portion of the current budget.

In the manpower arena, the Marine Corps is also required to take into consideration inherent characteristics of manpower systems, such as the effects of policy changes on steady-state manning levels, the detrimental results of fluctuations in individual cohorts, and the lags that occur in the procurement of personnel. All of these characteristics make the acquisition of manpower a difficult task to predict. The complications that exist in PPBS reflect themselves in the manpower arena of the Marine Corps and make the planning process an intricate guessing game.

Finally, there are the political ramifications and interventions imposed upon PPBS through Congressional oversight on defense issues. There has always existed a degree of Congressional interest in defense matters; however, that Congressional attention has expanded dramatically in the last few decades. Figures 4 and 5 graphically support how Congressional oversight has developed into what some have labeled as "micro-management." From 1960 to 1985, total Congressional committee staffs grew by 237 percent and personal staffs by 175 percent. (Cheney, Jan 1990) Although some of this growth is a result of the increased number of

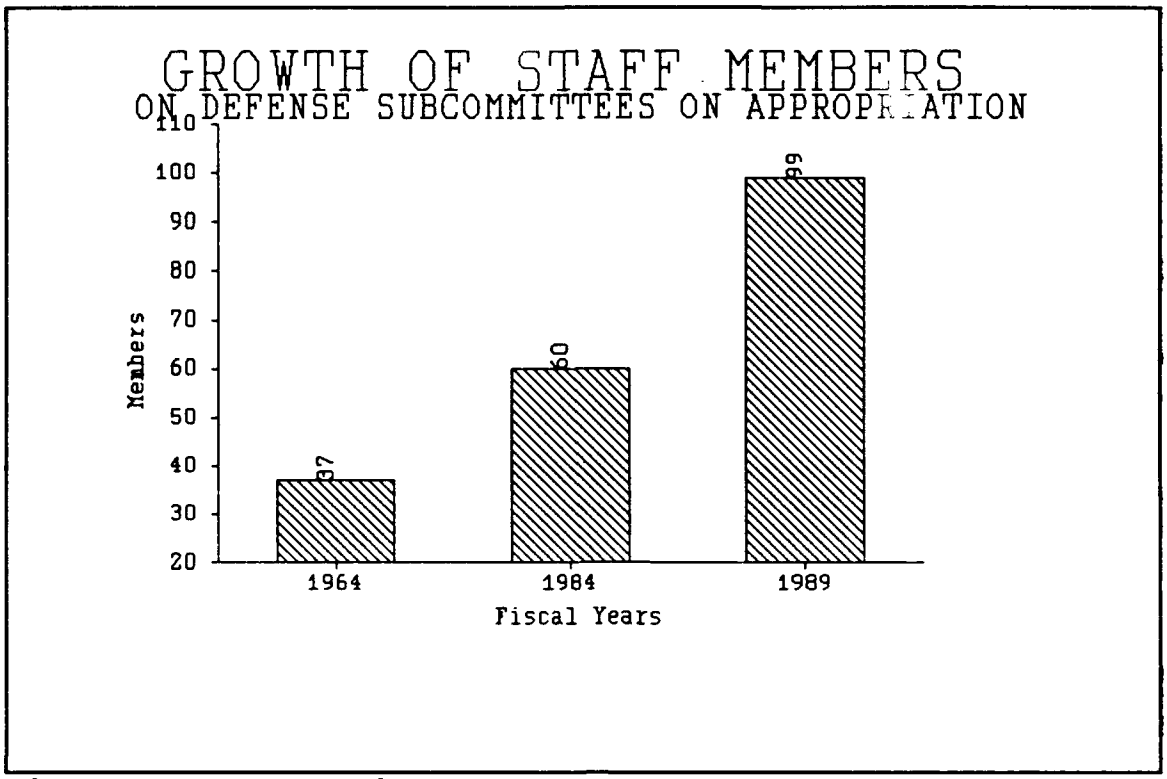

Figure 4: Growth in the Number of Staff Members of the Four Defense Subcommittees on Appropriations, Fiscal 1964-1989

Source: White Paper on DoD and the Congress, Jan 1990.

committees created by the Budget Act of 1974, Figure 4 shows a major portion of the increase in Defense subcommittee staffs occurred in the past five years. This growth was not a result of the formation of new subcommittees, but instead, the growth is part of an overall pattern of increasing Congressional control and oversight. And, not surprisingly, Figure 5 shows that DoD submitted four times the number of reports to Congress in 1988 than eight years previously. Even the President of the United States submits one-third more reports

to Congress. The growth of Congressional committees and their staffs has placed an increased burden of reporting requirements on DoD.

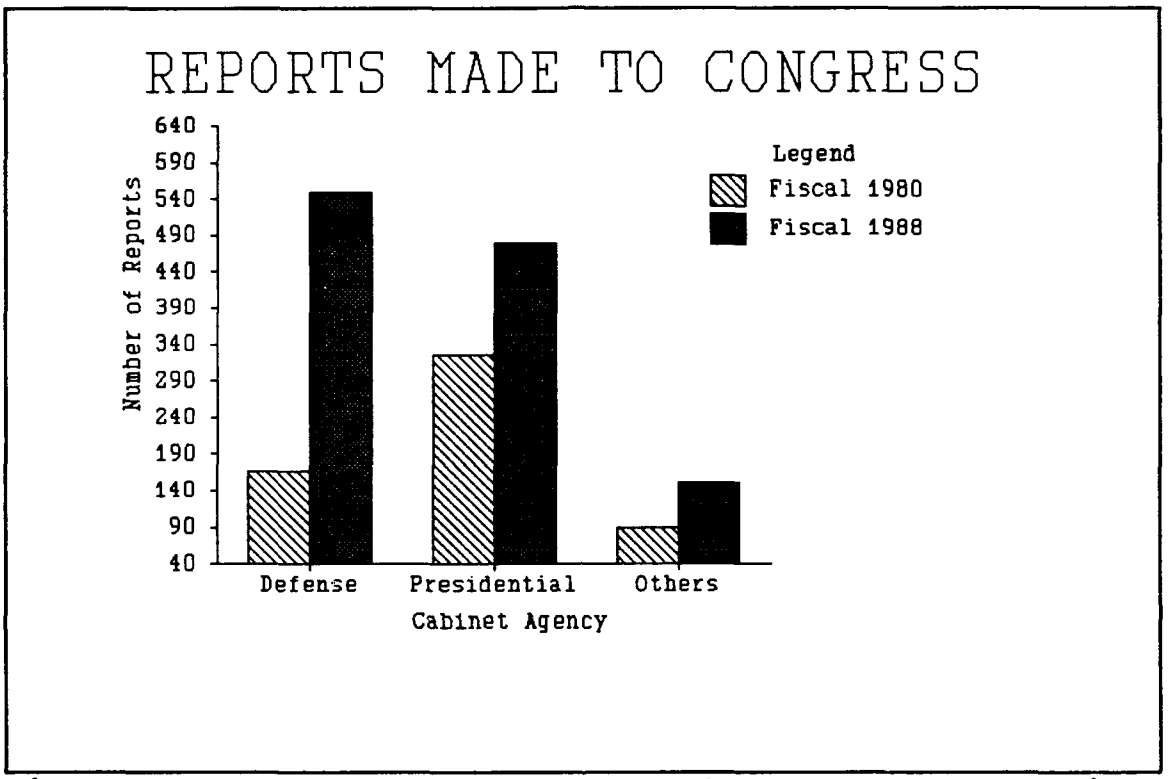

Figure 5: Number of Reports Made to Congress, by Cabinet Agency, Fiscal 1980 and 1988

Source: White Paper on DoD and the Congress, Jan 1990

Within the past year, previous assumptions used for the determination of American strategy have changed. The U.S.-Soviet antagonism that in the past has dictated American foreign and defense policy has decreased if not completely evaporated. Regardless of the continuing Soviet might, the dissolution of the Warsaw Pact makes the threat of a major

battle in the European theater considerably less probable. These changes call for a reassessment of the needs and requirements for national security. The Services will likely be cut in one manner or another; but, the greatest cuts will probably affect those that in the past were predominately employed in the theater of operations that is now disappearing. The Marine Corps, with its expeditionary and amphibious capabilities, will still receive some cuts, but the cuts will probably bring the Corps to an end-strength of approximately 180,000, which is almost equivalent to what it was before the Reagan expansion years.

The sweeping changes occurring around the world, coupled with the fiscal and political realities of the country will require a drawdown of the Marine Corps. The inherent characteristics of manpower models necessitate that any changes to the total numbers of the Marine Corps be made by addressing the present force structure. This means that the drawdown must be allocated proportionately among the top end (retirements), the middle section (retention), and the entry-level base (enlistments). The Marine Corps will be expected to do more with less personnel. Congress will become increasingly interested on how the reductions are implemented. And, at the same time manpower reductions are happening, readiness must be maintained.

A key to successfully managing a drawdown will center around the ability of the Marine Corps to identify and retain

a strong and versatile, young career force. The manpower planners at HQMC need a management tool to identify premiere performers who reach their expiration of service. Once identified, these high-quality candidates must be actively "recruited" to reenlist. The first step is to define a premiere performer by a quantitative measurement of quality.

III. MANPOWER: HISTORICAL PERSPECTIVES

A. EVOLUTION OF THE MEANING OF QUALITY

The meaning of "quality", as it pertains to new enlistees in the American Armed Services, has changed throughout the years in response to changes in American society as well as changes in warfare techniques. For example, during the Revolutionary War, a quality recruit was any "able-bodied man." Fighting techniques were primitive and unsophisticated. The emphasis was placed on physical attributes such as stamina and physical strength. Endurance of extreme physical hardships and prolonged pain and suffering were earmarks of winning armies. As society became more sophisticated, so did the art of warfare. (Eitelberg, Apr 1988, pp. 3-5)

The industrial revolution and the booming advances in technology had major impacts upon society. Americans quickly embraced the benefits and labor savings that these new inventions offered. To sustain and expand this revolution, business and government leaders realized that the people making up our workforce would require greater basic skills. Education and investment in human capital became a priority. Of course, military applications for some of these great inventions were not lost on military planners.

World War I (WWI) provided a preview of how the applications of new inventions could drastically change the

way a military force fights a war. Automatic rifles, more accurate artillery, poisonous gas, and the airplane were only a portion of the new technologies used. Yet, enlistment standards for WWI were still crude by present criteria -- an individual's quality was still measured by physical attributes -- but assignments within the military were becoming more sophisticated. (Eitelberg, Apr 1988, p. 11)

America first attempted large-scale screening and mental testing of recruits during the first World War. The results of these tests suggest that mental ability was not a strong indicator of suitability for enlistment. The primary concerns for enlistments were medical and physical qualifications along with a rudimentary understanding of the English language. The important point to remember is that a need for some sort of screening and classification had become necessary. War was fast becoming specialized. (Eitelberg, Apr 1988, p. 12)

World War II (WWII) and the conscription procedures implemented by America would demonstrate the degree to which advancement in war-fighting techniques had caused a more specific screening requirement to occur. Specialization, caused in a large part by technology and industrialization, demanded skills requiring higher mental aptitudes than previously needed by the military services. The skill requirements for WWII were met easily because an all-out mobilization effort was enacted by Congress. The War was "popular." Patriotism was a major driving force in meeting

the skill needs of the military. Deferments or exemptions from the draft were minimal.

After the end of WWII in 1945, the personnel requirements for the Armed Services were cut dramatically. Yet, technological advances in military weapons -- atomic bombs, guided missiles, jet aircraft, radar, and communications -- increased skill requirements steadily. A volunteer force augmented by a draft supplied the minimum number of "qualified" recruits to meet the needs of the military. "Quality" was a label assigned to enlistees with higher mental ability who were capable of learning advanced skills. Dual standards emerged for enlistees based upon specialty field. Mental ability, as measured by the use of aptitude tests, became the primary method for making assignments. The "quality" recruits were assigned to specialties requiring skill training, while the ground combat and support jobs were filled by the remainder of recruits. This dual system of allocation was used in various forms through the end of the Vietnam conflict. As sophistication of weapon systems increased, so did the demand for higher skilled personnel to operate and maintain them. Congress realized that changes in manpower procurement and retention were needed to stabilize the Armed Services. (Nelson, 1986, p. 24)

B. QUALITY IN THE ALL-VOLUNTEER FORCE (AVF)

The President's Commission on an All-Volunteer Armed Force (Gates Commission) was formed in 1969 to study the feasibility of ending the draft. The All-Volunteer Force (AVF) was fully implemented in 1973. The reliance on volunteers, instead of conscription, drove changes in recruitment and in the management of the overall force structure. The issue of "quality" and the measurement of "quality" were outlined by the Gates Commission. The quality of recruits, according to Commission analysts, should be measured by educational attainment and test scores. (Nelson, 1986, p.25)

The military's enlistment tests have been the subject of revision and controversy over the past several years. In 1976 a battery of tests called the Armed Services Vocational Aptitude Battery (ASVAB) was introduced as the Service-wide enlistment exam. Four subtests of the ASVAB comprise the Armed Forces Qualification Test (AFQT). AFQT scores partition individuals into aptitude categories I, II, IIIA, IIIB, IV, and V.[1] A "quality" enlistee is presently defined as a person who has scored within AFQT categories I-IIIA and possesses a high school diploma.

Since 1974, many studies have been conducted to validate the use of education and enlistment test scores to predict

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[1] AFQT percentile ranges for each category are as follows: category I, 93-99, category II, 64-92, category IIIA, 50-63, category IIIB, 31-49, category IV, 16-30, and category V, 3-15 (ineligible for military enlistment).

recruit success. It is very important to note that the Services have concentrated much of their efforts under the AVF in getting personnel into the front door and through the initial enlistment contract. Success has been measured by completion of boot camp (initial training), completion of formal school training, and the eventual completion of the initial enlistment contract. Success and "quality" are treated as synonymous, yet success is performance-oriented, while "quality" is measured by aptitude characteristics. The most recent study, conducted by Quester, North, and Kimble (1990), has supported all the previous studies for predicting success, including those by Buddin (1984; 1988), Hughes and May (1986), Marcus and Quester (1984), and Ward and Tan (1985). Enlistees who have attained a high school diploma and tested in AFQT categories I-IIIA are the most likely to succeed. Nelson (1986) summed it up best in defining "quality" as "attributes the individual brings into military service rather than performance measures while on military service." This distinction is significant. Unlike most civilian businesses, the military force structure is not an open-market economy. A person must enter the military job market from an entry-level position. The military force structure is a closed hierarchy, often called an "internal labor market." The higher-level positions are filled from within. In other words, the military "grows" its own leaders.

To sustain a professional organization, "quality" must be selected in, and only the best must be allowed to remain.

C. RETENTION IN THE AVF

The AVF has successfully controlled the "inflow" of personnel who can best succeed in completing their first term of enlistment. Recruitment techniques and advertising efforts have been targeted at those individuals who have been labeled as "quality" eligibles. The pros and cons concerning the use of education and AFQT scores for enlistment criteria have led to many spirited debates over the equity issues concerning economically disadvantaged persons being unable to serve their country simply because they were unable to pass the entry-level eligibility requirements. The merits of such arguments will not be specifically addressed because retention criteria, not enlistment criteria, are the focus of this paper. But, we do want to emphasize the fact that the pool of eligibles for retention is dependent upon the number and "quality" of those persons who are allowed to enlist and have successfully completed their first enlistment contract. The standards that predict success -- a high school diploma and AFQT scores in category IIIA or above -- also limit participation. America can have any level of quality in the career force, at least up to the quality of its population. (Meckling, 1986, p.113)

Retention of personnel past their initial contract has always been a secondary concern with the AVF. (Roll and Warner, 1986, p.52) Additionally, retention of first-term

personnel has been a purely quantitative decision-making process. Presently, the policies of Headquarters Marine Corps that address the issues of first-term reenlistment deal entirely with the problem of maintaining the numbers that support the current force structure. The Marine Corps, like the rest of the Armed Services, demands few eligibility requirements for reenlistment.[2] The use of selective reenlistment bonuses (SRBs) have provided the monetary incentives to retain those personnel in critical occupational skills. Cymrot's (1987) studies on the effects of SRB payments reflected a very strong positive correlation between raising and lowering SRBs and the subsequent rise or drop in the number of reenlistments. "Quality" has not been an issue in establishing reenlistment criteria. The fact that a marine successfully completed his or her enlistment contract made him or her eligible and desirable for reenlistment. Reenlistment incentives such as SRBs, duty-station options, and lateral move requests were administered on a first-come, first-serve basis. The Armed Services were confident they were retaining good people -- men and women who had proven themselves by performing at a minimum acceptable level. Nevertheless, the question for the 1990s is whether the Armed Services are retaining the best people.

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[2] Chapter 4 of Marine Corps Order P1040.31F, which is the Career Planning and Development Guide, contains the specific criteria for reenlistments. Excerpts from chapter 4 are listed in appendix E.

D. REALITIES OF THE 1990s

Secretary of Defense, Dick Cheney, has outlined the challenges the AVF will face over the next several years. Reducing America's budget deficit will require the military services to reduce their manpower requirements. Force reductions will occur in accessions, retention, and early retirements. Mr. Cheney has stated, "We must continue to recruit and retain high quality personnel." (Cheney, Mar 1990) The Commandant of the Marine Corps, General Al Gray, echoed the same concerns when he observed that "the Marine Corps is a manpower intensive organization and remains sensitive to force structure reduction." "A key issue we face today," Gray added, "is the maintenance of a quality force." (Gray, 1989) A restructuring of the Armed Services is inevitable.

Operation Desert Shield in Saudi Arabia, which may involve as many as 400,000 U.S. troops, will probably <u>not</u> significantly affect the long-term plan for massive troop reductions. As Table 1 shows, the fiscal 1991 federal budget requires troop reductions of 100,000 personnel, although the Defense Department is authorized to revise those cuts to 80,000. (Maze, 1990) Although the majority of the troop cuts will occur in the Army and the Air Force, a total of 77,000 personnel, the fiscal 1991 end-strength of the Marine Corps is set at 193,735 (a reduction of 3,000 from October 1990 levels).

TABLE 1: PROJECTED PERSONNEL CUTS, BY SERVICE, OCTOBER 1991 AND 1995

Service	Oct. 1990	Oct. 1991	Oct. 1995
Army	744,170	702,170	520,000
		-42,000	-224,170
Navy	590,500	570,500	501,000
		-20,000	-89,500
Marine Corps	196,735	193,735	177,000
		-3,000	-19,735
Air Force	545,000	510,000	415,000
		-35,000	-130,000
Total	2,076,405	1,976,405	1,613,000
Total Cut		-100,000	-463,000

Negative numbers in 1991 and 1995 column are the size of the cut from the Oct. 1990 authorized strength.

Source: House and Senate Armed Services Committees.

Long-term projections listed in column 3 of Table 1 are more ominous. By October 1995, the Marine Corps can expect a troop cut of 19,735 from the present 196,735 force level -- down to a force level of 177,000. The AVF has demonstrated a workable system to identify individuals most likely to succeed on their first enlistment. By adjusting enlistment standards upward, the number of enlistments could be reduced, the number of attritions would be reduced , training costs can be lowered, and assets previously used for training can be returned to the operating forces. Productivity, narrowly defined by Marcus and Quester (1984) as the continued

"presence of the individual," would increase. But, the standards and policies that control the flow or influx will also have major effects on continuation flow rates.

The Marine Corps has been using successful completion of an initial tour as a gauge for future performance in the service. In the past, the Marine Corps has enlisted approximately 34,000 recruits a year; of those, nearly one-third fail to complete their initial tour, and the remaining two-thirds become the supply market for reenlistments. (Quester, North, & Kimble, 1990) From this market, HQMC must procure the marines that will develop into the backbone of the enlisted career force. HQMC has the difficult task of selecting the ablest of a group of individuals that make up this particular supply market. Accumulated information of the candidate's prior performance is critical to the selection process.

The Marine Corps' mission of a "force in readiness" will remain valid. Productivity, which can be defined by the level of readiness, must be maintained. Preserving readiness in the face of force reductions, stricter budget constraints, and a declining labor pool of quality recruits will not be easy. The Marine Corps must become more efficient in using and allocating its remaining resources.

Force reductions directed by budget cuts require military planners to do an "about-face" on how they manage military personnel. Under the AVF, the driving consideration has

frequently been maintaining force levels. Quantity has sometimes had priority over quality. Today, planners must reduce force levels while maintaining readiness. Quality must have priority over quantity. Prospects for recruiting higher-quality recruits in sufficient numbers are not promising for the next decade. (Johnston and Packer, 1987) A more logical and attainable goal is the retention of higher-quality, first-term enlisted marines. Increasing the quality of the marines retained will lessen the impact of the anticipated shortages expected to occur in the recruitment arena; problems that the Marine Corps must eventually address. Some of these problems are discussed in the following section.

IV. MANPOWER: FUTURE TRENDS

A. DEMOGRAPHICS

For the past few years there has been a panic atmosphere surrounding the predicted shortages in the labor supply of young, skilled males for America. The nay-sayers have warned both the public and private sector of a smaller, less-capable manpower pool in the decade of the 1990s and beyond. (Johnston and Packer, 1987) As a result, the political and military authorities have been advised about the impending doom of the AVF. (Thurman, 1986, p. 32) These predictions even caused committees within the Congress to start talking about the possible need for a return to the draft in the early 1980s. (Kester, 1986) Military planners were aggressively pursuing various manpower management options when events in Europe forced yet another set of predictions.

The warming of the cold war with its new political situation in Eastern Europe has given rise to the cry that demographic changes may have little or no effect on the military. The "breakout of peace" served as a catalyst for the massive proposed troop cuts for all the Armed Forces beginning in fiscal 1991 through 1995. (Maze, 1990) Eitelberg (1990) has characterized the future career military labor market as a "demand" - driven market instead of a "supply" - controlled one.

> For most of the all-volunteer years, defense manpower officials have pulled hairs over the problem of recruiting and retaining highly-qualified personnel -- holding a constant eye on the 1990s, when the supply of available youth would bottom out. Of course, no one suspected that the 1990s would usher in a new era of defense planning, where more time and worry would be devoted to releasing people than to acquiring or keeping them. (Eitelberg, 1990, p. 24)

It is understandable to see where the two projections for the future have been able to gather support. But, it is more important to realize that there is, in fact, a shift in the demographic patterns of America that will have a significant effect on both civilian and military labor markets. The Armed Services will find themselves competing for the scarcer supply of younger workers with other employers in the public and private sectors.

Some of the most important areas in which the changes in the labor supply will affect the military are population growth, the aging of America, women in the military, minorities in the labor pool, and immigration. The first three areas deal with demographic issues internal to the U.S., and the last two address external demographic issues.

1. Population Growth

The graph contained in Figure 6 clearly shows that the fertility rate for American women has been decreasing steadily since the 1800s. A slow, gradual decline was occurring up to the 1920s. From the 1920s to the early 1960s, radical shifts

have occurred. The "baby-boom"[3] that took place at the end of WWII was only a hiatus in the steady pattern of decline. There appears to be a leveling of the rates in the beginning of the 1980s, and future fertility rates in the U.S. are not predicted to increase. It is expected that the rates will remain low and may even decline further. (Butz, et al., 1982, pp. 3-4)

There are several factors that explain the established fertility pattern. Central among all of them is basic economics. The "cost" associated with bearing children has increased significantly. The American family in its search for a higher standard of living has come to rely on the incomes of both spouses. The loss of income associated with dropping out of the labor force to have children, an opportunity cost, and the added direct cost in child care to re-enter the labor market are disincentives that tend to reduce the rate at which families have children. (Butz, et al., 1982, pp. 6-9)

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[3] Baby-boomers are defined as Americans born between the years 1946 and 1964.

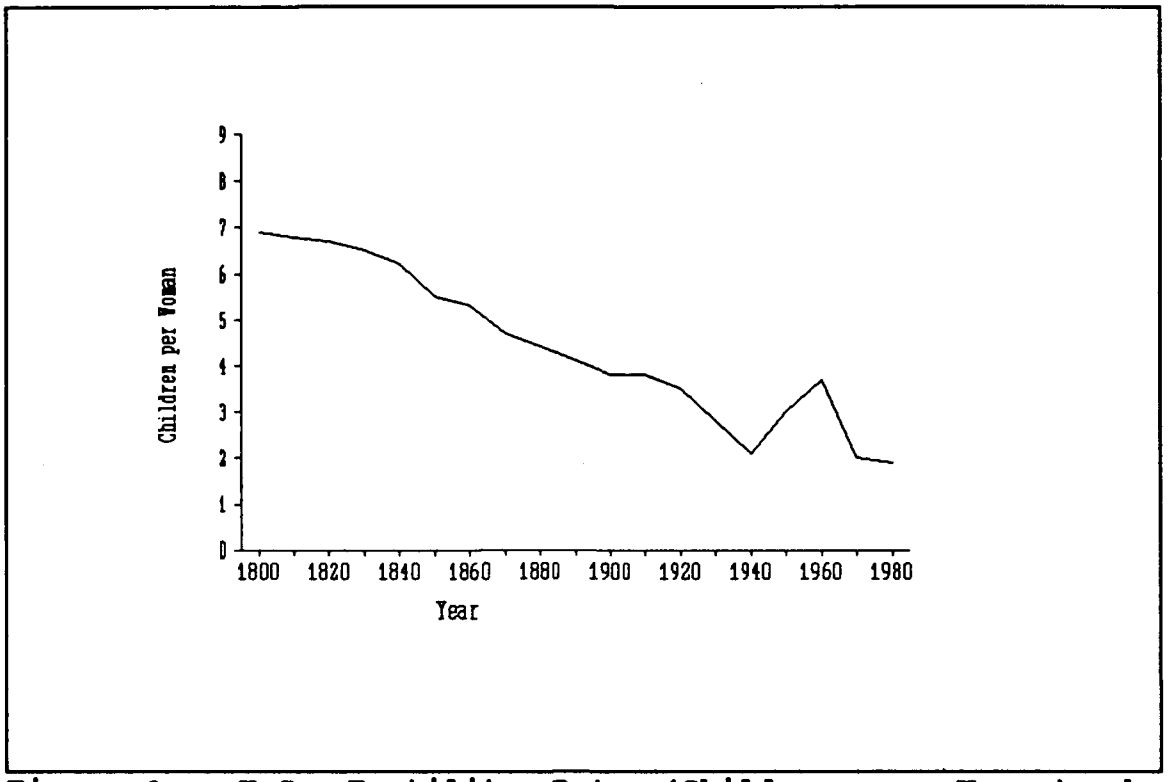

Figure 6. U.S. Fertility Rate (Children per Woman), by Selected Years, 1800 to 1980

Source: Butz, et al., *Demographic Challenges in America's Future*, May 1982.

Another important factor is the decrease in child mortality. Families are now more certain that the children they have will make it through infancy. Higher survival rates negate the need for a high birth rate.

Finally, the introduction of effective, easy-to-use birth control devices has had striking effects. Although their introduction is not the cause of the decline in birth rates, it does reflect significant attitudinal changes in the American family. (Butz, et al., 1982, p.4)

The importance of this decline in the birth rate on the supply of labor available for the military is clear. A reduction in births at any point in time creates a gap in the supply of qualified military available (QMA) youths. (Johnston and Packer, 1987, pp. 76-79) If recruiting requirements remain fixed, a reduction in the QMA makes the competition for quality recruits much more intensive. To obtain the required quality personnel for its forces, the military will probably have to increase wages to outbid the civilian employers. (Eitelberg, Feb 1988, pp. 14-18) Increased wages, in turn, could lead to increased defense spending, which is unrealistic in the face of the 1991 budget deficit reductions.

2. Aging of America

The median age of the general population is expected to reach 36.5 years by the year 2000. Figure 7 shows that, by the year 2000, the median age in the U. S. will have increased nearly 5 years since 1985 and 10 years since 1930. (Johnston and Packer, 1987, p. 80)

The present decline in birth rates will continue to push the age profile of the U.S. upward. The steady aging of the population produces far-reaching effects on the entire economy. Major shifts in consumer behavior would be expected to occur. For example, an older population would most likely prefer goods and services that differ from those preferred by a younger population. In addition, the need for doctors, nurses and other health care specialists would be expected to

increase as more of the population reaches their senior years. (Butz, et al., 1982, pp.10-11)

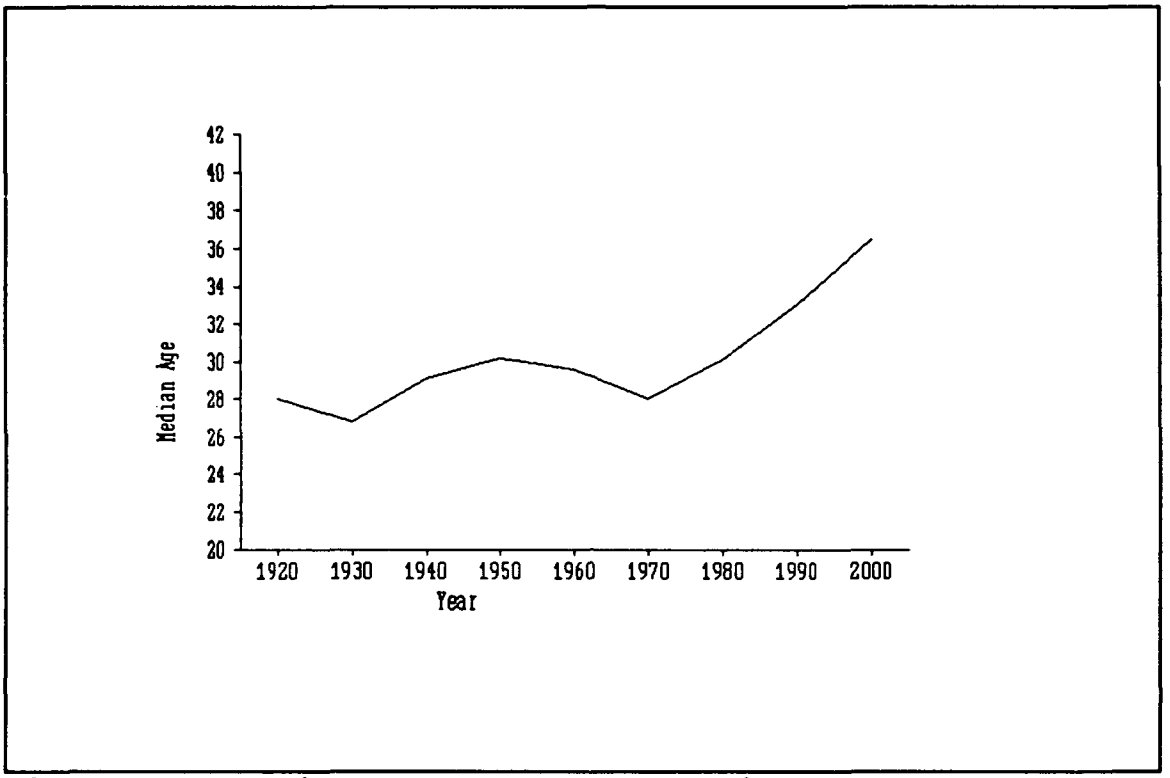

Figure 7: Median Age of U.S. Population by Selected Years, 1920 to 2000

Source: U.S. Bureau of the Census, "Current Population Reports," Series P-23, No. 138, Table 2-9.

The shifting of age profiles also creates problems in generating revenues such as income taxes and social security taxes. (Kettl, 1989, pp. 234-236) Revenues drive the supply side of the budget process while spending represents the demand side. A reduction in revenues without a corresponding reduction in spending results in a deficit. Budget deficits

have already been established as a justification for a smaller military force.

This shift in the age profile of the future will constrain the Armed Services in a couple of ways. First of all, the demand by the Services and by civilian employers for high-quality workers, at a time when the labor pool of young men is shrinking, will drive future entry-wages considerably higher. (Johnston and Packer, 1987, pp. 81-83) Second, when the shift in age profile is considered as a contributor of future fiscal problems, the dollars needed to pay for the enlarged wages of the increasingly scarce recruits may not be available to the Defense Department.

3. Women in the Military

The scheduled drawdown of the force may affect the continued advancement of women into what have been traditionally "all male" military jobs. However, the increased rate of participation by women in the labor force and the persistent public pressures for total equality for women in all sectors of society will continue to chip at the traditionally male roles in the military. (Eitelberg, 1990, p. 24)

It is estimated that women currently make up close to 65 percent of all <u>new</u> job entrants. (Eitelberg, Feb 1988, p.9) It is expected that, by the year 2000, 47 percent of the <u>entire</u> workforce will be women, and that 61 percent of all women will be working. (Johnston and Packer, 1987, p.85) The

military participation rate for women has also increased in the recent past, from less than 1.5 percent before 1971 to over 10 percent in the 1980s. (Nelson, 1986, p. 36) It is certain that, although great strides have been made with respect to women in the military, the military participation rate for women remains well below the comparable participation rate in the civilian workforce. This area of research deserves much more investigation; however, the topic is beyond the scope of this thesis. The important point to make is that, whatever decisions are reached by the political leaders of this country concerning the role of women in the military, the impact on the labor pool will have major repercussions in the supply of labor for the Armed Forces.

4. Minorities in the Labor Pool

Evidence shows that the racial and ethnic mix of the country is changing dramatically and will continue to do so throughout the next several decades. As seen in Table 2, the percentage growth of minorities in the labor force is expected to reach close to 29 percent of the net increase in the total labor force by the year 2000. (Johnston and Packer, 1987, pp. 89-90) What this means is that, of the 25 million new entrants expected to enter the labor force by the year 2000, over seven million new workers will be racial or ethnic minorities. The larger proportion of minorities in the labor supply represents a larger number of minorities available for recruitment into the military. Historically, opportunities

in the civilian labor market have been disproportionately unavailable to minorities. Johnston and Packer, in their 1987 work, present numerous statistical indices that show the clear disadvantages that exist between the black and Hispanic population when contrasted against the white population in the areas of labor force participation, earnings, and education. And to those statistics

> . . . must be added the extensively analyzed and debated indications of social disadvantage, such as poor performance in schools, greater dependence on welfare, greater incidence of broken families and children born to unmarried mothers, and higher rates of criminal arrest. (Johnston and Packer, 1987, p. 90)

TABLE 2: RACIAL OR ETHNIC MINORITIES AS A PERCENTAGE OF THE WORKING AGE POPULATION, LABOR FORCE, AND GROWTH OF LABOR FORCE, 1970, 1985, 2000

Minorities as a Percentage of	1970	1985	2000
Working-Age Population	10.9	13.6	15.7
Labor Force	11.1	13.1	15.5
Growth of Labor Force	-----	18.4	29.0

Source: Johnston and Packer, 1987, p. 89, Table 3-5.

Minorities have historically looked to the military for opportunity, training, and education. In the future more emphasis may have to be placed on programs designed to provide basic skills training to entry-level minority recruits who

come from traditionally disadvantaged backgrounds. (Johnston and Packer, 1987, pp.89-91)

5. Immigration Patterns of the Future

The racial changes occurring in the labor pool are being accelerated by the patterns of immigration into the country. The amendments to the immigration laws in 1965 increased the influx of immigrants from Latin America and Asia. (Johnston and Packer, 1987, p. 92)

Figure 8 shows that the projected contribution of immigrant males and females to the growth of the labor force by the year 2000 will continue to be large.

In contrast, Figure 8 also shows a decrease in the percentage of job entrants who are native white males, the group that traditionally has provided the largest participation base for military service. This change in the pattern of immigration poses some problems for the Services. There is some evidence of reduced interest in military careers on the part of some of the minority groups with the largest growth rate in the coming decades. (Eitelberg, Apr 1988, pp. 164-168)

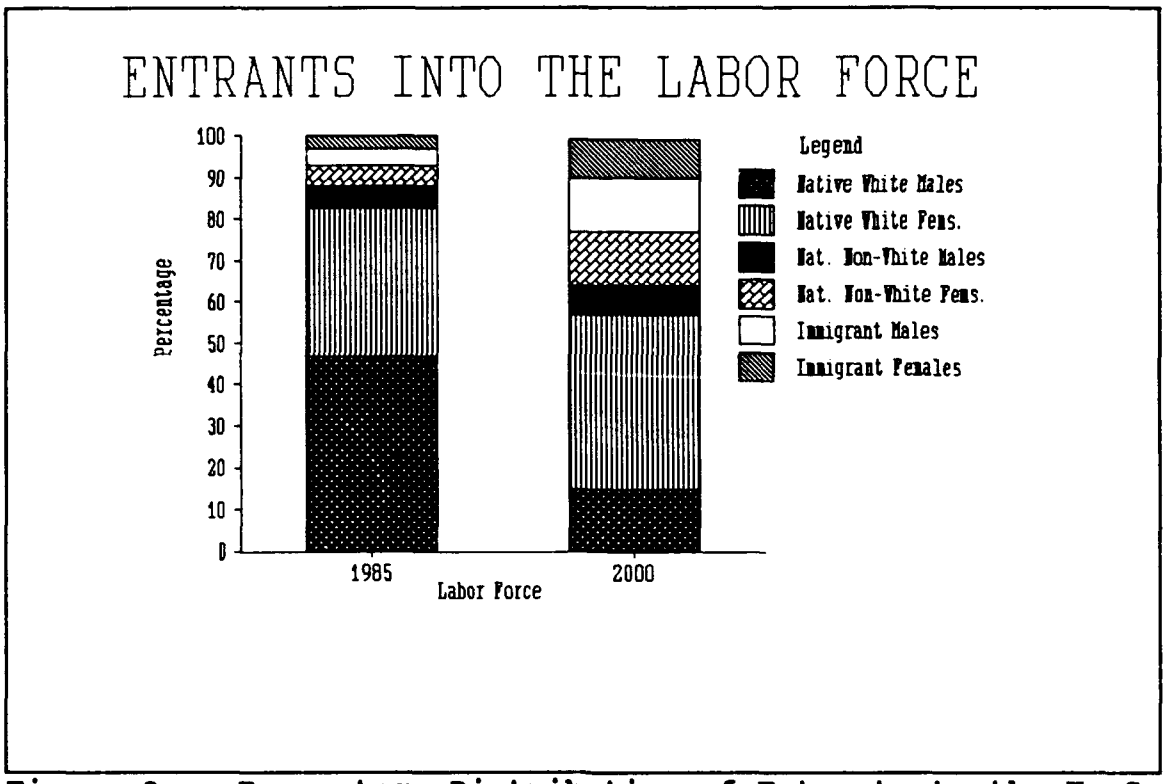

Figure 8: Percentage Distribution of Entrants to the U. S. Labor Force, by Citizenship Status, and Race, 1985 and 2000 (Projected)

Source: Johnston and Packer, 1987, p.95, Figure 3-7.

Minorities, on the average, also score lower than non-minorities on the ASVAB. And black and Hispanic minorities, for example, are expected to experience greater difficulties obtaining jobs in a market that is likely to demand workers who are better educated and more skilled. (Johnston and Packer, 1987, pp. 97-101) These characteristics could adversely affect the quality of the personnel recruited and retained in the Services when immigration patterns are taken into consideration.

B. EDUCATIONAL OUTLOOK

The proposed reductions in military personnel will, in fact, reduce the need for military labor. The demographic shifts stated above will affect the type of labor that will be available. Also, the demand for skills is changing. There will be a new and more complex set of skills required of the labor force. As observed by Johnston and Packer in their book, Workforce 2000,

> It is the new jobs and the new workers, however, that are of greatest interest and concern. The workers who will join the labor force between now and the year 2000 are not well-matched to the jobs that the economy is creating. A gap is emerging between the relatively low education and skills of new workers (many of whom are disadvantaged) and the advancing skill requirements of the new economy. (Johnston and Packer, 1987, p. 75)

Between now and the year 2000, even the least-skilled jobs will require a command of reading, computing, and thinking that was once necessary only for the professions. (Johnston and Packer, 1987, p. 75)

The Armed Services must recognize this educational gap and begin planning a suitable strategy. The military must be able to compete with the civilian economy for manpower resources. This competition will lead both military and civilian businesses to reach into the underemployed segments of the population. Remedial education programs of some sort may be necessary to integrate the disadvantaged into the mainstream workforce. (Lerman and Pouncy, 1988) (Lopez-Valadez, 1989)

C. MARINE CORPS OPTIONS

Force reductions directed by budget cuts require military planners to do an "about face" on how they manage military personnel. Under the AVF, the driving consideration was maintaining force levels. Quantity has had priority over quality. Today, planners must reduce force levels while maintaining readiness. There is no option. Quality must have priority over quantity. Instead of keeping everyone who wants to stay or providing increased incentives to retain more personnel, the Marine Corps will be required to limit the number of people retained past their first-term. Therefore, a logical and attainable goal is the retention of higher-quality enlisted marines from the pool of eligibles who have reached the end of their first-term of enlistment.

As the Armed Services adjust entry standards to fit supply and demand, retention standards and policies must be adjusted also. The Marine Corps should focus concern on retaining the highest quality personnel possible. Future trends in manpower supply indicate a shortage of young, skilled labor. The Marine Corps needs a method of identifying premiere performers and then aiming reenlistment incentives toward those individuals.

A reenlistee has a documented past history of performance and adaptability that can be used as a basis for evaluating individual effectiveness. With accelerated force reductions driving overall force structure requirements, a method of

identifying premiere performers can be a useful tool to ensure that the Marine Corps retains the best people. The future of each of the Armed Services and, as a result, the security of our nation may ultimately rest on the ability to discriminate between marginal and superior performers. The "quality" of the force is at stake.

V. METHODOLOGY

A. DATA PRESENTATION

An objective of this thesis is to provide the Marine Corps with a management tool that can be used to identify high-quality candidates for reenlistment. To accomplish that task, this study uses biographical data on all marines from fiscal 1979 to fiscal 1989. The data were obtained from three different sources: the Special Cohort Accession and Continuer File, maintained by the Defense Manpower Data Center (DMDC) in Monterey, California; the Master Enlisted Files, maintained by the manpower branch at HQMC in Washington, D.C.; and the Marine Corps Historical Files, maintained at Kansas City, Missouri. These three separate files were merged into one file.

1. DMDC Files

The Special Cohort Accession and Continuer File combines accession data from all Military Entrance and Examination Processing Stations with loss and active files submitted by each of the Services. The data in these files are arranged by the fiscal year in which a cohort of individuals entered the Armed Services. For example, the cohort for fiscal 1979 includes all individuals who entered active duty from 1 October 1978 through 31 September 1979. The use of cohort groups facilitates reconciling manpower

costs with the fiscal year budget submissions for the Department of Defense. Appendix A lists the variables from the DMDC file that are applicable to each individual record. Because each cohort splits a normal calendar year, the records within each cohort represent parts of two different calendar years.

Our analysis required segregating specific groups of marines who enlisted in the Marine Corps during a specified time period. Subsequently, the first step in refining the data involved isolating active duty enlisted marines with no prior military service. Seven individual cohort groups, fiscal 1979 through fiscal 1985, were identified. Table 3 provides a breakdown of the data. Column 1 of Table 3 shows the number of non-prior service enlisted marines that entered active duty in a particular fiscal year. The average number of non-prior service marines enlisted each year during fiscal 1979 to 1985 was 37,566.

To assist in the comparison between cohort groups, the second step in refining the data involved identifying a "decision-point."[4] The majority of individuals enlist in the

[4] A "decision-point" refers to the time in which a marine must make a career decision. Marines may select different courses of action at different times, but if a marine has a four-year contract he/she cannot delay the decision past the end of a contract. For our research, extensions of more than six months are considered a decision-point.

TABLE 3: NUMBER OF MARINE CORPS PERSONNEL IN THE COHORT DATA BASE, FISCAL 1979-1985

Fiscal Year	Marine Total Non-Prior Service Recruits	Marine Non-Prior Service, Four-Year Contracts, Males
1979	38,726	23,291
1980	40,787	25,109
1981	39,941	26,497
1982	36,099	24,088
1983	35,598	26,620
1984	38,645	32,389
1985	33,169	25,925

Source: Derived from data provided by the Defense Manpower Data Center.

Marine Corps on a four-year contract.[5] Consequently, this study focuses specifically on persons with four-year contracts. The last decision-point date for cohort fiscal 1985, with four-year contracts, was 31 September 1989. The cut-off for data entries available on file was 31 December 1989. In addition, due to the substantial policy differences governing the selection and retention of men and women marines, the records of women that enlisted in each group were excluded from the analysis. Column 2 in Table 3 shows the

[5] Other types of contracts range from one to six years, but the majority of the contracts are for four-year periods.

number of male non-prior service marines with four-year contracts that enlisted in each fiscal cohort. The totals listed in column 2 of Table 3 represent the target group of individuals used in the analysis. The average number of marines in the target group, fiscal 1979 through fiscal 1985, consisted of 26,275 individuals.

Appendix B contains a sample of one of the Statistical Analysis Systems (SAS) programs used to format and analyze the data. Each cohort program required slight modifications that were peculiar to that particular cohort group. The initial analysis showed that the information contained in the cohorts representing fiscal 1979, 1980, and 1981 was incomplete. DMDC is in the process of updating the data base for fiscal 1979 through 1981, but this update would not be completed in time for our analysis. Lines 19 and 25 of the SAS program require data for the variable Y6ETSY (Year 6, Year of EAS). This variable provides the results of each individual's decision after reaching the "decision-point." Since the data was not available for cohorts fiscal 1979-1981, those three cohorts were removed from the analysis. The four cohort groups with complete data (fiscal 1982, 1983, 1984, and 1985) were tracked through their four-year cycle and the results were used in the cross tabulation analysis section of this chapter.

2. Master and Historical Files

The Master Enlisted Files at HQMC and the Historical Files at Kansas City were used to obtain additional information relevant to the study. Appendix C contains the additional variables considered to be performance-based indicators of quality. The DMDC files were merged with the HQMC Master and Kansas City Historical Files at DMDC by the Marine Corps Liaison Officer, Lieutenant Colonel Pfeil. Reese (1989) developed a similar type of merge in the creation of the Marine Corps Attrition Inter-Active Database (MCAID) used for his Non-End of Active Service Attrition study. His program provides a method for calculating attrition rates for different recruit types in the Marine Corps. MCAID produces an accession cohort by merging data from seven input files.

Our prototype program is called the Marine Corps Retention Inter-Active Database (MCRID), and it identifies premiere performers for selective retention based upon specific measures of quality. Defining quality is the critical element of our research. This thesis examines data that provide a quantitative account of the personnel who enlist, attrite,[6] reach EAS, and, if eligible, subsequently either exit the Marine Corps or reenlist for a new term of service. The prototype model is capable of analyzing an

[6] The words "attrite" or "attrites" will be used throughout this study to mean those individuals who failed to successfully complete their initial enlistment contract. Although these words are not contained within a standard dictionary, they are commonly used within the military.

entire cohort. Unfortunately, time limits for retaining proficiency and conduct marks on marines after they leave the Service restrict the regression analysis to only a portion of the fiscal 1985 cohort group. Current data base management policies at Kansas City limit the retention of automated proficiency and conduct marks to six months after a marine's EAS date. After six months of a marine's EAS date, the archives section at Kansas City places the individual's records on microfiche. This policy prevents a complete historical analysis.

B. DEFINITION OF QUALITY

1. High School Diploma Graduates and AFQT

The tendency to use criteria that have demonstrated validity in the past is a compelling one. Successful completion of an enlistment contract has been shown to be highly correlated with having completed high school and attaining an AFQT score of I-IIIA (above the 50 percentile). This phenomenon has created a self-selection bias within each cohort group among those persons who reach their EAS date. For example, if all things remained equal, then approximately the same percentage of "quality" enlistees and "others" that first started in each cohort would be represented at the same EAS date. That is not the case. At any given EAS date there is a higher percentage of "quality " enlistees than "others". This is caused by the weeding out effect of military service. Studies mentioned previously in Chapter III of this thesis

have shown that individuals with AFQT scores below the 50th percentile or those who do not have a high school diploma have higher probabilities of not completing their enlistment contract. Yet, there has been very little research conducted to identify who would best perform over a career and, in addition, whether or not AFQT scores and education had any affect on career performance.

We suggest that the high school diploma and AFQT score are only the start, and that the actual performance of each individual would be the most useful indicator of potential future service. Studies made by Bowman (1990) and Scribner, Smith, and Baldwin (1986) that proposed "smarter is better" in overall productivity were inconclusive in projecting career potential. Possible explanations for the inconclusive results include self-selection bias of the study group and insufficient variation of the measurement criteria. Both explanations involve questions concerning the validity of aptitude tests and the biases inherent in performance evaluation appraisals. With technology increasing the need for more advanced basic skills, we suggest that educational indicators, like diplomas and test scores, will remain important, though not pivotal, factors for a successful career in the Marine Corps. In the cross tabulation analysis section of this Chapter, the two variables of quality used for predicting successful completion of enlistment -- AFQT scores above the 50th percentile and a high school diploma -- are

used to detect any "quality loss" occurring at the four-year decision point. We are not advocating the use of such criteria to determine reenlistment quality potential. Instead, by using the same quality criteria for enlistment, we can examine what has occurred to each individual who reached EAS.

2. Enlisted Utilization Surveys (EUS)

Marcus and Quester (1984) used surveys of supervisors to determine the performance of a select group of Navy enlisted ratings. The authors developed a productivity scale which ranged from -100 to +100 percent of productivity for each new trainee as compared to a fully trained 100 percent "ideal" sailor. According to their thesis, the Navy should be recouping the investment of time and money spent on each trainee. The only way to accomplish this is to set a sufficient contract length that would allow an average individual to progress along a productivity continuum (learning curve) that peaks at 100 percent toward the end of the contract. Maximum productivity potential equates to completion of formal schooling and reaching EAS.

Although the surveys were biased, to a degree, by the subjectivity of each supervisor, the concept of quantifying the technical skill level of an individual based upon a pre-determined "ideal" level appeared promising. As with any type of written evaluation procedure, biases of the evaluator, regional abnormalities and attitudes, and changing

requirements will induce a significant amount of distortion that may mask true performance potential of an individual. Another drawback of concentrating only on technical skill level, is that the whole individual is not represented. Socialization and interpersonal skills are equally important for a successful military career.

The surveys were a beginning toward extending the research for career "quality". The attempt by Marcus and Quester to quantify productivity along a discrete measurement scale represents the start of the research for performance-based indicators of quality.

3. Performance-Based Criteria

Ward and Tan (1985) examined retention of high-quality personnel using a combination of the high school diploma and AFQT score, along with speed of promotion. They attempted to isolate and interpret what they called a "quality-loss phenomenon" within the Navy. Their thesis suggested that retention "quality" should hinge upon performance-based measures (speed of promotion) and background data (diplomas and AFQT scores). As stated earlier, background data consisting of diplomas and AFQT scores cause a self-selection bias to occur within the study group, but the idea of selecting performance-based measures from available data files to calibrate "quality potential" appeared worthy of continued study. The use of the variable, speed of promotion, would not be applicable to the Marine Corps due to

the structure of the promotional system. However, there are several performance-based measures that would be effective indicators of quality.

4. Proposed Definition of Quality

We propose combining a type of productivity scale with other performance-based criteria to determine "quality potential" for reenlistment. The Marine Corps uses a type of productivity scale for enlisted personnel in pay grades E-4 and below called Proficiency and Conduct markings. At a minimum, each marine on active duty receives a set of marks semi-annually. The marks range from a perfect score of 5.0 to a low of 0.0. The assignment of Proficiency and Conduct marks is strictly governed by specific instructions contained in Marine Corps Order P1070.12. This Order is called the Individual Records Administration Manual (IRAM). Appendix D contains excerpts from the IRAM that lists the occasions and prerequisites for the assignment of each mark. The instructions are explicit. An average marine will receive markings in the 4.0 - 4.4 range, while meritorious promotion caliber marines receive marks in the 4.5 - 4.8 range. Superior performers will have marks above 4.8. A marine's average-in-service and average-in-grade marks for both Proficiency and Conduct are maintained in the automated Master Enlisted Data Files at HQMC while a marine is on active duty.

Other performance-based indicators contained within the Master Data Files include meritorious promotion records,

medal awards, formal school attendance, off-duty education, leadership awards, etc. By combining background data like diplomas and AFQT scores with past performance indicators, a broader range of future potential can be assessed. For example, the ideal marine for reenlistment is one who has proficiency and conduct marks of 4.6 or higher, or has taken off-duty education courses above the high school level, or has received a meritorious promotion for demonstrating the ability to perform various tasks far beyond the level of his peers. We suggest that "growth potential" attributes like versatility and adaptability are strong indicators of suitability and career success.

Our original research proposal included the use of formal school class standings and meritorious promotions as performance-based indicators of quality. Initial discussions with HQMC and DMDC indicated that those particular variables could be isolated and merged with the DMDC cohort file. However, upon further examination of the individual data elements, the retrieval of those variables was not possible for our analysis.

Using the data which are available, our model, MCRID, is based upon the premise that proficiency and conduct markings indicate an accurate reflection of quality performance. A marine with average-in-service proficiency and conduct marks of 4.6 or higher is considered a premiere performer who has displayed desirable career potential. In

addition, a marine who receives a personal award of a Navy Achievement Medal or higher, or improved his or her educational status at the post-secondary level, or has an AFQT score above the 50th percentile is considered a high quality candidate for reenlistment. Our justification for using these variables as indicators of quality is based upon the following:

- Personal Awards of a Navy Achievement Medal or higher require a documented level of performance far above that expected of an individual's grade or experience. Medal awards are not routinely given to enlisted marines.

- Self-improvement through off-duty education beyond high school shows initiative and drive to better one's ability. By setting priorities and efficiently managing one's time, a marine who sacrifices off-duty time to further his or her education shows maturity and responsibility.

- Lastly, AFQT scores above the 50th percentile have been used as a standard for quality for enlistment purposes since the beginning of the AVF. If the entry-level pool of labor has been filtered by the use of AFQT scores, it stands to reason the first-term reenlistment pool will contain a self-selection bias in favor of marines with AFQT scores above the 50th percentile. Although AFQT percentiles have been used to predict success during an individual's first-term, the use of AFQT percentiles as an indicator of career potential is questionable.

The linear and logistic regression section of this thesis, which follows the next section on cross tabulation analysis, contains specific details concerning the relationship between AFQT and "career potential."

C. CROSS TABULATION ANALYSIS

1. Analysis

The analysis is conducted on four cohort groups, fiscal 1982-1985. The nonparametric method of analysis uses frequency tables to trace the flow of the numbers and the percentages of marines that fall in three basic categories: attrition, expiration of service, and reenlistment. Figure 9 illustrates the flow each marine follows throughout his or her initial enlistment contract. Along the path there are three general exits where a marine can drop from the system. For example, the first exit point is attrition prior to EAS. The next exit is not being eligible for reenlistment. The last exit is deciding not to reenlist.

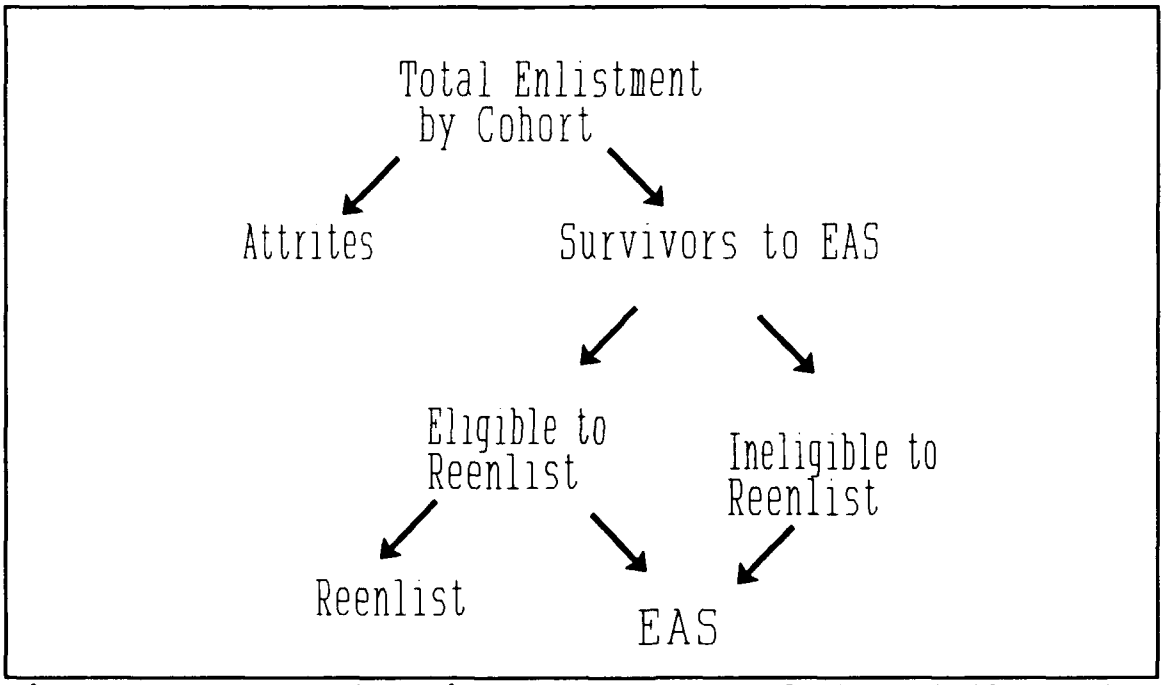

Figure 9: Flow of Marine Corps Personnel through the System

Within this section of the thesis, variables measuring quality are based upon previous research showing that marines with a high school diploma and an AFQT score above the 50th percentile are more likely to complete their initial enlistment contract. We are extending the use of those same parameters to the marines in our study who reach the end of their initial enlistment contract. In other words, the analysis is conducted as if quality for reenlistment is based upon the same criteria applied at enlistment. We are <u>not</u> suggesting that AFQT scores and diplomas be used as sole determinants for reenlistment. On the contrary, the reasoning behind the use of this approach is twofold. First, track individuals through the enlistment cycle based upon the initial entry criteria. This provides a complete picture of what happens to each of the "quality" enlistees. Then secondly, compare the results of this analysis with the results contained in the next section which uses performance-based criteria for quality. A comparison of both analyses should indicate whether there exists a bridge or relationship between enlistment criteria and performance.

Table 4 shows the breakdown of each cohort according to AFQT categories; and Table 5 shows the breakdown of each cohort by educational achievement. Educational achievement is divided by high school graduation status: recruits who have a high school diploma (HSDG), and those who do not (NON-HSDG).

TABLE 4: NUMBER AND PERCENTAGE DISTRIBUTION OF NON-PRIOR SERVICE MARINE CORPS MALE RECRUITS WITH FOUR-YEAR CONTRACTS, BY AFQT CATEGORY, FISCAL YEAR OF ENTRY, 1982-1985

Fiscal Year	AFQT CATEGORY I	II	IIIA	IIIB	IV	TOTAL
1982						
Number	967	7,532	4,871	9,891	827	24,088
Percent	4	31	20	41	4	100
1983						
Number	1,042	8,423	5,470	10,656	1,029	26,620
Percent	4	32	20	40	4	100
1984						
Number	1,160	8,760	6,345	14,706	1,418	32,389
Percent	4	27	20	45	4	100
1985						
Number	648	6,202	5,313	13,032	734	25,929
Percent	3	24	20	50	3	100
TOTAL						
Number	3,817	30,917	21,999	48,285	4,008	109,026
Percent	4	28	20	44	4	100

Source: Derived from data provided by the Defense Manpower Data Center.

TABLE 5: NUMBER AND PERCENTAGE DISTRIBUTION OF NON-PRIOR SERVICE MARINE CORPS MALE RECRUITS WITH FOUR-YEAR CONTRACTS, BY EDUCATIONAL ACHIEVEMENT, FISCAL YEAR OF ENTRY, 1982-1985

	EDUCATIONAL ACHIEVEMENT		
Fiscal Year	HSDG	NON-HSDG	TOTAL
1982			
Number	22,211	1,877	24,088
Percent	92	8	100
1983			
Number	25,115	1,505	26,620
Percent	95	5	100
1984			
Number	30,913	1,476	32,389
Percent	95	5	100
1985			
Number	24,848	1,081	25,929
Percent	96	4	100
TOTAL			
Number	103,162	5,864	109,026
Percent	95	5	100

Source: Derived from data provided by the Defense Manpower Data Center.

NON-HSDG includes recruits who possess any other educational credential that ranks below a high school diploma. The results show that during fiscal 1982 through 1985, the Marine Corps has, on average, managed to enlist nearly 52 percent of its male non-prior service four-year contract recruits in AFQT categories I to IIIA -- categories considered high quality. During the identical period, 95 percent of all recruits entered the Marine Corps with a high school diploma. The

results suggest that the Marine Corps is very successful in recruiting high-quality applicants.

From Table 4, there appears to be one trend emerging that may require closer monitoring. In the last two fiscal years, 1984 and 1985, the total numbers of high-quality recruits have been declining while the numbers of recruits with AFQT scores below the 50th percentile have been increasing. In 1985 category IIIB and IV recruits comprised 53 percent of all new entrants.

Over the course of their enlistment, marines may become dissatisfied with their military career. Unlike the civilian sector, a person in the Marine Corps has limited freedom to exercise his or her desires to change profession. However, the level of dissatisfaction may induce poor job performance or continuous disciplinary problems. These outward demonstrations of dissatisfaction may result in the marine being discharged prior to his or her EAS. As Buddin (1988) observes:

> Attrition is the result of a reassessment by both the recruit and the service about their initial decision. Separation will occur if both sides are dissatisfied. If one party or the other wants to continue, some compromise may be possible. (Buddin, 1988, p. 12)

Attrition is not always a result of disciplinary action. There are other reasons, such as medical unsuitability and academic deficiency, that might result in the marine failing to complete a contracted term of enlistment. Table 6 shows a breakdown of the data for each

fiscal year cohort according to two subpopulations -- the number of marines who attrite and the number that survive to their EAS. The findings corroborate the results of previous studies contained in the literature review: on the average, approximately one-third of all marine enlistees will fail to reach their EAS. Attrition is the first point at which a marine may leave the enlistment cycle.

Table 7 shows the percentage of attritions for each cohort group by AFQT category. Once again, the results support the findings of previous research. Attrition rates increase as aptitude levels decrease. On the average, 71 percent of AFQT category I marines survived to their EAS date compared with 64 percent of marines in categories IIIB and IV. In addition, the results contained in Table 8 support studies that show marines with a high school diploma are <u>less</u> likely to attrite than those without a high school diploma. The results show that, on the average, marines with a high school diploma will attrite at a rate of 31 percent while marines who have no high school diploma will attrite at a rate of 66 percent.

TABLE 6: NUMBER AND PERCENTAGE DISTRIBUTION OF NON-PRIOR SERVICE MARINE CORPS MALE RECRUITS WITH FOUR-YEAR CONTRACTS, BY ATTRITION AND SURVIVAL THROUGH FIRST TERM, FISCAL YEAR OF ENTRY, 1982-1985

FISCAL YEAR	ATTRITES	SURVIVORS	TOTAL
1982			
Number	8,270	15,818	24,088
Percent	34	66	100
1983			
Number	8,627	17,993	26,620
Percent	32	68	100
1984			
Number	10,500	21,889	32,389
Percent	32	68	100
1985			
Number	8,960	16,969	25,929
Percent	35	65	100

Source: Derived from data provided by the Defense Manpower Data Center.

TABLE 7: PERCENTAGE OF NON-PRIOR SERVICE MARINE CORPS MALE RECRUITS WITH FOUR-YEAR CONTRACTS WHO FAILED TO COMPLETE A FIRST TERM OF ENLISTMENT, BY AFQT CATEGORY AND FISCAL YEAR OF ENTRY, 1982-1985

	AFQT CATEGORY				
Fiscal Year	I	II	IIIA	IIIB	IV
1982	29	30	34	38	40
1983	30	29	34	34	37
1984	29	30	32	34	34
1985	29	32	34	36	36
TOTAL 1982-85	29	30	33	36	36

Source: Derived from data provided by the Defense Manpower Data Center.

TABLE 8: PERCENTAGE OF NON-PRIOR SERVICE MARINE CORPS RECRUITS WITH FOUR-YEAR CONTRACTS WHO FAILED TO COMPLETE A FIRST TERM OF ENLISTMENT, BY EDUCATIONAL ACHIEVEMENT AND FISCAL YEAR OF ENTRY, 1982-1985

	EDUCATIONAL LEVEL	
Fiscal Year	HSDG	NON-HSDG
1982	31	79
1983	31	61
1984	31	58
1985	33	60
TOTAL 1982-85	31	66

Source: Derived from data provided by the Defense Manpower Data Center.

Of the 5,959 high school dropouts who enlisted during the period of this study, 3,928 failed to finish their contracts. Looking at this statistic, it is easy to understand the value of using a high school diploma as an indicator of success during the first term. By reducing the chances of marines failing to reach their EAS, the Marine Corps has reduced personnel and training costs associated with attrition.

When a marine survives to the expiration of his or her contract, he or she can, at that point, exit the Marine Corps

or request to be reenlisted.[7] However, the option to reenlist is not automatic. The individual marine's Commanding Officer is responsible to determine, based upon established policy guidelines, whether that individual is eligible for reenlistment. Appendix E contains a section of the Career Planning and Development Guide that sets forth the established policy. Commanding Officers are tasked to evaluate the marine's "performance" and provide HQMC with a recommendation for reenlistment. The Commanding Officer's recommendation is but one of the criteria that a marine must meet to be eligible for reenlistment.

Yet, there are some marines who survive to their EAS, but they are not eligible to reenlist. And there are marines who may have been eligible but decided not to reenlist. Appendix F contains a listing of reenlistment codes (RECODE) that are assigned to each of these marines. A RECODE of '1A', '1B', or '2A' is given to a person eligible for reenlistment who exits the Marine Corps. A marine who is not eligible for reenlistment exits the Marine Corps with one of the other codes listed in Appendix F. By separating the population of

[7] Marines may exercise their option to reenlist up to 12 months prior to their end of active service (EAS). A few SRBs restrict this option. Marines also may request extensions of up to 23 months to their present enlistment, usually in conjunction with fulfilling duty station requirements or reenlistment options such as SRBs. For the purposes of this study, extensions greater than six months are treated as reenlistments, since retention criteria are followed in granting extensions.

survivors into eligible and not eligible, a more in-depth analysis can be conducted.

Table 9 shows the breakdown by AFQT category the percentages of survivors who were ineligible for reenlistment. Marines who have reached their "decision point" are classified as eligible or ineligible for reenlistment. The results show that as aptitude (measured by AFQT category) decreases, the percentages of ineligible marines increase slightly. In other words, on the average, 92 percent of category I marines for fiscal 1982 through 1985 were eligible for reenlistment, compared with between 86 and 85 percent of marines in categories IIIB and IV. However, when the comparison is made between categories IIIA and IIIB, there is no conclusive evidence of any difference. It appears from the results that, at the extremes, AFQT scores may affect whether a marine becomes eligible to reenlist.

Table 10 extends the analysis based on the educational achievement of the individual marine. From the table there appears to be some consistency in the percentages of marines with a high school diploma who are ineligible to reenlist.

TABLE 9: PERCENTAGE OF NON-PRIOR SERVICE MARINE CORPS MALE RECRUITS WITH FOUR-YEAR CONTRACTS WHO WERE CLASSIFIED INELIGIBLE FOR REENLISTMENT AT THE END OF THEIR FIRST TERM OF ENLISTMENT, BY AFQT AND FISCAL YEAR OF ENTRY, 1982-1985

	AFQT CATEGORY				
Fiscal Year	I	II	IIIA	IIIB	IV
1982	11	13	16	17	16
1983	8	11	14	13	15
1984	8	10	13	13	14
1985	7	11	13	15	15
TOTAL 1982-85	8	11	14	14	15

Source: Derived from data provided by the Defense Manpower Data Center.

TABLE 10: PERCENTAGE OF NON-PRIOR SERVICE MARINE CORPS RECRUITS WITH 4-YEAR CONTRACTS WHO WERE CLASSIFIED INELIGIBLE FOR REENLISTMENT AT THE END OF THEIR FIRST TERM, BY EDUCATIONAL ACHIEVEMENT AND FISCAL YEAR OF ENTRY, 1982-1985

	EDUCATIONAL LEVEL	
Fiscal Year	HSDG	NON-HSDG
1982	15	41
1983	12	22
1984	12	20
1985	13	35
TOTAL 1982-85	13	28

Source: Derived from data provided by the Defense Manpower Data Center.

The results suggest that approximately 87 percent of high school diploma graduates become eligible for reenlistment. The findings are less clear when the numbers of marines without high school diplomas are analyzed.

The column labeled NON-HSDG in Table 10 shows wide fluctuations in the percentages of ineligible marines from year to year. These fluctuations can be attributed to several factors. First, paragraph 4102.3.b of appendix E establishes the need to have a high school diploma or equivalency certificate as a prerequisite for reenlistment. The data contained in the NON-HSDG category includes marines who have equivalency certificates. Consequently, as the numbers of marines with equivalency certificates increase, the more likely the numbers of eligible marines in the NON-HSDG category will increase. Second, the smaller numbers of non-high school graduates, that are recruited in the Marine Corps, cause a larger variation in the percentages with smaller fluctuations in the raw numbers. In addition, a Commanding Officer can request a waiver to the high school diploma or equivalent requirement from HQMC in order to reenlist a particularly deserving marine.

The reenlistment eligibility criteria established by HQMC are an attempt at selecting "quality" personnel at their reenlistment point. Marines who are not eligible to reenlist exit the system at their EAS. Appropriately, marines who survive to their EAS and are eligible to reenlist constitute

the target population in directing retention efforts. Table 11 presents a break-down by AFQT category the percentages of eligible marines from each cohort who reenlisted in the Marine Corps. The results suggest that, as aptitude decreases, marines are more likely to choose reenlistment. On the average, marines from category IIIA have a reenlistment rate of 32 percent and marines from category IIIB have a reenlistment rate of 36 percent. At the extremes, the differences are much greater -- 31 percent for category I and 40 percent for category IV. The results of previous studies support the findings contained within this table -- propensity to reenlist is greater with marines who have AFQT scores below the 50th percentile.

Table 12 extends the analysis based upon educational achievement. Marines who were eligible for reenlistment are examined to determine if the Marine Corps is retaining a disproportionate share of non-high school graduates. The findings show that, during fiscal 1982 through 1985, 63 percent of the marines without a high school diploma reenlisted. On the other hand, only 33 percent of the marines with high school diplomas chose to reenlist.

TABLE 11: PERCENTAGE OF NON-PRIOR SERVICE MARINE CORPS MALE RECRUITS WITH FOUR-YEAR CONTRACTS WHO REENLISTED AFTER THEIR FIRST TERM OF ENLISTMENT, BY AFQT AND FISCAL YEAR OF ENTRY, 1982-1985

	AFQT CATEGORY				
Fiscal Year	I	II	IIIA	IIIB	IV
1982	36	35	38	40	42
1983	30	34	35	38	41
1984	29	30	30	36	40
1985	29	28	28	31	37
TOTAL 1982-85	31	32	32	36	40

Source: Derived from data provided by the Defense Manpower Data Center.

TABLE 12: PERCENTAGE OF NON-PRIOR SERVICE MARINE CORPS MALE RECRUITS WITH FOUR-YEAR CONTRACTS WHO REENLISTED AFTER THEIR FIRST TERM OF ENLISTMENT, BY EDUCATIONAL ACHIEVEMENT AND FISCAL YEAR OF ENTRY, 1982-1985

	EDUCATION LEVEL	
Fiscal Year	HSDG	NON-HSDG
1982	38	37
1983	35	69
1984	32	70
1985	29	60
TOTAL 1982-85	33	63

Source: Derived from data provided by the Defense Manpower Data Center.

A possible explanation for this behavior deals with available opportunities in the civilian labor market. Marines with a higher aptitude would be more likely to exit the Marine Corps because they would have a higher expectancy for success in the outside labor market. In any case, it appears that the Marine Corps may be retaining a disproportionate number of non-high school graduates.

2. Summary

The results of the cross tabulation analysis for cohorts fiscal 1982 through 1985 support published reports that state the Marine Corps is enlisting high-quality recruits. Approximately 52 percent of the individuals examined during this study entered the Marine Corps with AFQT scores above the 50th percentile and 95 percent possessed a high school diploma. However, there are indications from the data that a possible trend toward recruiting more individuals with AFQT scores below the 50th percentile was occurring in the last two cohort groups -- 1984 and 1985.

Consistent with all previous research conducted on attrition, our results show that, on the average, one-third of all enlistees fail to complete their initial enlistment contract. Of those marines who failed, higher attrition rates were associated with lower AFQT scores overall; however, at the dividing point of quality -- between categories IIIA and IIIB -- there are no differences in attrition rates. Yet, the highest attrition rates were for non-high school graduates.

The results showed that 66 percent of all enlistees without a high school diploma failed to finish their initial contract.

Of those marines who survived to their EAS, the findings suggest that, as aptitude (measured by AFQT category) decreases, the percentages of ineligible marines increase. In contrast, the data show that 87 percent of survivors who have a high school diploma became eligible to reenlist.

The final analysis on individuals who reenlisted supports the evidence from previous studies showing that individuals with lower AFQT scores have a higher propensity to reenlist than do individuals with higher AFQT scores. Also, non-high school graduates have a much higher propensity to reenlist than do high school diploma graduates. These propensities to reenlist create a quality loss phenomena.

3. Quality Loss Phenomena

Table 13 presents our results in an aggregate form to show the "quality loss phenomena" that is occurring due to a natural, self-selection process. In Table 13, each cohort is divided into three subpopulations -- total marines enlisted, marines eligible to reenlist, and marines who reenlisted. Each of the three subpopulations are compared using a quality indicator -- AFQT category I-IIIA, high-quality, and AFQT category IIIB-IV, lower-quality.

From the totals contained in Table 13, a pattern clearly emerges. During fiscal 1982 through 1985, the Marine Corps enlisted more than 52 percent high-quality recruits.

TABLE 13: NUMBER & PERCENTAGE DISTRIBUTION OF NON-PRIOR SERVICE MARINE CORPS MALE RECRUITS WITH 4-YEAR CONTRACTS THAT ENLISTED, BECAME ELIGIBLE, & REENLISTED AFTER THEIR FIRST TERM OF ENLISTMENT, BY AFQT CATEGORY & YEAR OF ENTRY, 1982-1985

Fiscal Year	AFQT and Category	MARINES ENLISTED	MARINES ELIGIBLE	MARINES REENLISTED	ELIGIBLE MARINES WHO REENLISTED
1982					
	CAT I-IIIA	13,370	7,929	2,895	
	Percent	56	59	57	37
	CAT IIIB-IV	10,718	5,478	2,199	
	Percent	44	41	43	40
1983					
	CAT I-IIIA	14,935	9,102	3,079	
	Percent	56	58	55	34
	CAT IIIB-IV	11,685	6,646	2,557	
	Percent	44	42	45	39
1984					
	CAT I-IIIA	16,265	10,066	2,980	
	Percent	50	52	47	30
	CAT IIIB-IV	16,124	9,227	3,329	
	Percent	50	48	53	36
1985					
	CAT I-IIIA	12,163	7,261	2,051	
	Percent	47	49	47	28
	CAT IIIB-IV	13,766	7,454	2,312	
	Percent	53	51	53	31
TOTAL 1982-85					
	CAT I-IIIA	56,733	34,358	11,005	
	Percent	52	54	51	32
	CAT IIIB-IV	52,293	28,805	10,397	
	Percent	48	46	49	36

Source: Derived from data provided by the Defense Manpower Data Center.

Of all marines who survived to EAS, 54 percent of those eligible to reenlist were high-quality. Due to the weeding out process of military service, the pool of high-quality potential reenlistees was significantly larger than the pool of potential lower-quality reenlistees. However, only 51 percent of total reenlistments were high-quality. In contrast, 46 percent lower-quality marines were eligible to reenlist, from which 49 percent of all reenlistments were drawn.

In the absence of any "career quality" indicators, the data suggest there is a 3-4 percent loss of high-quality (as measured by AFQT) potential reenlistees. At a minimum, the percentage of high-quality reenlistees should be equally proportional to the percentage of high-quality eligible marines. In other words, if 54 percent of all marines eligible for reenlistment are high-quality then 54 percent of all reenlistees should be high-quality. For fiscal 1982 through 1985, a 4-percent loss of high-quality means that approximately 552 high-quality potential reenlistees were replaced by 552 lower-quality individuals. A possible explanation for this imbalance is suggested by the reenlistment percentages listed in the last column of Table 13. Once again, the data show that lower-quality individuals have a higher propensity to reenlist (36 percent) than do high-quality individuals (32 percent).

It is important to note that the 4-percent loss is based upon the assumption that the optimal mix of the number of high-quality and lower-quality reenlistments is equally proportional to the eligibility percentages. Since the pool of high-quality, potential reenlistees is significantly greater than the pool of lower-quality reenlistees, if the Marine Corps can somehow influence the reenlistment percentage rate for high-quality individuals -- say raise it to 36 percent and reduce the reenlistment percentages for lower-quality individuals to 32 percent -- then the Marine Corps can increase the overall percentage of high-quality individuals to 58 percent (versus the present 51 percent). With a reenlistment rate of 36 percent for high-quality personnel over the same cohort population, the Marine Corps could have retained 1,364 more high-quality individuals.

Our interpretation of the results is that, if left to chance, the current reenlistment procedures used by the Marine Corps favor retention of personnel at the margin. That is, eligible marines who may <u>not</u> be the best qualified choose to reenlist over more qualified marines. A method of identifying high-quality marines in order to target them for retention above a lower-quality marines is needed.

In the next section, "career quality" is measured by performance-based indicators. The analysis explores any possible relationships that may exist between AFQT scores and the available information on prior performance.

D. LINEAR AND LOGISTIC REGRESSION MODELING

1. Analysis

The objective of this analysis is to explore relationships that may exist between performance-based indicators of quality -- such as proficiency and conduct marks, awards and educational improvement -- with biographical measures of quality such as AFQT percentile scores and high school diplomas. Our intent was to conduct a multiple-stage, statistical analysis of the entire fiscal 1985 non-prior service enlisted male cohort. The optimum strategy would be to compare each subpopulation as it progresses through the enlistment cycle. Unfortunately, the data were not available to implement this strategy. That data that were available limited the analysis to a single subpopulation -- marines who actually reenlisted. In other words, data base management policy restrictions at HQMC and Kansas City, Missouri prevented a complete, detailed analysis. Of the 14,715 individuals eligible to reenlist, the performance data were available on only 4,052 of the 4,363 individuals who reenlisted. Thus, a comparison between individuals who choose to reenlist with individuals who choose to leave the Service was not possible. Instead, this section is only able to estimate a linear regression of performance-based indicators on quality for marines who reenlisted.

But first, the procedures used to format each variable are described. This is followed by a short discussion on two

ideal logit regression models. These regressions, which explore the subpopulations of survivors and marines eligible to reenlist, are mock-ups that would have been used if the performance data had been available. The last section discusses the actual linear regression model that was estimated, which attempts to find relationships between performance-based criteria and individual biographical characteristics. A Chi-square frequency table analysis is also included.

The following procedures are used to format variables:

- Individual AFQT percentiles are contained within the input data base. The regression analysis uses the actual percentile score. But the Chi-square frequency table analysis uses a grouping of percentile scores according to a high-quality scale -- AFQT percentiles above 50 -- and a lower-quality scale -- AFQT percentiles below 50. The variable name is AFQT.

- June 1990 average-in-service proficiency and conduct marks are reformatted from whole numbers to decimal form. For example, the marks are contained within the data base as 45 or 42, but they have been reformatted to 4.5 and 4.2. The regression analysis uses the decimal form of each mark, while the Chi-square analysis uses a grouping of proficiency marks based on a quality scale -- 4.6 and above are high-quality and 4.5 and below are considered lower-quality. Variable names are PRO and CON.

- A dummy variable named AWARD was constructed to indicate whether a marine has received an award with precedence above the Good Conduct Medal. AWARD equals 1 if true, 0 if false.

- A dummy variable named IMPROVE was constructed to indicate whether a marine increased his educational level above the high school diploma while on active duty. IMPROVE equals 1 if true, 0 if false.

After formatting the needed variables, the next step in the analysis would have been, given the availability of

the necessary data, to isolate two subpopulations of the fiscal 1985 cohort. As a reminder, the original population of non-prior service, male, four-year contract marines consisted of 25,929 individuals. The two subpopulations of interest are those marines who survived to their EAS -- 16,969 individuals -- and those marines eligible to reenlist -- 14,715 individuals. Each of these subpopulations would have been analyzed using a logit model with a binary dependent variable. The logit models would have been estimated using maximum likelihood procedures. The form of the equations would have been as follows:

SURVIVORS

$$y = b + X_1(AFQT) + X_2(PRO) + X_3(AWARD) + X_4(IMPROVE) \quad (1)$$

where y = 1 if a marine is eligible to reenlist

y = 0 if a marine is not eligible to reenlist

ELIGIBLES

$$y = b + X_1(AFQT) + X_2(PRO) + X_3(AWARD) + X_4(IMPROVE) \quad (2)$$

where y = 1 if a marine reenlisted

y = 0 if a marine does not reenlist

With a fully operational, interactive data base like the one we propose, the variables used within the logit regression equations can be adjusted as circumstances dictate. The importance of equations (1) and (2) relies on the assumption

that quality is represented by some measurable and observable phenomena. Through this proposed analysis, we would hope to be able to find consistent and reliable relationships on which to base management decisions.

Regrettably, performance data could be obtained only on the reenlistment subpopulation. This subpopulation consists of 4,052 of the 4,363 marines in the fiscal 1985 cohort who reenlisted. The 311 individuals that appear to be missing can be accounted for in several different ways, but such a small number is not significant to the outcome of the analysis. However, it is important to note that information is incomplete for those marines who were eligible to reenlist, but exited the Marine Corps. This missing information prevents a complete analysis and places limits on any conclusions derived from the data. Regardless of these shortcomings, the data obtained for the 4,052 marines is considered to be a representative sample of a typical reenlistment cohort.

Table 14 contains the results of an initial correlation analysis of the variables for the 4,052 marines in the data base. The results show that the only significant correlation exists between the variables PRO and CON. With a positive correlation of .825, the findings suggest that a collinear relationship exists between the two variables.

TABLE 14: PEARSON CORRELATION COEFFICIENTS

	AFQT	PRO	CON	AWARD	IMPROVE
AFQT	1.00000	0.18957	0.15046	0.06964	0.06699
	(.0000)	(.0001)	(.0001)	(.0001)	(.0001)
PRO	0.18957	1.00000	**0.82523**	0.13947	0.01102
	(.0001)	(.0000)	(.0001)	(.0001)	(.4829)
CON	0.15046	**0.82532**	1.00000	0.08402	0.00018
	(.0001)	(.0001)	(.0000)	(.0001)	(.9909)
AWARD	0.06964	0.13947	0.08402	1.00000	-.00343
	(.0001)	(.0001)	(.0001)	(.0000)	(.8271)
IMPROVE	0.06699	0.01102	0.00018	-.00343	1.00000
	(.0001)	(.4829)	(.9909)	(.8271)	(.0000)

Source: Derived from data provided by the Defense Manpower Data Center.

This finding is not surprising. It is understandable that marks in proficiency parallel marks in conduct. A test for collinearity was conducted by regressing CON on PRO. The results confirmed the suspicion of collinearity. For the remainder of this study, the variable PRO will be used as the representative variable for performance marks, and the variable CON is dropped from the analysis.

The lack of a moderate correlation between the other variables, especially AFQT and PRO and AFQT and IMPROVE, is considered surprising. Our hypothesis is that proficiency marks of 4.6 and above are reliable indicators of superior performance and that they are positively related to AFQT,

AWARD and IMPROVE. But the lack of correlation between those variables in Table 14 do not support this hypothesis.

A further test of the basic hypothesis is contained in Table 15. A linear regression equation estimated by using ordinary least square procedures is used to explore the possible relationships between proficiency marks and the variables AFQT and AWARD. The following regression equation was estimated:

$$PRO = a + b_1(AFQT) + b_2(AWARD) \qquad (3)$$

where a, b_1 and b_1 are the parameters to be estimated The results contained in Table 15 suggest that, although our model explains a small portion of the variation in proficiency marks (adjusted R^2 = .05), that the independent influence of the two variables (AFQT and AWARD) are both positive and significant. In other words, it appears that performance (as measured by proficiency marks) of marines who reenlisted in fiscal 1985 is significantly influenced by AFQT scores and awards. Another regression equation was run adding IMPROVE to the model, but the results for that variable were not significant. Clearly, there are other factors that influence proficiency marks that our study has missed. With a fully inter-active data base the analysis could have been extended to variables that include meritorious promotions, age, marital status, race, and geography.

TABLE 15: ANALYSIS OF VARIANCE

EQUATION: PRO = 4.5 + 0.001(AFQT) +.05(AWARD)
(.0058) (.0001) (.0058)*

* Numbers in parenthesis are standard errors; all coefficients are significant at the .01 level

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F
MODEL	2	3.18686912	1.593434	110.949	0.0001
ERROR	4049	58.15099860	0.014361		
C TOTAL	4051	61.33786772			

ROOT MSE	0.1198408	R-SQUARE	0.0520
DEP MEAN	4.5769	ADJ R-SQ	0.0515
C.V.	2.618383		

Source: Derived from data provided by the Defense Manpower Data Center.

2. Summary

The results contained in Table 16 best summarize the findings of the overall analysis. Table 16 contains a Chi-square frequency analysis using quality scales to assess the influence of AFQT scores (above or below the 50th percentile), awards, and education on proficiency marks for superior performers (PRO 4.6 or better) and others (PRO 4.5 or less). The findings suggest that individuals with lower AFQT scores are more likely to be low performers, and individuals who have received awards are more likely to be high performers.

TABLE 16: CHI-SQUARE ANALYSIS

TOTAL OBSERVATIONS: 4,052

	PROFICIENCY > or = 4.6	PROFICIENCY < or = 4.5
REENLISTEES	2,579 (64%)	1,473 (36%)
AFQT		
> or = 50	1,341 (52%)	569 (39%)
< or = 49	1,238 (48%)	904 (61%)*
AWARD		
YES	378 (15%)**	95 (6%)
NO	2,201 (85%)	1,378 (94%)
IMPROVE		
YES	207 (8%)	103 (7%)
NO	2,372 (92%)	1,370 (93%)

* SIGNIFICANT CHI-SQUARE AT THE .05 LEVEL
** SIGNIFICANT CHI-SQUARE AT THE .01 LEVEL

Source: Derived from data provided by the Defense Manpower Data Center.

However, the Chi-square analysis does not suggest what the magnitude of these relationships is.

The findings of this analysis suggest that there is only a week relationship, at best, between AFQT scores and proficiency marks. From these results, it appears that enlistment criteria for quality have no significant affect on performance criteria for reenlistment quality. In summary, AFQT scores may have validity for enlistment purposes, but do not appear to be useful for predicting career potential. However, a complete data base is needed for a more detailed analysis that would provide a firmer conclusion concerning the effect of AFQT.

3. Quality Loss Phenomena

Using the sole parameter of proficiency marks of 4.6 or above, 2,579 high-quality marines from the fiscal 1985 cohort reenlisted. That total represents 64 percent of the 4,052 individuals examined in this study. That number and percentage appear to indicate that the Marine Corps is retaining a higner proportion of marines who are high quality. But, without having information on the other 10,352 marines who were eligible to reenlist, but exited the Marine Corps, any conclusions based on this study should be made cautiously. The issue of quality-loss based upon proficiency marks is inconclusive, and certainly warrants further study.

VI. IMPLICATIONS AND RECOMMENDATIONS

A. SHORT-TERM IMPLICATIONS

The retention of qualified marines is of major importance to the Marine Corps leadership. In the future, when all the Services are asked to perform their duties with less resources, the accumulation of quality in the professional enlisted corps may determine whether the Marine Corps continues to move forward.

The projected cuts in manpower create a need to prevent an exodus of marines with the highest potential for future military service. Marines who are desirable candidates for reenlistment are also the ones who will have a better chance at finding jobs in the civilian labor market. Higher-quality marines are more apt to try improving their "fortunes" in the civilian environment. The Marine Corps must aggressively attempt to influence marines who are identified as top-performers to consider the Marine Corps as a career.

In the short run, the Marine Corps should exploit the imbalance that cuts in end-strength will create over the next five years. The reductions in end-strength will require a lowering of needed reenlistment requirements. These requirements, because of the larger size of the cohorts recruited before fiscal 1991, will be applied to a proportionately larger pool of eligible candidates for

reenlistment. HQMC should take advantage of this opportunity. By using the performance-based criteria for quality proposed in Chapter V, HQMC can identify high-quality marines. Once the group of "quality performers" is identified, individuals should be targeted and aggressively pursued for retention in the Service.

B. LONG-TERM IMPLICATIONS

The end results of manpower management policies should provide a force structure that addresses the requirements of the future. Such a program should include a comprehensive reduction package that involves cutting accessions, lowering retention goals, weeding out marginal performers within the middle grades, and forcing early retirements.

Policies that address the Marine Corps' long-term enlisted demands should confront the need to build and maintain a professional enlisted corps that is composed of the highest possible proportion of "quality" individuals. To achieve this goal, it is necessary that HQMC be able to identify and target marines who demonstrate, through performance, a higher degree of "quality."

Infusing the enlisted career force with quality individuals will increase its productivity. Productivity, which ultimately can be defined in the Marine Corps by the level of readiness of the force, must be maintained in the face of end-strength reductions, stricter budget constraints, and a possible declining labor pool of quality recruits. The

job of increasing the quality of the enlisted career force will not be easy; to achieve the desired results, the Marine Corps must become more efficient in using and allocating its remaining manpower resources.

Johnston (1986) has suggested that the future of the AVF may rest in "alert monitoring and responsive management." He writes:

> Management of the force is the key to sustaining the AVF. We must have flexible options on the shelf to deal with quantity and quality short falls in recruiting, as well as in first-term enlistments. (Johnston, J. D., 1986)

Meckling (1986), however, points out that certain constraints bound the issue:

> We can have any quality of career force we want, at least up to the quality of the population of the United States, but higher quality means higher costs. (Meckling, W. H., 1986)

Manpower planners at HQMC should evaluate the options that are currently available to deal with the issues of quality of the career enlisted force. We suggest there is a need to identify premiere performers before they reach their EAS. This thesis provides a start toward fulfilling that need.

C. RECOMMENDATIONS

1. Proposal for Implementation

Marine Corps policy states three primary career force objectives. These objectives address: the available inventory of personnel by grade and MOS, the fairness in promotional opportunities, and the need for experienced marines at all

levels of the force. (MCO P1040.31F, 1989, pp. 1-3) In the past, the Marine Corps has managed its human resources by relying purely on the available "qualified" personnel and the numbers needed at the time, as determined by personnel managers at HQMC. The quality of personnel was not a main consideration for reenlistment policy decisions.

Up to now, the Marine Corps has not used objective, performance-based criteria to select eligible candidates for reenlistment. The current policy on reenlistment eligibility fails to employ performance indicators readily available to HQMC and the using units' commanding officers. To say that the quality of the candidate is not taken into consideration is not entirely correct. Decisions that commanding officers make prior to recommending candidates for reenlistment take into consideration the past performance of the individual. The shortcomings lie in the lack of consistent application of the policy.

Reenlistment incentives are not targeted toward the most highly qualified marines using an objective set of performance-based criteria. Under the current system, marines who reenlist are not necessarily the best qualified, but the first available.

This "first-availability" concept leads to an inefficient and inequitable distribution of reenlistment incentives, such as selective reenlistment bonuses, lateral moves, and duty-station options. Under the present policies,

higher-quality marines are more likely to leave the Marine Corps. The Marine Corps must tailor incentives toward a more equitable and efficient targeting system in order to increase quality and productivity, thus maintaining readiness.

Through selective methods of identifying and retaining high-quality, first-term enlisted personnel, the Marine Corps can save money and increase productivity.

With the future cuts in defense spending, the Marine Corps needs to concentrate more on retaining the best quality marines from the pool of eligibles. To accomplish this, the Marine Corps needs to implement a program that uses performance-based criteria to identify high-quality marines reaching their end of active service. Once these marines are identified, HQMC must persuade them to remain in the Marine Corps. To be able to implement a program similar to the one suggested in Chapter V, HQMC needs to institute some changes to the directives used in storing historical data; specifically, this entails the retention of proficiency and conduct marks in magnetic data files for longer than six months after a marine leaves the Service. Presently, the data are kept in microfiche after the sixth-month mark. Also a more detailed record keeping system should be implemented. A system that retains more information concerning performance indicators such as "meritorious promotions," and "formal school class standings." The Marine Corps needs to develop a comprehensive reenlistment inter-active database (MCRID)

that contains the necessary performance information to conduct detailed data analysis.

2. Recommended Changes to Reenlistment Incentives

Current reenlistment incentives are misdirected at the margin. That is, incentives are enticing marines who are eligible for reenlistment but who may not be the best qualified. Buddin and Cymrot studied the effects of the SRB program and found that a SRB cash incentive, based upon Military Occupational Specialty (MOS), would provide the necessary number of reenlistments. Yet, they did not examine the quality issue. Meeting reenlistment target goals was the main driving factor. (Buddin, 1988) (Cymrot, 1987)

Quality must be given priority over quantity. New policies aimed at retaining high-quality personnel should be examined. Implementation of these policies could have a significant effect on the long-term readiness posture of the Marine Corps. The following are some areas that deserve consideration:

- The SRB program in the Marine Corps. Presently, SRBs serve to provide monetary incentives for eligible marines to reenlist into "short" MOSs. We recommend that the SRB program be broadened to include selection of "high-quality" candidates for reenlistment, regardless of MOS. Considering the scarcity of funds and the criteria being used to qualify for the program, HQMC should implement a more efficient system used to disburse the available monies. SRB dollars should be used equitably and efficiently to attract high-quality marines to reenlist in the available billets.

- The Lateral Move program. This program allows eligible marines from "balanced or over" MOSs to change to a

"short" MOS as an incentive for reenlistment.[8] It also forces marines who are in "over" MOSs to move into what may be a less desirable "short" MOS if they want to reenlist. It is recommended that all efforts of the lateral move program be directed to retain high-quality, experienced marines. To this end, the Marine Corps also should expand the use of multiple MOS training for high-quality personnel.

- The Duty-Station Option. Our recommendation is that the needs of the service be carefully examined by HQMC before disapproving the request for a choice of duty station as a reenlistment incentive of a high-quality marine.

- The Off-duty Education program. It is recommended that HQMC establish a new off-duty education policy which can be provided as an incentive for reenlistment to high-quality marines. The policy must incorporate a duty-station option that allows the marine the time and the opportunity to benefit from off-duty education.

3. Final Comments

The pool of potential first-term reenlistees contains the best individuals that the Marine Corps could recruit from the youth population of four years prior. The quality of this pool has not been carefully examined in the past. The future, however, offers an opportunity to explore the first-term reenlistment "career" decision process in-depth. Further study in this area promises the potential for increasing the productivity and readiness of the Marine Corps for decades to come. The analytical tools to evaluate performance-based information are available today. It is only the lack of complete information that prevents immediate implementation of additional research.

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[8] A balanced MOS is one that has all the marines, in the proper pay grades, required to sustain the force structure. Short and over MOSs reflect a deficiency or a surplus, respectively.

It is recommended that further research be conducted in the area of quality as it pertains to the career enlisted force. The first step in that research requires the review and implementation of improved data base management policies. These new policies would permit access to an interactive source of both historical and current information on performance-based indicators of individual quality. Only then will the Marine Corps be able to accurately and carefully assess the quality factor in retention.

APPENDIX A

VARIABLES USED IN THE SPECIAL COHORT ACCESSION AND CONTINUER FILE

Variable	Label
DOBY	Date of Birth, Year
DOBM	Date of Birth, Month
DOBD	Date of Birth, Day
DOEY	Date of Enlistment, Year
DOEM	Date of Enlistment, Month
DOED	Date of Enlistment, Day
EAGE	Age of Enlistment
SEX	Gender
RACE	Race
ETHNIC	Ethnic Group
EHYED	Highest Year of Education at Entry
AFQT	AFQT Percentile Score
MENCAT	AFQT Group
ETOE	Term of Enlistment
EMOS	Enlistment MOS
ENLOP	Enlistment Options
BONUS	Bonus Option
EPG	Enlistment Pay Grade
DOSY	Date of Service, Year
DOSM	Date of Service, Month
SETSY	Expiration of Term of Service, Year
SETSM	Expiration of Term of Service, Month
RECODE	Reenlistment Code
SMOS	Separation MOS
SBMOS	Separation Billet MOS
SPG	Separation Pay Grade
SPGY	Separation Pay Grade, Year
SPGM	Separation Pay Grade, Month
SDOLEY	Date of Last Enlistment, Year
SDOLEM	Date of Last Enlistment, Month
SHYED	Highest Year of Education at Separation
Y1PG	Pay Grade, Year 1
Y1PGY	Pay Grade Year, Year 1
Y1PGM	Pay Grade Month, Year 1
Y1DOLEY	Year 1, Year of Last Enlistment
Y1DOLEM	Year 1, Month of Last Enlistment
Y1ETSY	Year 1, Year of EAS

Variable	Label
Y1ETSM	Year 1, Month of EAS
Y1PMOS	Year 1, Primary MOS
Y1BMOS	Year 1, Billet MOS
Y1HYED	Year 1, Highest Year of Education
Y2PG	Pay Grade, Year 2
Y2PGY	Pay Grade Year, Year 2
Y2PGM	Pay Grade Month, Year 2
Y2DOLEY	Year 2, Year of Last Enlistment
Y2DOLEM	Year 2, Month of Last Enlistment
Y2ETSY	Year 2, Year of EAS
Y2ETSM	Year 2, Month of EAS
Y2PMOS	Year 2, Primary MOS
Y2BMOS	Year 2, Billet MOS
Y2HYED	Year 2, Highest Year of Education
Y3PG	Pay Grade, Year 3
Y3PGY	Pay Grade Year, Year 3
Y3PGM	Pay Grade Month, Year 3
Y3DOLEY	Year 3, Year of Last Enlistment
Y3DOLEM	Year 3, Month of Last Enlistment
Y3ETSY	Year 3, Year of EAS
Y3ETSM	Year 3, Month of EAS
Y3PMOS	Year 3, Primary MOS
Y3BMOS	Year 3, Billet MOS
Y3HYED	Year 3, Highest Year of Education
Y4PG	Pay Grade, Year 4
Y4PGY	Pay Grade Year, Year 4
Y4PGM	Pay Grade Month, Year 4
Y4DOLEY	Year 4, Year of Last Enlistment
Y4DOLEM	Year 4, Month of Last Enlistment
Y4ETSY	Year 4, Year of EAS
Y4ETSM	Year 4, Month of EAS
Y4PMOS	Year 4, Primary MOS
Y4BMOS	Year 4, Billet MOS
Y4HYED	Year 4, Highest Year of Education
Y5PG	Pay Grade, Year 5
Y5PGY	Pay Grade Year, Year 5
Y5PGM	Pay Grade Month, Year 5
Y5DOLEY	Year 5, Year of Last Enlistment
Y5DOLEM	Year 5, Month of Last Enlistment

Variable	Label
Y5ETSY	Year 5, Year of EAS
Y5ETSM	Year 5, Month of EAS
Y5PMOS	Year 5, Primary MOS
Y5BMOS	Year 5, Billet MOS
Y5HYED	Year 5, Highest Year of Education
Y6PG	Pay Grade, Year 6
Y6PGY	Pay Grade Year, Year 6
Y6PGM	Pay Grade Month, Year 6
Y6DOLEY	Year 6, Year of Last Enlistment
Y6DOLEM	Year 6, Month of Last Enlistment
Y6ETSY	Year 6, Year of EAS
Y6ETSM	Year 6, Month of EAS
Y6PMOS	Year 6, Primary MOS
Y6BMOS	Year 6, Billet MOS
Y6HYED	Year 6, Highest Year of Education
Y7PG	Pay Grade, Year 7
Y7PGY	Pay Grade Year, Year 7
Y7PGM	Pay Grade Month, Year 7
Y7DOLEY	Year 7, Year of Last Enlistment
Y7DOLEM	Year 7, Month of Last Enlistment
Y7ETSY	Year 7, Year of EAS
Y7ETSM	Year 7, Month of EAS
Y7PMOS	Year 7, Primary MOS
Y7BMOS	Year 7, Billet MOS
Y7HYED	Year 7, Highest Year of Education
Y8PG	Pay Grade, Year 8
Y8PGY	Pay Grade Year, Year 8
Y8PGM	Pay Grade Month, Year 8
Y8DOLEY	Year 8, Year of Last Enlistment
Y8DOLEM	Year 8, Month of Last Enlistment
Y8ETSY	Year 8, Year of EAS
Y8ETSM	Year 8, Month of EAS
Y8PMOS	Year 8, Primary MOS
Y8BMOS	Year 8, Billet MOS
Y8HYED	Year 8, Highest Year of Education
Y9PG	Pay Grade, Year 9
Y9PGY	Pay Grade Year, Year 9
Y9PGM	Pay Grade Month, Year 9
Y9DOLEY	Year 9, Year of Last Enlistment
Y9DOLEM	Year 9, Month of Last Enlistment
Y9ETSY	Year 9, Year of EAS
Y9ETSM	Year 9, Month of EAS
Y9PMOS	Year 9, Primary MOS
Y9BMOS	Year 9, Billet MOS
Y9HYED	Year 9, Highest Year of Education

APPENDIX B

SAMPLE STATISTICAL ANALYSIS SOFTWARE PROGRAM

```
//BOISVERT JOB (XXXX,9999),'BOISVERT',CLASS=B
//*MAIN SYSTEM=SY2
//     EXEC SAS,REGION=1500K
//WORK DD UNIT=SYSDA,SPACE=(CYL,(10,10))
//COHOT3 DD DISP=SHR,DSN=MSS.SXXXX.COHOT3
//SYSIN DD *
1          DATA MAL82;
2           SET COHOT3.COHOT3;
3           IF SEX=2 OR ETOE NE 4 THEN DELETE;
4           IF DOEY=82 THEN OUTPUT;
5          DATA ATT82;
6           SET MAL82;
7           IF Y4ETSY LT 86 THEN OUTPUT;
8          PROC FREQ;
9           TABLES AFQT;
10          TABLES EHYED * SHYED;
11         DATA SUR82;
12          SET MAL82;
13          IF Y4ETSY GT 86 THEN OUTPUT;
14         PROC FREQ;
15          TABLES AFQT;
16          TABLES EHYED * Y4HYED;
17         DATA REEN82;
18          SET SUR82;
19          IF Y6ETSY GT 87 THEN OUTPUT;
20         PROC FREQ;
21          TABLES AFQT;
22          TABLES EHYED * Y6HYED;
23         DATA EAS82;
24          SET SUR82;
25          IF Y6ETSY GT 87 THEN DELETE;
26         PROC FREQ;
27          TABLES AFQT;
28          TABLES EHYED * SHYED;
29         DATA INEL82;
30          SET EAS82;
31          IF RECODE = '1A' OR RECODE = '1B'
            OR RECODE = '2A' THEN DELETE;
32         PROC FREQ;
33          TABLES AFQT;
34          TABLES EHYED * SHYED;
35         DATA ELIG82;
```

```
36          SET EAS82;
37          IF RECODE = '1A' OR RECODE = '1B'
            OR RECODE = '2A' THEN OUTPUT;
38         PROC FREQ;
39          TABLES AFQT;
40          TABLES EHYED * SHYED;
```

APPENDIX C

VARIABLES USED WITH THE MASTER AND HISTORICAL FILES

Variable	Label
AW1	Personal Award 1
AW2	Personal Award 2
AW3	Personal Award 3
SCH1	Service School 1
SCH2	Service School 2
SCH3	Service School 3
SCH4	Service School 4
SCH5	Service School 5
SCH6	Service School 6
SCH7	Service School 7
SCH8	Service School 8
SCH9	Service School 9
SCH10	Service School 10
SCH11	Service School 11
SCH12	Service School 12
ED85	1985 Educational Level Certificate
ED90	1990 Educational Level Certificate
EDY85	1985 Years of Education
EDY90	1990 Years of Education
JUNPS	Jun90 Proficiency Average-in-Service
JUNCS	Jun90 Conduct Average-in-Service
JUNPG	Jun90 Proficiency Average-in-Grade
JUNCG	Jun90 Conduct Average-in-Grade
JUNPE	Jun90 Proficiency Average-in-Enlistment
JUNCE	Jun90 Conduct Average-in-Enlistment
NOVPS	Nov90 Proficiency Average-in-Service
NOVCS	Nov90 Conduct Average-in-Service
NOVPG	Nov90 Proficiency Average-in-Grade
NOVCG	Nov90 Conduct Average-in-Grade
NOVPE	Nov90 Proficiency Average-in-Enlistment
NOVCE	Nov90 Conduct Average-in-Enlistment
STATUS	Active Duty or Discharged

APPENDIX D

EXCERPTS FROM MCO P1070.12
PROFICIENCY AND CONDUCT MARKS

4008. RECORD OF SERVICE (ROS) (COMPUTER-GENERATED)

1. The ROS is a computer-generated page designed to replace the Markings Page, NAVMC 118(23) in the SRB after completion of recruit training and IST. Retain any NAVMC 118(3) (Rev. 6-62) or earlier versions of this form which have a combination of chronological information, general military subjects (essential subjects), and conduct and duty proficiency markings as a standard page for chronological purposes. (See paragraph 4006.1.) The requirements of paragraph 4007 to prepare and maintain the page 23 on all recruits and initial skills trainees, undergoing training of 6 weeks or less, does not absolve the recruit depots or the IST sites of the responsibility to report the conduct and duty proficiency marks by unit diary entry upon completion of recruit training and IST. Reporting the conduct and duty proficiency markings into the JUMPS/MMS/REMMPS by unit diary entry provides the data for producing a computer-generated ROS.

2. The ROS provides the commander with a visual reference of conduct and duty proficiency markings previously reported for the Marine, and provides averages of those markings for the time in grade, enlistment, and service. The data reported to support the ROS is used to automatically compute composite scores for lance corporals and corporals on active duty. Commencing approximately May 1990, composite scores generated by JUMPS/MMS will appear on the active duty Marine's ROS. In the interim, view the active duty Marine's current computer-generated composite score on the Video Inquiry System (VIS) remark screen J123. The ROS produced through REMMPS contains special duty bonus points awarded to assist in manually computing a composite score for promotion of Reserve lance corporals and corporals.

3. Except during recruit training, MCT, and IST (when IST is less than 6 weeks in length), print the ROS each time conduct and duty proficiency markings are reported and processed in JUMPS/MMS/REMMPS or request an ROS, when required, if the unit does not have on-line print capability (see the PRIM or RESPRIM). Table 4-4 prescribes the occasions requiring the reporting of conduct and duty proficiency markings. Rules 3 through 6 of table 4-4 pertain to individual TAD only. Participation in the Unit Deployment Program, field exercises, and other small unit deployments (TAD in excess of 30 days) where unit integrity is maintained does not require the assignment of conduct and duty proficiency marks. Using the occasion code provided in column E for the respective rules, prepare a unit diary entry as prescribed in the PRIM or RESPRIM.

a. All conduct and duty proficiency marks reported in JUMPS/MMS will interchange with REMMPS upon a Marine's release from active duty. Commencing approximately October 1990, marks reported in REMMPS will interchange to JUMPS/MMS upon assignment to active duty and accession of the Marine's record into JUMPS/MMS.

b. Upon promotion to sergeant, the "TO" date is the day prior to the date of rank. When the promotion to sergeant and the semiannual/annual marking period coincide, the promotion markings will take precedence. Do not report semiannual/annual markings. The reported promotion marks will produce a final average ROS.

4. Except during recruit training MCT, and IST (where IST is less than 6 weeks in length), annotate the marks assigned on any occasion that requires a command to close out and forward the SRB; i.e., transfer, permanent change of assignment (nee, reassignment), permanent change of station, TAD excess, discharge, release from active duty, assignment to active duty (EAD, FTS, etc.) and accession into JUMPS/MMS, etc. in pen/ink on the ROS currently in the SRB. An individual authorized to sign SRB entries will authenticate the annotated marks. If desired, annotate marks on the ROS on occasions other than mentioned above as a convenience in maintaining a current conduct and duty proficiency record. No authentication is required on these marks. Do not type entries on the ROS. The unit diary entry supports the recordskeeping requirement, pending receipt or printing of the next updated ROS. Retain only the latest ROS as a standard page. When a Marine is promoted to sergeant, place the ROS produced as a result of the promotion on the document side of the SRB for retention until the end of the Marine's current enlistment or 6 years, whichever is later.

5. Verification and Filing Instructions

a. Active Component

(1) Where IST exceeds 6 weeks in length, the IST site will print/request an ROS. Upon printing or receipt of the ROS and verification of the conduct and duty proficiency markings recorded on the page 23 and entered in JUMPS/MMS, remove and destroy the page 23 and insert the ROS as a standard page in the SRB.

(2) Where IST is less than 6 weeks in length, the Marine's first permanent duty station following recruit training, MCT, and IST will print/request an ROS. Upon receipt of the ROS and verification of the conduct and duty proficiency marks recorded on the page 23 and entered in JUMPS/MMS, remove and destroy the page 23 and insert the ROS as a standard page in the SRB.

b. Reserve Component. For members of the Ready Reserve released from active duty and transferred to their parent SMCR unit, the joining SMCR unit will print/request an ROS within 30 days of joining. Upon receipt of the ROS and verification that the conduct and duty proficiency marks reported in JUMPS/MMS have posted to the Marine's REMMPS file, remove the page 23 as a standard page and file it on the document side of the SRB for retention until end of enlistment or 6 years, whichever is later. Insert the ROS as a standard page in the SRB after verification.

TABLE 4-4

OCCASIONS FOR CONDUCT AND DUTY PROFICIENCY MARKINGS

RULE	A The Marine upon whom reporting:	B is in a full duty status, hospitalized, or a satisfactory participant in an SMCR unit?	C has received markings within the last 30 days? (within the last 90 days for Reserve Marines)	D and do any of the following conditions apply?	E The appropriate action is to report marks by UD entry per MCO P1080.35, PRIM, or MCO P1080R.38, RESPRIM, using the occasion codes indicated in note 4. Certain occasions where observation is less than 30 days do not require the reporting of con/pro marks, in such cases the UD entry is completed by entering NA in the required spaces.	F Effective date is
1	is a corporal or below and is a member of the USMC or ~~SMCR~~ on active duty Ready Reserve * (SMCR and IRR)	yes	no	----	report (SA) con/pro marks on 31 January and 31 July	31 January and 31 July
2			yes		report (SA) con/pro marks of NA	
3			no	departing to TAD (excess of 30 days)	report (TD) con/pro marks on departure	the date of departure
4			yes		report (TD) con/pro marks of NA on departure	
5			no	completing TAD excess of 30 days)	report (TC) con/pro marks on departure from TAD site	the date of departure from TAD site
6			yes		report (TC) con/pro marks of NA on departure from TAD site	
7				joined for transportation only	report (SA) con/pro marks of NA	31 January and 31 July
8			no			
9		no	yes	in a UA status (UA) status		
10			no			
11			---	declared a deserter (see note 1)	report (PD) con/pro marks for period from last marks to day preceding UA (may be NA if less than 30 days). Report (DD) con mark of 0 and pro mark NA (effective date same as UA date).	for (PD) marks, the day prior to the date the Marine was reported To UA on the diary; effective date for (DD) marks is the same as the To UA date
12						
13		---		serving sentence of court-martial	report (CD) con/pro marks when ordered to confinement pursuant to sentence of court-martial. No (SA) con/pro marks reported while serving sentence of court-martial.	the day prior to the date ordered to confinement

* Pers-advisory 1-90

TABLE 4-4

OCCASIONS FOR CONDUCT AND DUTY PROFICIENCY MARKINGS

RULE	A	B	C	D	E	F
	The Marine upon whom reporting:	is in a full duty status, hospitalized, or a satisfactory participant in an SMCR unit?	has received markings within the last 30 days? (within the last 90 days for Reserve Marines)	and do any of the following conditions apply?	The appropriate action is to report marks by UD entry per MCO P1080.35, PRIM, or MCO P1080R.38, RESPRIM, using the occasion codes indicated in note 4. Certain occasions where observation is less than 30 days do not require the reporting of con/pro marks, in such cases the UD entry is completed by entering NA in the required spaces.	Effective date is
14	is a corporal or below and is a member of the USMC or SMCR on active duty	yes	---	attending a formal school which exceeds 6 months duration & has attended for a minimum of 30 days prior to regular SA reporting period	report (SA) con/pro marks (see note 2)	31 January and 31 July
15				attending a formal school which exceeds 6 months duration & course completion occurs more than 30 days after SA marks are assigned	report (SC) con/pro marks (see note 2)	the date of course completion
16				attending a formal school which exceeds 6 months duration & course completion is within 30 days after SA marks are assigned	con/pro marks are assigned at the option of the commander. If option exercised, report (SC) con/pro marks on all students completing the course.	the date of course completion if the commander exercises the option to report con/pro marks
17				attending a formal school which is less than 30 days		
18				attending a formal school which exceeds 30 days but less than 6 months	report (SC) con/pro marks upon completion	the date of course completion
19				attending a formal school which consists of subcourses, each of which exceed 30 days	report (SC) con/pro marks upon completion of each subcourse	the date of each subcourse completion

TABLE 4-4

OCCASIONS FOR CONDUCT AND DUTY PROFICIENCY MARKINGS

RULE	A	B	C	D	E	F
	The Marine upon whom reporting:	is in a full duty status, hospitalized, or a satisfactory participant in an SMCR unit?	has received markings within the last 30 days? (within the last 90 days for Reserve Marines)	and do any of the following conditions apply?	The appropriate action is to report marks by UD entry per MCO P1080.35, PRIM, or MCO P1080R.38, RESPRIM, using the occasion codes indicated in note 4. Certain occasions where observation is less than 30 days do not require the reporting of con/pro marks, in such cases the UD entry is completed by entering NA in the required spaces.	Effective date is
20	is a corporal or below and is a member of the USMC or SMCR on active duty	yes	---	released from EAD & IADT	report (TR) con/pro marks or if in conjunction with completion of formal school report (SC)	the date of transfer (TR); date of course completion (SC)
21				released from active duty	report (TR) con/pro marks	the date released from active duty and transferred to the Marine Corps Reserve
22				transferred upon completion of recruit training	report (TR) con/pro marks	the date of transfer
23				transferred upon completion of MCI	reporting of con/pro marks is not required	not applicable
24				transferred upon completion of IST	report (TR) con/pro marks	the date of transfer
25			---	transferred but: - joined for trans and further assignment - inpost trans of a recruit - member of flag staff allowance when flag shifts	report (TR) con/pro marks of NA	
26				discharged prior to completion of recruit training	report (DC) con/pro marks of NA	the date of discharge
27	is a corporal or below and a member of the SMCR not on active duty	no	---- (see note 3)		report (AN) marks on 31 December	31 December
28		yes			report (AN) marks of NA on 31 December	
29			---	transferred and has completed 6 IDT periods	report (TR) con/pro marks	the date of transfer

TABLE 4-4

OCCASIONS FOR CONDUCT AND DUTY PROFICIENCY MARKINGS

RULE	A	B	C	D	E	F
	The Marine upon whom reporting:	is in a full duty status, hospitalized, or a satisfactory participant in an SMCR unit?	has received markings within the last 30 days? (within the last 90 days for Reserve Marines)	and do any of the following conditions apply?	The appropriate action is to report marks by UD entry per MCO P1080.35, PRIM, or *MCO P1080R.38, RESPRIM, using* the occasion codes indicated in note 4. Certain occasions where observation is less than 30 days do not require the reporting of con/pro marks, in such cases the UD entry is completed by entering NA in the required spaces.	Effective date is
30	is a corporal or below and a member of the SMCR not on active duty	---	---	transferred and has not completed 6 IDT periods	report (TR) con/pro marks of NA	the date of transfer
31				assignment to active duty (EAD, FTS, etc.)	report (TR) con/pro marks	the day prior to the date of assignment to active duty
32		no		assigned to involuntary active duty	report (TR) con/pro marks	
33		---		completing AT	report (AT) con/pro marks (see note 3)	the date training is completed
34				completing alternate AT		
35				change of primary duty - Reserve mobilization	report (CD) con/pro marks of NA	the day prior to the effective date of the change
36				transferred upon Reserve mobilization	report (TR) con/pro marks of NA	the date of transfer
37	is a corporal or below and is a member of the USMC or SMCR regardless of active duty status			promoted to sergeant	report (PR) con/pro marks	the day prior to the date of rank
38				reduced	report (RD) con/pro marks	the day prior to date of reduction
39				reduced (results of court-martial)	report (RD) con/pro marks of NA if previously reported as CD under rule 13	the day prior to the effective date of reduction stipulated by CA's action
40				restoration of grade from reduction	delete (RD) con/pro marks and report restoration of grade entry per PRIM/RESPRIM	not applicable

TABLE 4-4

OCCASIONS FOR CONDUCT AND DUTY PROFICIENCY MARKINGS

RULE	A	B	C	D	E	F
	The Marine upon whom reporting:	is in a full duty status, hospitalized, or a satisfactory participant in an SMCR unit?	has received markings within the last 30 days? (within the last 90 days for Reserve Marines)	and do any of the following conditions apply?	the appropriate action is to report marks by UD entry per MCO P1080.35, PRIM, or MCO P1080R.38, RESPRIM, using the occasion codes indicated in note 4. Certain occasions where observation is less than 30 days do not require the reporting of con/pro marks, in such cases the UD entry is completed by entering NA in the required spaces.	Effective date is
41	is a corporal or below and a member of the USMC or SMCR regardless of active duty status	---	---	change of primary duty for 30 days or more	report (CD) con/pro marks - commander has option to mark for shorter periods	the day prior to the effective date of the change
42				broken/continuous reenlistment or when no marks exist to compute a composite score for promotion	report (RE) con/pro marks	as applicable
43			yes	*has been joined* for less than 30 days (90 days for SMCR)	*report (SA) or (AN) con/pro* marks of NA	31 January and 31 July for active duty 31 December for SMCR
44			no			
45			---	transferred to IDRL	report (DL) con/pro marks	the date of transfer
46			no	transferred (see note 5)	report (TR) con/pro marks	
47			yes		report (TR) con/pro marks of NA	
48			---	discharged	report (DC) con/pro marks	the date of discharge

NOTE 1: Do not remove the conduct mark of "0" resulting from declaration of desertion where the Marine is tried for desertion and is convicted of either desertion or the lesser included offense of UA, tried and convicted of UA, or received NJP for UA. Delete a conduct mark of "0" resulting from declaration of desertion if the entry was made as the result of an administrative error; i.e., the entry should not have been made originally, or if the Marine is later acquitted by court-martial of the absence which caused the declaration of desertion. The entry is deleted as erroneous in JUMPS/MMS per MCO P1080.35, PRIM. When the conduct mark of "0" is removed as erroneous, the "PD" markings remain. Report subsequent conduct and duty proficiency marks on the occasions stipulated.

NOTE 2: Marines in this category will receive two sets of marks (SA and SC) for formal school attendance.

NOTE 3: If the Marine attends annual training within 90 days of the effective date for reporting annual marks, report AN marks. If the Marine receives marks for any other occasion within 90 days of the effective date for reporting annual marks, report AN marks of NA. If the effective date for annual marks coincides with any reporting occasion other than PR or TR, AN marks will take precedence.

NOTE 4: Use the following occasion codes when reporting conduct and duty proficiency markings into the JUMPS/MMS and REMMPS. Use these occasion codes for recruits and certain initial skills trainees to indicate the reason for the entry(ies) made on the page 23 (see paragraph 4007.5).

OCCASION	CODE REGULAR	CODE RESERVE
Transfer Assignment to Active Duty (Reserve) Assignment to Involuntary Active Duty (Reserve) Release from Active Duty Release from EAD, FTS, etc. (Reserve) Completion of Initial Skill Training Completion of recruit training	TR	TR
Temporary Disability Retired List (TDRL)	DL	DL
Discharge	DC	DC
Promotion to Sergeant	PR	PR
Reduction	RD	RD
Declared Deserter (first day of UA period)	DD	--
Last Day Prior to Declaring Deserter	PD	--
To TAD	TD	--
TAD Complete	TC	--
Change of Primary Duty	CD	CD
Service School Completion	SC	SC
Semiannual	SA	--
Annual	--	AN
Completion of Annual Training	--	AT
Recommended (See MCO P1400.32.)	RE	RE

NOTE 5: If the effective date for TR marks coincides with the requirement to report SA marks the TR marks will take precedence.

5. Conduct Markings

a. In addition to observance of the letter of law and regulations, conduct includes conformance to accepted usage and custom and positive contributions to unit and Corps. General bearing, attitude, interest, reliability, courtesy, cooperation, obedience, adaptability, influence on others, moral fitness, physical fitness as effected by clean and temperate habits, and participation in unit activities not related directly to unit mission are all factors of conduct and should be considered in evaluating the Marine. The mark assigned, after consideration of these qualities and, if necessary, consultation with the officer or senior noncommissioned officer who supervises the Marine's performance of duty, should represent a fair objective evaluation of the Marine's conduct for the marking period. Failure to make satisfactory progress while assigned to a weight control or military appearance program is one other factor which should be considered when assigning conduct marks.

b. In addition to the standards listed in the table below, the following general guidance applies to the assignment of conduct marks to Marines upon successful completion of recruit training:

(1) Generally, a recruit will receive a conduct mark in the 4.0 - 4.4 range. As an example, an average recruit would receive a conduct mark of 4.2. A recruit receiving nonjudicial punishment (NJP) will normally be assigned a conduct mark below 4.0.

(2) Recruits who receive a meritorious promotion, or are of meritorious promotion caliber for their efforts in recruit training, will receive a conduct mark in the 4.5 - 4.8 range.

(3) A recruit who was selected as a platoon or series honor graduate will receive a conduct mark in the 4.9 - 5.0 range.

c. Use the following general guidance and standards in assigning conduct marks; however, full discretion is left to commanders in assigning marks outside these standards for good and sufficient reasons. Base assignment of marks subsequent to the assignment of reduction marks for a punitive reduction upon the Marine's conduct in the current grade. Do not consider the NJP that awarded the reduction during a subsequent marking period. Document the assignment of a conduct mark below 4.0 for any reason other than court-martial or NJP (where no reduction was awarded) by a page 11 entry.

MARK	CORRESPONDING ADJECTIVE RATING	STANDARDS OF CONDUCT
0 to 1.9	Unsatisfactory	Habitual offender. Conviction by general, special, or more than one summary court-martial. Give a mark of "0" upon declaration of desertion. Ordered to confinement pursuant to sentence of court-martial. Two or more punitive reductions in grade.
2 to 2.9	Poor	No special court-martial. Not more than one summary court-martial. Not more than two nonjudicial punishments. Punitive reduction in grade.
3 to 3.9	Fair	No court-martial. Not more than one nonjudicial punishment. No unfavorable impressions of the qualities listed in paragraph 4008.5a. Failure to make satisfactory progress while assigned to the weight control or military appearance program. Conduct such as not to impair appreciably one's usefulness or the efficiency of the command, but conduct not sufficient to merit an honorable discharge.
4 to 4.4	Good	No offenses. No unfavorable impressions as to attitude, interests, cooperation, obedience, after-effects of intemperance, courtesy and consideration, and observance of regulations.
4.5 to 4.8	Excellent	No offenses. Positive favorable impressions of the qualities listed in paragraph 4008.5a. Demonstrated reliability, good influence, sobriety, obedience, and industry.
4.9 to 5	Outstanding	No offenses. Exhibits to an outstanding degree the qualities listed in paragraph 4008.5a. Observes spirit as well as letter of orders and regulations. Demonstrated positive effect on others by example and persuasion.

6. Duty Proficiency Marks

a. In assigning duty proficiency marks, use a scale of zero to five. The mark should indicate how well a Marine performed the primary duty during the marking period. In addition to technical skills and specialized knowledge, qualities such as leadership and physical fitness should be considered when they have a definite relation to the primary duty assignment. Leadership, for example, should be considered when evaluating a squad leader's performance of duty; or, for a Marine assigned to recruiting duties, tact, persuasiveness, and personal appearance would have a definite bearing on the performance of those primary duties. Due allowance should be made when a Marine is filling a billet inconsistent with the grade. The commander should consult with the officer or senior noncommissioned officer who supervises the Marine's performance of duty prior to assigning duty proficiency marks.

b. In addition to the standards listed in the table below, the following guidance applies to assignment of duty proficiency marks to Marines upon successful completion of recruit training based on a level of performance achieved in the areas of marksmanship, water survival, close order drill, physical fitness, academic tests, and inspections.

(1) The majority of duty proficiency marks will be in the 4.0 - 4.4 range. As an example, an average recruit would receive a duty proficiency mark of 4.2.

(2) Recruits who receive a meritorious promotion, or are of meritorious promotion caliber for efforts in recruit training, will receive a duty proficiency mark in the 4.5 - 4.8 range.

(3) A recruit who is selected as a platoon or series honor graduate will receive a duty proficiency mark in the 4.9 - 5.0 range.

c. Use the following guidance and standards in assigning duty proficiency marks; however, full discretion is left to commanders in assigning marks outside these standards for good and sufficient reasons. Document a duty proficiency mark below 3.0 by a brief page 11 entry.

MARK	CORRESPONDING ADJECTIVE RATING	STANDARDS OF PERFORMANCE
0 to 1.9	Unsatisfactory	Does unacceptable work in most of duties, generally undependable; needs considerable assistance and close supervision on even the simplest assignment.
2 to 2.9	Poor	Does acceptable work in some of duties but cannot be depended upon. Needs assistance and close supervision on all but the simplest assignments.
3 to 3.9	Fair	Handles routine matters acceptably but needs close supervision when performing duties not of a routine nature.
4 to 4.4	Good	Can be depended upon to discharge regular duties thoroughly and competently but usually needs assistance in dealing with problems not of a routine nature.
4.5 to 4.8	Excellent	Does excellent work in all regular duties, but needs assistance in dealing with extremely difficult or unusual assignments.
4.9 to 5	Outstanding	Does superior work in all duties. Even extremely difficult or unusual assignments can be given with full confidence that they will be handled in a thoroughly competent manner.

4009. RECORD OF TIME LOST, PROMOTION, REDUCTION, PROMOTION STATUS ON TRANSFER (NAVMC 118(5) (REV. 6-85))

1. Upon receipt of this revision, remove and transfer the page 5 to the document side of the service record for members of the Regular Establishment. Information previously contained on the page 5 for sergeants and below is now resident in the Marine's JUMPS/MMS computer record. Assess data by using the following Video Inquiry System (VIS) remark screens:

a. Time Lost - J905.

b. Historical Promotion Data - J702.

c. Computer-generated Composite Score - J123. Commencing approximately May 1990, composite scores generated by JUMPS/MMS will appear on the Marine's ROS.

Continue to maintain page 5 as a standard page for all sergeants and below of the Ready Reserve only. The page 5 will remain a standard page for the Ready Reserve during periods of active duty, i.e., FTS Program, EAD, etc.

2. Maintain page 5 for members of the Ready Reserve as follows:

a. Upon promotion to the grade of staff sergeant, transfer the page 5 to the document side of the SRB for permanent retention. The promotion entry to staff sergeant is not required prior to transfer of the page 5. In cases where a subsequent reduction is below the grade of staff sergeant, return and maintain the page 5 on the standard side of the SRB. In all cases where periods of time lost are entered, page 5 will remain on or be returned to the standard side of the SRB regardless of grade.

b. When the systems-generated page 5 is opened at the recruit depot, the rectangle at the top of the page marked "PEBD" will contain the Marine's PEBD which is resident in the JUMPS/MMS data base. This date need not be modified due to periods of time lost. If a subsequent audit of records reveals the date to be incorrect, take corrective action per MCO P1080.35, PRIM or MCO P1080R.38, RESPRIM, as appropriate, and delete the date by drawing a thin-inked line through the entry. No further entries are required. If a requirement exists to open a new page 5, leave this box blank.

APPENDIX E

EXCERPTS FROM MCO P1040.31
REENLISTMENT ELIGIBILITY CRITERIA

4102.7 and 4200) will be reenlisted or extended without prior approval of the Commandant of the Marine Corps (MMEA-6), for the minimum time necessary to comply with obligated service requirements of the appropriate directive or paragraph of this Manual. This authority includes early reenlistment, however, it does not include early reenlistment simply to allow a Marine in a bonus eligible MOS to retain eligibility.

4102. REENLISTMENT ELIGIBILITY CRITERIA

1. General. Commanders should exercise caution in considering applications for reenlistment to ensure that other administrative criteria affecting a Marine's reenlistment situation are considered prior to authorizing further service. Some of these are: computation of lost time, promotion status, grade at time of reenlistment, service limitations, and reenlistment incentives. Counsel Marines thoroughly on reenlistment prerequisites. Reenlistment prerequisites which may be waived by commanding generals for first-term reenlistees are so indicated. Waiver(s) of other eligibility prerequisites must be obtained from the Commandant of the Marine Corps. Paragraph 4103 discusses in detail policies and procedures for consideration of a Marine's case for waiver of reenlistment prerequisites.

2. Basic Reenlistment Prerequisites. The following basic reenlistment prerequisites pertain to all Marines applying for reenlistment. The Marine's case must satisfy these prerequisites prior to effecting reenlistment.

a. Be recommended by the commanding officer.

b. Must have demonstrated the high standards of leadership, professional competence, and personal behavior required to maintain the prestige and quality standards of the Marine Corps.

c. Possess the moral character and personal integrity expected of all Marines.

d. Pass a physical examination to be fully qualified for all duties at sea and in the field within 6 months prior to immediate reenlistment as provided in Manual of the Medical Department, chapter 15, paragraphs 15-56(1) and 15-91(1)(b). Additionally, the Marine must meet dental standard class I or II as prescribed in chapter 6, Manual of the Medical Department. Provided the Marine is otherwise qualified for reenlistment, an extension may be requested for sufficient time to obtain treatment to meet the prescribed dental standards.

e. Pass the physical fitness test per MCO 6100.3, and meet military appearance and height/weight standards prescribed by MCO 6100.10.

f. Not have an incident involving confirmed illegal use, possession, or distribution of a controlled substance. This does not include information obtained while a Marine is volunteering for the Marine Corps drug exemption program per paragraph 2202 of MCO P5300.12. Waivers for distribution/trafficing will not be granted. Waivers for use or possession of user amounts, except for first term Marines, may be submitted for consideration to the Commandant of the Marine Corps (MMEA-6). Commanding generals may grant waivers to first-term Marines for use or possession of user amounts provided the Marine was retained on active duty as a result of having potential for continued military service. Such waivers should only be granted if the following criteria are met:

(1) The first-term Marine's overall conduct/performance record justifies waiver action.

(2) Command monitoring/USP (MCO P5300.12) observation over a period of 6 months has revealed no further drug involvement.

(3) For involvement after 1 February 1982, a local Level I educational program must have been successfully completed.

(4) Extensions may be requested to allow individual Marines the opportunity to meet these waiver criteria.

g. Not be a conscientious objector and have never received clemency under the President's Clemency Program (Executive Order No. 11803 of 16 September 1974).

h. Not be a sole surviving son/daughter. However, Marines may waive this status per MCO 1300.8.

i. Have no known dependency or hardship that is not temporary in nature and that causes the Marine to be nondeployable or not available for worldwide assignment at any time.

j. Marines who are single parents having custody of their children or dual-service couple with children are required to comply with MCO 1740.13, which provides guidelines on measures to be taken to ensure childcare in the event of deployment or unrestricted tour.

k. Not be under a Commandant of the Marine Corps imposed reenlistment restriction. (The commanding general may waive for first-term Marines provided the reason for restriction is obtained from the Commandant of the Marine Corps (MMEA-6)).

l. Have no convictions by a court-martial. (The commanding general may waive for first-term Marines.)

m. Have no known convictions by civil authorities (foreign or domestic), or action taken which is tantamount to a finding of guilty of an offense for which the maximum penalty under the UCMJ is confinement for 6 months or more and/or a fine of $500 or more. Only consider convictions which occurred during the period of enlistment/reenlistment unless a prior conviction was unknown/not listed at the time of enlistment/reenlistment. If the offense is not listed in the Manual for Courts Martial Table of Maximum Punishments, or is not closely related to an offense listed therein, the maximum punishment authorized by the U.S. Code, or the District of Columbia Code, whichever is lesser, applies. (The commanding general may waive for first-term Marines.) Waivers of conviction for distribution or possession with intent to distribute of narcotics or dangerous drugs (including marijuana) will not be granted. Waivers for use or possession of user amounts are subject to the conditions described in paragraph 4102.2f above.

n. Have no more than two nonjudicial punishments. (The commanding general may waive for first-term Marines.)

o. Have a minimum conduct and duty proficiency mark average of 4.0/4.0, respectively, during the current enlistment and extensions thereto. (The commanding general may waive for first-term Marines. This does not apply to sergeants and above.)

p. Not have completed a level II or III alcohol treatment program, per MCO P5300.12, during the past 12 months. In these cases, Marines may request an extension for up to 12-months to allow them to complete their aftercare treatment program and to allow the command to observe their performance and conduct. The 12-month period begins on the date the Marine successfully completes level II or level III treatment. Career planners must confirm completion by contacting the command drug and alcohol Level II facility.

q. Complete an unscheduled urinalysis within 90 days prior to reenlistment. Third term and later reenlistees are excluded.

3. Prerequisites for First Reenlistment. In addition to those basic reenlistment prerequisites in paragraph 4102.2 above, Marines serving on their initial enlistments, including extensions of enlistment thereto, must meet the following prerequisites prior to reenlistment:

a. Time In Service Criteria. Providing the requested/authorized reenlistment term provides a minimum of 2 years service beyond the term of current enlistment and extensions of enlistment thereto, Marines are eligible to reenlist:

(1) Who have an initial enlistment term of 2 years and who complete a minimum 21 months of continuous active duty in the Regular Marine Corps.

(2) Who have an initial enlistment term of 3 or more years and who have 1 year or less remaining on the current enlistment, and extensions of enlistment thereto.

b. Be a high school graduate or alternative credential holder. (The commanding general may waive.)

c. Have the general technical (GT) composite score of 80 for a high school graduate or alternative credential holder or 95 for a nonhigh school graduate. (The commanding general may waive.)

4. Prerequisites for Second and Later Reenlistment. Marines who have previously reenlisted must meet all the basic reenlistment prerequisites in paragraph 4102.2 above (applicable to current enlistment only). Any disqualifying factor for which the Marine was previously granted a reenlistment waiver by the Commandant of the Marine Corps will not in itself be a bar to reenlistment. However, such disqualifying factors will be considered in evaluating the whole Marine.

a. Additionally, Marines who have previously reenlisted must meet the following prerequisites: Have 1 year or less remaining on the current enlistment and extensions of enlistment thereto and reenlist for a term which will result in a minimum 2-year service obligation beyond the current contract and extensions of enlistment thereto.

b. Marines reenlisting for the second or later time must be a high school graduate or alternative credential holder. Waiver authority in this case resides with the Commandant of the Marine Corps.

5. Forwarding Request. Commanding officers are not required to forward the request of a first- or second-term Marine who is not recommended for reenlistment provided the Marine has been in the unit at least 12 months. If a third or later term Marine who is eligible desires additional service, but is not recommended for reenlistment, the request must still be referred to the Commandant of the Marine Corps (MMEA-6). Final reenlistment authority in this case resides with the Commandant of the Marine Corps (MMEA). Reenlistment authority granted by the Commandant of the Marine Corps remains effective until the Marine's expiration of enlistment, and extensions thereto, or until the date specified in the approval.

6. Obligated Service Requirements for Transfer/Training. Exceptions will be made by the Commandant of the Marine Corps to allow Marines to reenlist earlier than 1 year to EAS to meet needs of the service. Marines in receipt of permanent change of station orders requiring additional obligated service may request this exception. This includes orders to Drill Instructor, Recruiter, and Marine Security Guard Schools.

7. Two-Year Reenlistments. Marines reenlisting for a period of 2 years must do so at EAS.

4103. WAIVER OF REENLISTMENT PREREQUISITES

1. General. Marines requesting reenlistment who do not meet those prerequisites in paragraph 4102 may be considered for waivers unless waiver of the appropriate reenlistment prerequisite is prohibited. Although the authority to waive reenlistment eligibility criteria rests with either commanding generals or the Commandant of the Marine Corps, it is a basic prerogative of subordinate commanders at each decision level; i.e., company/battery, battalion/squadron, etc., to disapprove the waiver request of any ineligible reenlistment applicant without forwarding it to the next higher decision level for action, providing the Marine has been in the unit for a 12-month period. However, such action is authorized only per guidelines established by higher headquarters and providing an objective evaluation of the Marine's case was accomplished under the "whole Marine" concept. Use the utmost discretion in granting waivers. In each case, the good of the Marine Corps will take precedence. The waiver process is not intended as a administrative addendum to reenlist unqualified applicants. Extensions of enlistment do not require waivers except when involving service limitations.

2. "Whole Marine" Concept. Apply this concept when deciding to submit or approve a Marine's case for a waiver of reenlistment prerequisites. Judge the Marine's value to the Marine Corps with objectivity considering each of the following criteria:

a. Overall performance, past and present.

b. Individual initiative towards correcting the basis for ineligibility.

c. Future potential as a career Marine.

3. Commanding generals are authorized to grant waivers of certain reenlistment prerequisites as indicated in paragraphs 4102.2 and 4102.3. This authority may not be delegated. Waivers granted shall have been considered per the criteria established in paragraphs 4103.1 and 4103.2 above. Requests for reenlistment incentives from first-term Marines who have been granted a waiver of reenlistment prerequisites must arrive at this headquarters endorsed by the commanding general granting the waiver or in compliance with career planning management system (CPMS) or message format provisions contained in figures 4-1 and 4-2, respectively. Commanding generals may waive the following prerequisites for first-term Marines.

a. Possession of a user amount of any narcotic substance or dangerous drug including marijuana (4102.2f refers).

b. Commandant of the Marine Corps imposed reenlistment restrictions (4102.2k refers).

c. Court-Martial conviction (4102.2l refers).

d. Convictions by civil authorities (4102.2m refers).

e. More than two nonjudicial punishments (4102.2n refers).

f. Less than a minimum conduct and duty proficiency mark average of 4.0/4.0, respectively (4102.2o refers).

g. Less than a high school graduate or alternative credential holder. (4102.3b refers).

h. Less than a general technical (GT) composite score of 80 for a high school graduate or alternative credential holder or less than 95 for nonhigh school graduate (4102.3c refers).

4. Waiver Request Format. When required, forward requests for waiver of reenlistment prerequisites to the Commandant of the Marine Corps (MMEA-6) via the chain of command using a NAVMC 10842. Include the following:

a. A positive recommendation from the commanding officer.

b. Copies of service record book pages 3, 9, 11, 12, and 13 if applicable. Submit page 5 only on sergeants and below or SNCO's with lost time.

c. Copy of Record of Service on corporals and below. Only submit it on sergeants with less than 2 years time in grade at the time of request.

d. Current photograph of the Marine (paragraph 4102.2e waivers only).

e. Any additional favorable or unfavorable material deemed by the commander pertinent to the request, not to include recent fitness reports. These must be sent to Commandant of the Marine Corps (MMPE) per MCO P1610.7.

5. A request for waiver of physical examination for immediate reenlistment only must be based on the fact that a medical officer of the Department of Defense is not available and there is no evidence in the member's health record of recent illness or injury. If a waiver of physical examination is granted, have medical personnel holding the Marine's health record make an entry on the chronological page (SF-600).

6. In those cases where a waiver has been granted, a physical examination by a Department of Defense medical officer shall be obtained at the earliest opportunity, per chapter 15 of the Manual of the Medical Department (MANMED).

APPENDIX F

EXCERPTS FROM MCO P1040.31
REENLISTMENT CODES

CAREER PLANNING AND DEVELOPMENT GUIDE

Code	When Assigned	Remarks
RE-1A	Recommended and eligible	No restriction to reenlistment. Meets all prerequisites, to include women Marines discharged at EAS while pregnant who would otherwise be eligible.
RE-1B	To corporals/sergeants with satisfactory performance records. Released at EAS due to needs of Marine Corps. May only be assigned by CMC.	Recommended for reenlistment. Marine's eligibility for reenlistment determined by the CMC. Assigned due to career force management requirements. May only be assigned by CMC. SRB entry required stating reason for assignment. Individual Marine must sign the SRB entry. CMC authority required for reenlistment.
RE-2A	Transferred to FMCR prior to reaching maximum service limitation for grade.	Recommended and eligible for reenlistment at time of transfer to FMCR.
RE-2B	Retired.	Not eligible for reenlistment. For disability or transfer to the Temporary Disability Retirement List (TDRL) assign RE-3P.
RE-2C	Transferred to FMCR at maximum service limitation for grade.	Not eligible for reenlistment at time of transfer to FMCR.
RE-3A	Failure to meet general technical score prerequisite. Assign when single disqualifying factor.	Recommended by CO upon removal of disqualifying factor. SRB entry required stating reason for assignment. Individual Marine must sign the SRB entry. CMC authority required for reenlistment.
RE-3B	Assign when there is a military or civil record of in-service drug involvement and there is potential for further service.	SRB entry required stating reason for assignment. Individual must sign the SRB entry. CMC authority required for reenlistment.
RE-3C	When directed by CMC or when not eligible and disqualifying factor is not covered by any other code.	SRB entry required stating reason for assignment. Individual Marine must sign the SRB entry. CMC authority required for reenlistment.
RE-3E	Failure to meet education standards. Assign when single disqualifying factor only.	Recommended by CO upon removal of disqualifying factor. SRB entry required stating reason for assignment. Individual Marine must sign the SRB entry. CMC authority required for reenlistment.
RE-3F	Failure to complete recruit training.	SRB entry required stating reason for assignment, to include women Marines discharged due to pregnancy prior to completing recruit training. Individual Marine must sign the SRB entry. CMC authority required for reenlistment.
RE-3H	Hardship Discharge	Assign when discharged pursuant to MCO P1900.16, MARCORSEPMAN, chapter 6. SRB entry required stating reason for

Figure 6-2.--Reenlistment Eligibility Codes.

		assignment. Individual Marine must sign the SRB entry. CMC authority required for reenlistment.
RE-3N	Pregnancy, Single parenthood.	A woman Marine discharged prior to her EAS for pregnancy or any Marine separated while in a sole parent status. SRB entry required stating reason for assignment. Individual Marine must sign the SRB entry. CMC authority required for reenlistment.
RE-3O	Refused orders assigned without sufficient obligated service remaining.	SRB entry required stating reason for assignment. Individual Marine must sign the SRB entry. Refer to MCO 1300.8. This code may only be assign 1 when directed by CMC and is not to be assigned to first-term Marines. CMC authority required for reenlistment.
RE-3P	Failure to meet physical (medical standards (includes pseudofolliculitis and weight standards).	Recommended by CO upon removal of disqualifying factor. SRB entry required stating reason for assignment. Individual Marine must sign the SRB entry. CMC authority required for reenlistment.
RE-4	Not recommended for reenlistment.	SRB entry required stating reason for assignment. Individual Marine must sign the SRB entry. This code may be assigned in lieu of any RE-3 code (except RE-3B and RE-3P) if the Marine's performance warrants and the reason can be documented.
RE-4B	Assign when there is a military or civil record of in-service drug involvement and there is no potential for further service.	SRB entry required stating reason for assignment. Individual Marine must sign the SRB entry.

NOTE: A reenlistment eligibility code of RE-3 is by definition considered recommended but not eligible for reenlistment for the reason indicated by the designated letter.

Figure 6-2.--Reenlistment Eligibility Codes--Continued.

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