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ENLISTED PERSONNEL TURBULENCE DATA BASE

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NAVY PERSONNEL RESEARCH
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San Diego, California 92152

NPRDC TR 83-20 June 1983

ENLISTED PERSONNEL TURBULENCE DATA BASE

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The data base contains quarterly losses and end strengths (FY78-FY82) for enlisted personnel. These data are aggregated by activity type, duty location (sea/shore), pay-grade group, rating group, fleet (Atlantic/Pacific), and length of service. The enlisted survival tracking file (STF) was the primary source for construction of this data base. Organizational turnover rates can be used to evaluate the effectiveness of the "personnel delivery system" in maintaining organizational stability.

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FOREWORD

The work described in this report was conducted within subproject Z1186-PN (Fleet Demand for Base Operating Support Manpower), work unit .08 (Manpower Utilization). The overall objective of this work unit is to conduct a systematic assessment of alternative manpower utilization strategies. This portion of the effort documents organizational turnover over time by type of unit and class of personnel.

JAMES F. KELLY, JR.
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SUMMARY

Problem

The rationale for investigating unit turnover is based on its implications for the measurement of unit readiness and the effectiveness of the "personnel delivery system." The personnel delivery system includes a wide array of functions involved in creating and maintaining adequate inventories of enlisted personnel and assigning those personnel to appropriate billets.

Objective

The objective of this effort was to develop an enlisted personnel turbulence data base containing unit turnover rates that can be used (1) to examine personnel turbulence as a factor in assessing unit readiness and (2) to evaluate the effectiveness of the personnel delivery system.

Approach

A longitudinal record of organizational turnover was developed that will allow the personnel readiness of a class of activity to be investigated over a period of time in contrast to a "snapshot" approach to manning levels.

Results

The data base contains quarterly losses and end strengths of enlisted personnel by activity type, duty location, pay-grade group, rating group, fleet designation, and length of service. Data for FY78 through FY82 are included in the data base.

Future Developments

The data base will be embedded in a computer-based information system with interactive access and graphic display. It is anticipated that, when the data base is in use, it will be updated quarterly.

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INTRODUCTION

Background

Personnel turnover has been a continuing subject of interest for many years and has been analyzed from almost every conceivable perspective. Much of the psychological literature concerned with turnover focuses on the attributes of individuals who leave organizations. In more recent years, the same approach has been applied to "stayers." This approach implies the use of entry-level selection instruments to screen individuals for their propensity to stay with an organization for some reasonable period of time. For enlisted personnel, this usually involves selection to minimize attrition in the first term of enlistment.

From the perspective of economics, the typical approach considers the effect of economic incentives on the retention of individuals grouped by cohorts, occupation, or some other aggregation of interest. In general, most investigations of personnel turnover proceed from the assumption that turnover is excessive and should or can be reduced. While the cost of "high" turnover can be estimated in terms of recruiting and training costs, it is not so easy to determine the cost of "low" turnover. Nevertheless, it is reasonable to hypothesize a relationship between very low levels of turnover and lower levels of productivity. In this regard, extremely low levels of turnover are often associated with organizational stagnation, reluctance to adapt to change, and internal barriers to increases in productivity.

For both conceptual and analytical reasons, there is widespread agreement that an organization's personnel turnover is related to its performance or output. This hypothetical relationship is illustrated in Figure 1, where a curve is used to show how the "readiness" or productivity of an organizational unit (e.g., ship or squadron) is related to its annual turnover rate. The relationship assumes a lower level of productivity when turnover is either too low or too high, although the hypothetical maximum of about 0.4 is purely illustrative. The term "turbulence" is used in Figure 1 and in subsequent pages to characterize the personnel turnover of an organizational unit.

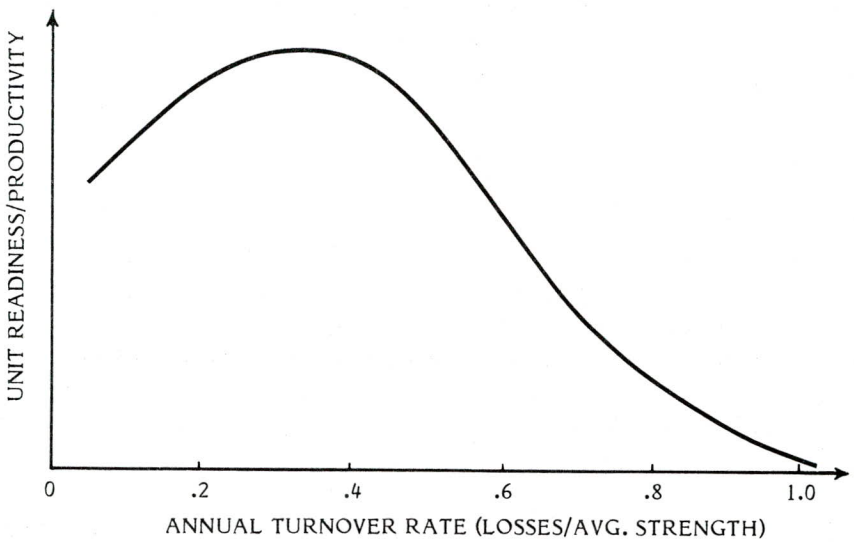

Figure 1. Hypothetical relationship of turbulence and unit performance.

Taking the concept of turbulence one step further, a relationship between personnel turnover and "manning" can be conceived, relative to productivity. The term "manning" is used to connote the percentage of authorized positions (i.e., jobs or billets) filled with appropriate personnel at some regularly designated point in time. Typically, the personnel readiness of naval units is measured in terms of manning. For example, a manning level of 75 percent is obtained by dividing the on-board count of 150 individuals in a unit by its authorized level of 200 personnel. Of course, manning is not simply a matter of numbers. Considerable variation can be obtained by measuring the qualitative distribution (type and level of skills) of personnel relative to the qualitative distribution of billet requirements. In either case, measuring personnel readiness by using periodic snapshots of unit manning ignores the relative stability or turbulence that characterizes an organizational unit and affects its performance.

The relationship between manning and turnover takes on special meaning when it is coupled with productivity. The curve shown in Figure 2 illustrates this relationship. Here, a tradeoff between manning and turnover is implied where, for a fixed level of productivity, one could conceivably substitute a measure of lower manning for a measure of improvement in personnel stability. Similarly, the curve implies that somewhat higher turnover can be overcome by improvements in manning. In concept, this is similar to the conventional capital-labor substitution curve.

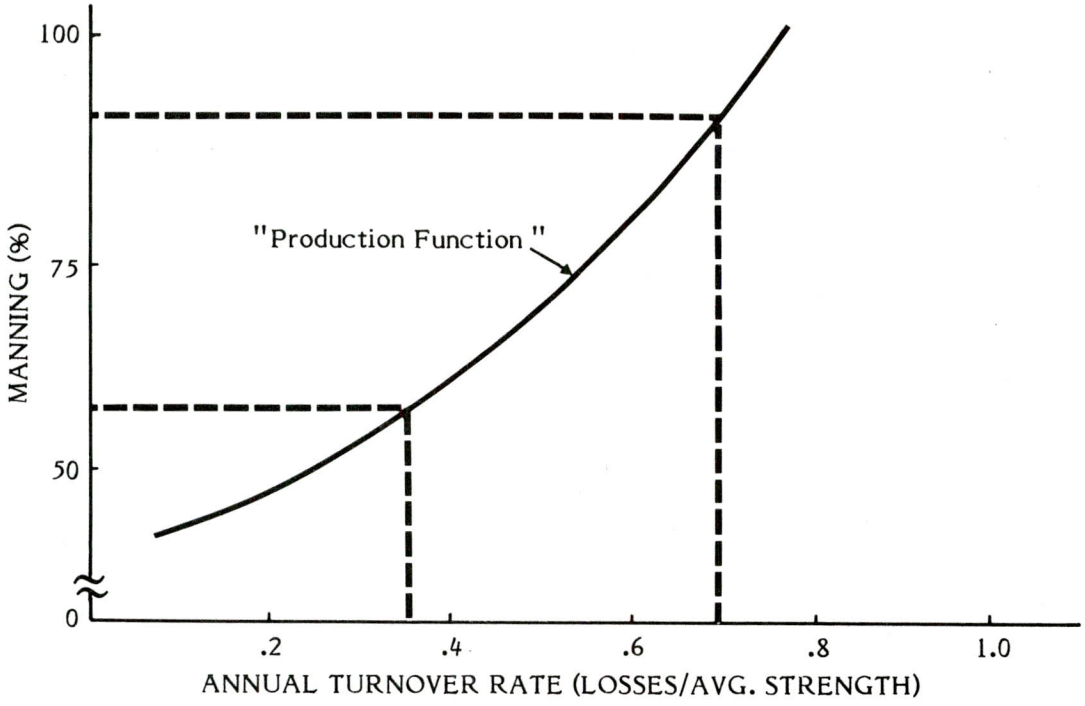

Figure 2. Hypothetical relationship of turbulence and manning.

Problem

The rationale for investigating unit turnover is based not only on its implications for the measurement of unit readiness but also on its use in measuring the effectiveness of

what might be called the "personnel delivery system." This system is composed of a broad array of functions involved in creating and maintaining adequate inventories of enlisted personnel and in assigning those personnel to appropriate billets in thousands of Navy organizations (i.e., units). Since there is some minimum level of work-force stability that permits an organization to accomplish its workload, the effectiveness of the personnel delivery system in serving naval units can be examined by comparing personnel turnover across organizations and over time.

Objective

The objective of the work described herein was to develop a personnel turbulence data base containing organizational turnover rates that can be used to evaluate the effectiveness of the personnel assignment process in maintaining organizational stability. With the addition of other data, the personnel turbulence data base can be used to assess personnel readiness among comparative units.

APPROACH

There are a variety of ways to measure the turnover of an organizational unit (see Bartholomew and Forbes, 1979). As a practical matter, the particular measure of turnover that is used is usually limited by the kind and amount of data available and by the purpose of the investigation. Because the major concern here is the personnel readiness of an activity over a period of time (in contrast to a "snapshot" of manning levels), it is essential that a longitudinal record of organizational turnover be available. The recent development of a longitudinal file of enlisted personnel by activity made it feasible to initiate the development described herein.

RESULTS

Personnel Turbulence Data Base

The personnel turbulence data base contains quarterly losses and end strengths of enlisted personnel for each of about 50 kinds of activities over the last 5 years. These data are further subdivided by duty location (sea/shore), groupings of pay grades and ratings, fleet designation (Atlantic, Pacific), and length of service (LOS). The quarterly information can be used to examine fluctuations within a fiscal year and can be combined to form rates by fiscal year or calendar year. Most of the examples in this report are by fiscal year.

Data Sources

The primary source of data used by the personnel turbulence data base is the enlisted survivial tracking file (STF) (see Gay & Borack, 1981, 1982). STF consists of a sequence of fixed-length records representing the status of each individual on active duty at quarterly intervals. It is constructed using end-of-quarter enlisted master records (EMRs) and is updated quarterly. The first 4 years of the personnel turbulence data base were constructed using the FY81 STF, which covers the period from between the fourth quarter of FY77 through the fourth quarter of FY81. The fifth year was constructed using the FY82 STF, which covers the period from the fourth quarter of FY77 through the fourth quarter of FY82. Processing was done in a two-step manner because the FY82 STF was not available when the work was initiated.

During STF processing, records were found that contained erroneous unit identification codes (UICs). Abstracts from the end-of-quarter EMRs were used to verify and then correct these invalid UICs. A total of 228,408 records (FYs 78-81) were found to be in error and corrected (the STF contains 5,080,318 records (FYs 78-81)). Other errors, associated with gaps and overlaps in longitudinal records, were also corrected where possible. These errors have been corrected in the FY82 STF for the data covering FY81, fourth quarter through FY82, fourth quarter.

Turnover Rate

The turnover rate for a given category of personnel (for example, E-4s on sea duty) is defined as the number of losses during the fiscal year who were in this category at the time of loss divided by the average number in this category during the fiscal year. A person is considered a loss during a given quarter if, at the end of the quarter, he is not in the same UIC he was in at the beginning of the quarter. The losses for a fiscal year are the sum of the losses for the four quarters of that fiscal year. The average strength for a fiscal year is a weighted average of five quarterly end strengths. The end strength of the fourth quarter of the previous fiscal year is weighted 1/8. The end strengths from the first, second, and third quarters of the current year are weighted 1/4; and the fourth quarter, 1/8.

If the turnover rates is defined as $m = L/S$, where L is losses and S is average strength, the standard error of m can be estimated by

$$se(m) = (m/s)^{1/2}.$$

A deficiency of the turnover rate is inherent in the data. Because personnel movements are "tracked" by a series of quarterly "snapshots," intraquarter losses (e.g., unauthorized absences) can occur without being observed. Consequently, the turnover rate systematically underestimates personnel turbulence to the extent of intraquarter losses.

Data Aggregation Categories

Turnover rates have been calculated by fiscal year and quarter (for FYs 78-82) for personnel aggregated in a variety of categories and classifications, including the following:

1. Duty location:
    a. Sea (type duty codes 2, 3, and 4).
    b. Shore (type duty codes 1 and 6).
    c. Neutral (type duty code 5).
    d. Unknown (type duty code not equal to 1, . . . , 6).
2. Pay-grade group:
    a. E-7--E-9.
    b. E-5 and E-6.
    c. E-4.
    d. E-1--E-3 rated.
    e. E-1--E-3 nonrated.

3. Rating group: The Navy's enlisted ratings were grouped into 19 categories (including four apprenticeships) based on similarity of skills, training investment, and retention behavior (see Chipman & Mumm, 1979), as shown in Table 1.

Table 1

Categorization of Enlisted Ratings

Rating Group	Group Title	Rating Components
1	Ship operations	BM, MA, QM, SM, OS
2	Marine engineering	MM, EN, BT, BR, EM, IC
3	Ship maintenance	IM, OM, MR, HT, PM, ML, PI
4	Aviation maintenance weapons	AD, AT, AX, AO, AE, AM, PR, TD, AZ
5	Aviation ground support	AB, AS, ABH, ASE, ASH, ASM
6	Aviation operations control	AW, AC, AG
7	Weapons control	FT, MT, ET, DS, AQ
8	Ordnance systems	TM, GM, MN
9	Sensor operations	EW, STG, STS, OT, ST
10	Construction	EA, CE, EO, CM, BU, SW, UT, CU, EQ
11	Health care	HM, DT
12	Administration	NC, YN, LN, PN, DP, PC
13	Logistics	SK, DK, MS, SH, AK
14	Media	JO, LI, DM, MU, PH
15	Communications and intelligence	RM, CTT, CTA, CTM, CTO, CTR, CTI, IS
16	Seaman	SN
17	Fireman	FN
18	Airman	AN
19	Constructionman	CN

(SN, FN, AN, CN: Apprenticeships)

4. Activity or functional group: Activities are grouped into 48 categories based on functional similarity. These categories are listed by grouping and defined in Table 2.

5. Fleet group: Activities are grouped by Atlantic or Pacific fleet (LANTFLT/PACFLT), depending on the manpower requirements plan (MARP) code, as shown in Table 3. MARP codes are used by the Navy Military Personnel Command to classify activities for various manpower accounting purposes.

6. LOS categories (measured in years):

a. 0<4.
b. 4<8.
c. 8<12.
d. 12<20.
e. 20 or more.

Personnel with LOS equal to a boundary of the grouping are included in the latter group (i.e., LOS 4 is in group 4 < 8).

Table 2

Categorization of Navy Organizational Units

Group	Category	Group Title	Component
Ships	1.	Amphibious ships	--
	2.	Carriers	CV
	3.	Carriers	CVN
	4.	Cruisers	--
	5.	Destroyers	DD
	6.	Destroyers	DDG
	7.	Frigates	--
	8.	Miscellaneous ships	--
	9.	Submarines	SSN
	10.	Submarines	SSBN
	11.	Support ships	--
	12.	Tenders	--
Aircraft	13.	Helicopters	--
	14.	Reconnaissance	--
	15.	Attack	--
	16.	Fighters	--
	17.	Patrol	--
	18.	Miscellaneous squadrons	--
Students and Trainees	19.	Recruit training	San Diego
	20.	Recruit training	Great Lakes
	21.	Recruit training	Orlando
	22.	Functional training	--
	23.	Technical training	--
	24.	Fleet air training	--
	25.	Students	Naval school commands
	26.	Students	Others
Others	27.	Other forces	--
	28.	Operational headquarters	--
	29.	Mobile construction battalions	--
	30.	Maintenance operations	--
	31.	Naval air stations	Atlantic
	32.	Naval air stations	Pacific
	33.	Naval air training stations	--
	34.	Naval stations	Atlantic
	35.	Naval stations	Pacific
	36.	Other base operating support (BOS) combat installations	--
	37.	Other BOS support installations	--
	38.	Centrally managed communications	--
	39.	Intelligence	--
	40.	Other centralized support activities	--
	41.	Other logistic support operations	--
	42.	Flight training	--
	43.	Other training	--
	44.	Personnel support	--
	45.	Medical support	--
	46.	Research and development/Weather and oceanography	--
	47.	Management headquarters	--
	48.	Transients, patients, prisoners, and holdees	--

Table 3

Classification of Activity by Fleet Using MARP Codes

Fleet	MARP Codes						
Atlantic	1011	1061	1081	1151	1157	3121	
	1041	1063	1083	1152	1173	3131	
	1051	1071	1111	1153	3051	8042	
	1053	1073	1131	1155	3081		
	1055	1075	1150	1156	3111		
Pacific	1012	1062	1082	1161	1166	3082	8043
	1042	1064	1084	1162	1167	3112	8051
	1052	1072	1112	1163	1169	3122	
	1054	1074	1132	1164	1174	3132	
	1056	1076	1160	1165	3052	3142	

Experimental Outputs

This section presents examples of outputs from the personnel turbulence data base. These outputs take the form of turnover rates by fiscal year and pay-grade group. Because turnover rates are measured as losses per man-year, the inverse of a turnover rate has as its unit of measurement man-years per loss. This measure can be used to estimate length of time in an activity.

Basis for Comparison

Several kinds of comparisons come to mind when examining turnover for an organizational unit. An obvious basis for comparison is provided by trends or changes over time. For example, although there are only 5 years of data, annual decreases in unit stability ought to be a matter for concern. Apart from time trends, comparisons can be made among similar fuctional groups (e.g., between different types of combat ships) or different kinds of activities (e.g., between a ship group and an aircraft group or a ship group and shore support group). Along other dimensions, it is possible to compare different pay-grade or occupational groups, and seagoing activities against shore activities. Comparisons can also be made between Pacific and Atlantic groups for the same kinds of activities.

Some Examples

The following examples are used to illustrate a variety of different kinds of comparisons. Since the purpose of the data base is to provide a new measure of unit personnel readiness, no attempt will be made to explain the reasons for observed differences. Such explanations would be speculative. In short, the data sheds light on "what" but not "why."

The first example, Figure 3, compares turnover rates for E-4s on SSNs and support ships, with those in all Navy (ALNAV) included as a standard of comparison. The sharp difference in FY81 between rates for E-4s on support ships and on SSNs (75 vs. 30%) is noteworthy. Figure 4, which compares turnover rates for E-5/6 personnel, shows a sharp contrast between those for personnel in attack and patrol aircraft. For those on ships, there is an upward trend in personnel turnover from FY78-81; as for E-4s, turnover for support ships is very high but it does drop in FY82.

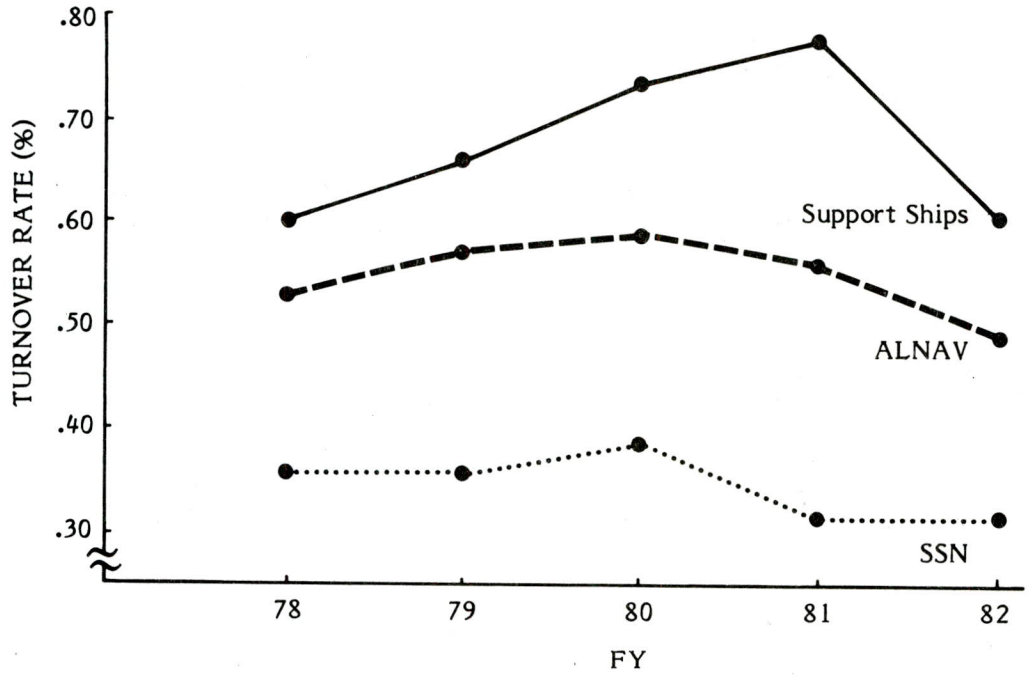

Figure 3. Turnover rates for E-4s on support ships, on SSNs, and in ALNAV by fiscal year.

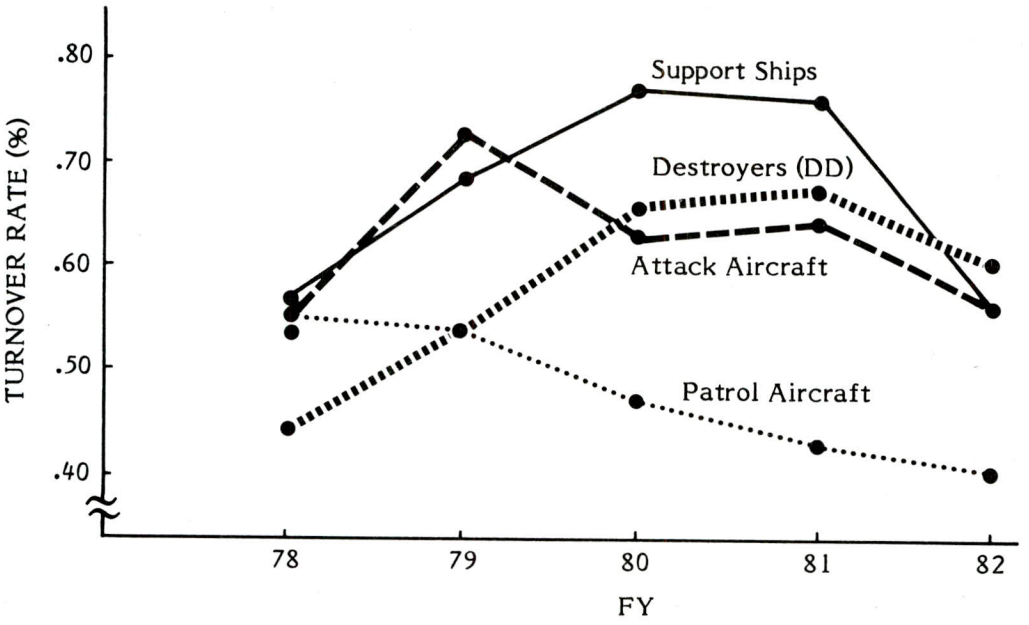

Figure 4. Turnover rates for E-5/6s by various operational groups and fiscal year.

By restricting the outputs to seagoing units, rating groups can be compared. Figure 5 compares turnover rates of E-4 personnel on sea duty with an ALNAV standard; and Figure 6, rates of E-5/6 personnel. Holding the type of unit constant (e.g., SSNs only), turnover rates for pay-grade groups in PACFLT and LANTFLT units can be compared. For example, Figure 7, which provides turnover rates for two pay-grade groups--E-4s and E-5/6s--shows that, in both cases, PACFLT units tend to reflect higher levels of turnover. In Figure 8, pay grade (E-4) and rating group (marine engineering) were controlled, and rates for E-4s assigned to DDs and all ships in PACFLT and LANTFLT were compared.

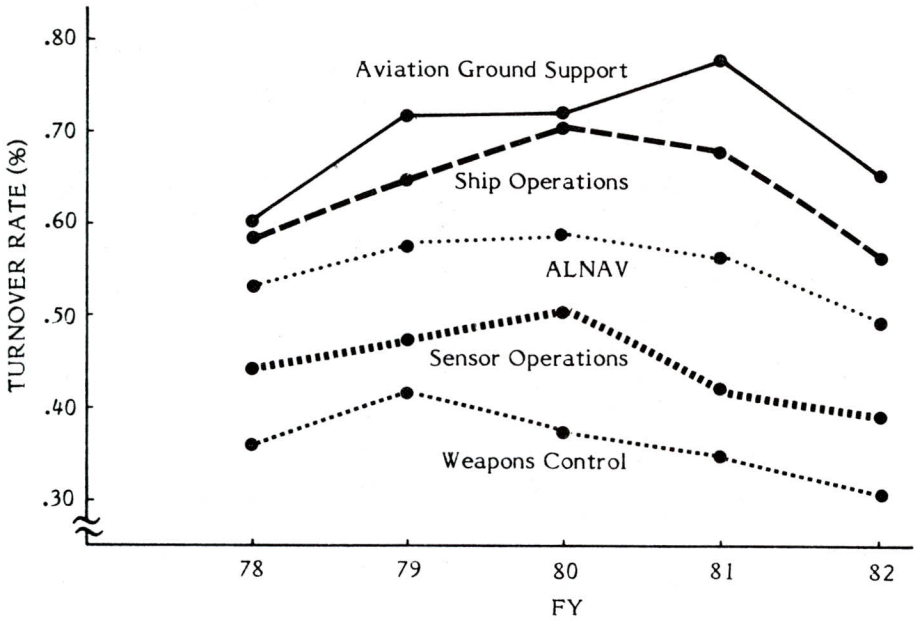

Figure 5. Turnover rates for E-4s by seagoing operational units and fiscal year.

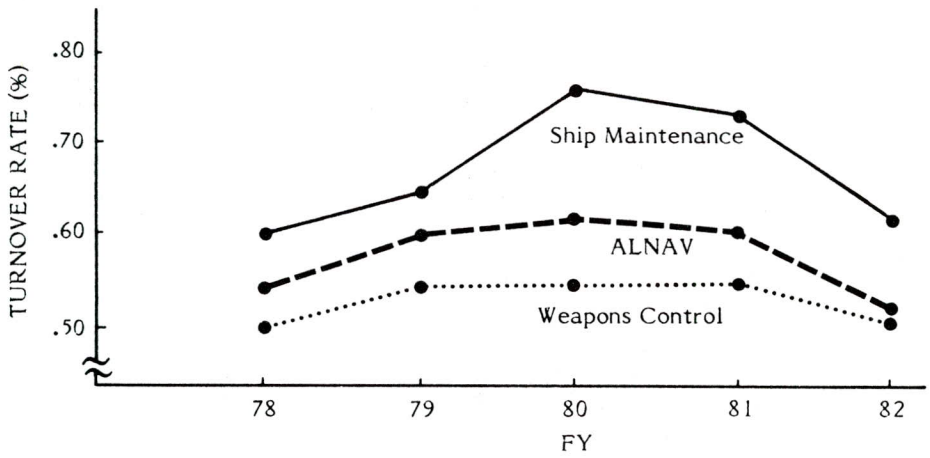

Figure 6. Turnover rates for E-5/6s by seagoing operational units and fiscal year.

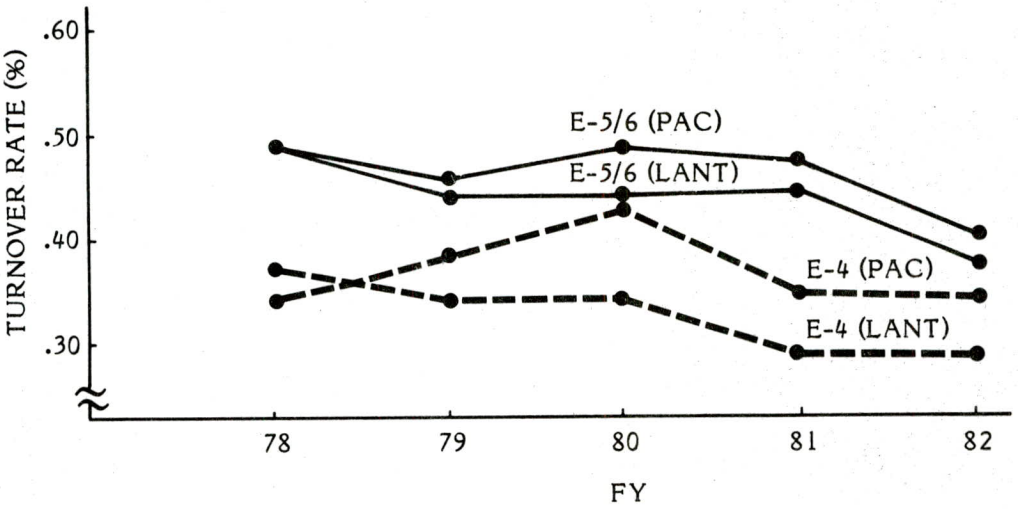

Figure 7. Turnover rates for E-4 and E-5/6 personnel on submarines (SSN) by fleet and fiscal year.

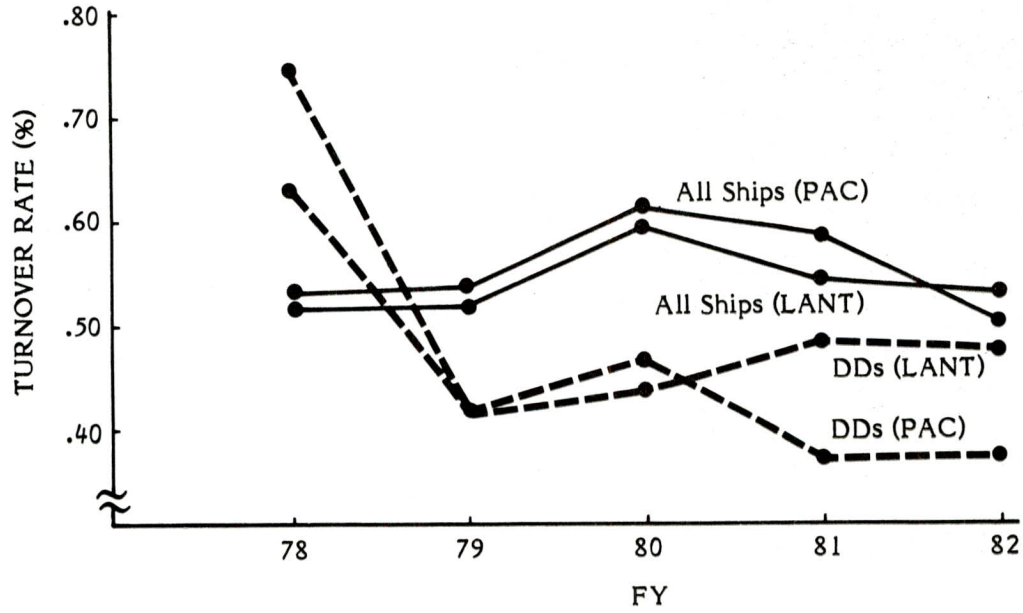

Figure 8. Turnover rates for E-4 personnel in marine engineering groups by fleet and fiscal year.

Figure 9, which provides an example of turnover rates for E-5/6 and E-7/9 seagoing personnel measured in quarterly intervals, shows that there is a great deal of fluctuation from quarter to quarter. The underlying trends can be better displayed by smoothing the data. Figure 10 shows these data smoothed by a nonlinear data smoother called "4253EH, twice" and is basically a series of running medians (Velleman & Hoaglin, 1981).

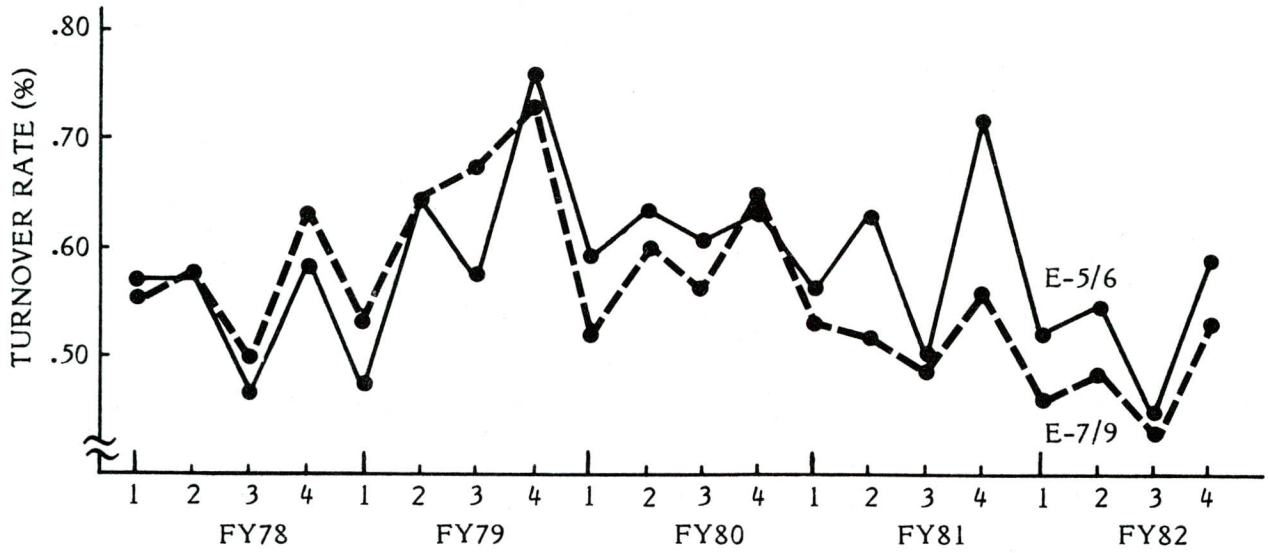

Figure 9. Turnover rates for E-5/6 and E-7/9 seagoing personnel by fiscal year and quarter.

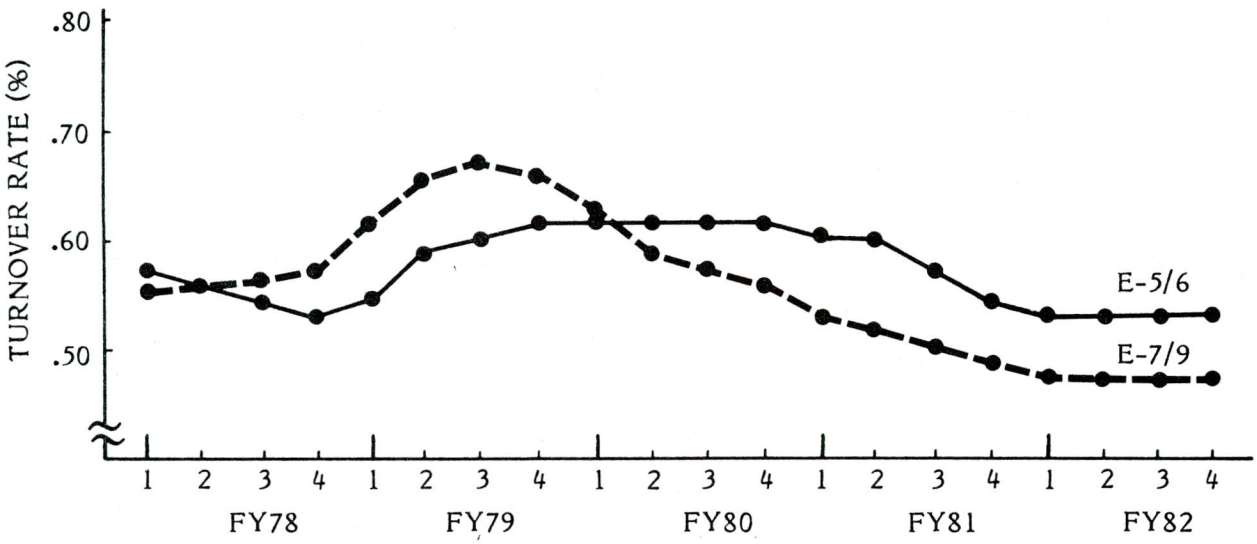

Figure 10. Smoothed turnover rates for E-5/6 and E-7/9 seagoing personnel by fiscal year and quarter.

The appendix provides the numerical results for all pay-grade groups for all years.

FUTURE DEVELOPMENTS

The payoff in developing a personnel turbulence data base lies in its use by commands (e.g., fleet staffs) in assessing personnel stability--especially in operational units and for critical skills. To that end, the data base will be embedded in a computer-based information system with interactive access and graphic display. The architecture of this interactive system already exists and has supported a variety of management applications in the manpower/personnel arena. Once the data base is available on a computer network, it can be accessed in any locality serviced by the network.

To provide a data base that can be easily updated quarterly, an automated system to classify activities, as defined by a UIC, needs to be developed. The present system is done by hand and is cumbersome at best. A system is currently under development that incorporates the MARP code and the 10-digit activity code to define an activity's functional grouping and classify previously ungrouped UICs. The MARP and activity codes can be associated with a UIC using end-of-quarter EMRs.

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APPENDIX

SAMPLE NUMERICAL OUTPUTS FROM PERSONNEL TURBULENCE DATA BASE

For Sea and Shore	A-1 and A-2
For LANT and PAC Seagoing Units	A-3 and A-4
For Rating Groups	A-5 through A-19
For Operational Groups	A-20 through A-37

---------- DUTYTYPE=SEA ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	116836	241872	0.47
TOTAL	FY79	121968	225812	0.51
TOTAL	FY80	117810	227788	0.52
TOTAL	FY81	118152	234563	0.50
TOTAL	FY82	109738	247056	0.45
E7/9	FY78	10369	17967	0.57
E7/9	FY79	10861	15648	0.64
E7/9	FY80	8939	14956	0.58
E7/9	FY81	8190	16443	0.52
E7/9	FY82	8108	17572	0.47
E5/6	FY78	41638	76643	0.55
E5/6	FY79	44601	68664	0.61
E5/6	FY80	41668	69654	0.61
E5/6	FY81	41763	70563	0.60
E5/6	FY82	39175	77807	0.52
E4	FY78	27022	55426	0.52
E4	FY79	31165	55168	0.58
E4	FY80	31628	58189	0.58
E4	FY81	30962	58885	0.56
E4	FY82	26202	58681	0.49
E1/3	FY78	18063	49439	0.34
E1/3	FY79	17415	48570	0.34
E1/3	FY80	17152	43749	0.36
E1/3	FY81	17547	46348	0.36
E1/3	FY82	17775	51458	0.34
NONRATED	FY78	19744	42397	0.42
NONRATED	FY79	17926	37762	0.43
NONRATED	FY80	18423	41240	0.45
NONRATED	FY81	19690	42324	0.44
NONRATED	FY82	18478	41538	0.41

---------- DUTYTYPE=SHORE ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	270716	211494	1.33
TOTAL	FY79	266677	220164	1.26
TOTAL	FY80	274887	223374	1.24
TOTAL	FY81	288164	228360	1.28
TOTAL	FY82	275162	226819	1.23
E7/9	FY78	13064	23841	0.57
E7/9	FY79	14510	24955	0.60
E7/9	FY80	14202	24708	0.56
E7/9	FY81	15579	25351	0.62
E7/9	FY82	14814	24344	0.60
E5/6	FY78	45636	68251	0.68
E5/6	FY79	48430	72049	0.69
E5/6	FY80	50209	74500	0.68
E5/6	FY81	56354	76232	0.75
E5/6	FY82	57215	78461	0.73
E4	FY78	36042	34329	1.11
E4	FY79	39804	37911	1.12
E4	FY80	42076	38954	1.13
E4	FY81	44894	39512	1.17
E4	FY82	42970	38513	1.15
E1/3	FY78	39706	31842	1.26
E1/3	FY79	46178	34211	1.30
E1/3	FY80	39731	30291	1.19
E1/3	FY81	43118	29323	1.36
E1/3	FY82	41229	31387	1.28
NONRATED	FY78	136268	53231	2.74
NONRATED	FY79	117755	51038	2.53
NONRATED	FY80	128669	54921	2.49
NONRATED	FY81	128219	57942	2.37
NONRATED	FY82	118934	54114	2.29

---------- DUTYTYPE=SEA OCEAN=ATLANTIC ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	51092	112513	0.45
TOTAL	FY79	54358	108887	0.48
TOTAL	FY80	54808	113637	0.50
TOTAL	FY81	57789	116139	0.49
TOTAL	FY82	53674	121448	0.44
E7/9	FY78	4651	8194	0.56
E7/9	FY79	4877	7421	0.62
E7/9	FY80	4182	7278	0.56
E7/9	FY81	3944	8054	0.51
E7/9	FY82	3945	8443	0.48
E5/6	FY78	18354	35577	0.52
E5/6	FY79	20106	33019	0.58
E5/6	FY80	19525	34366	0.59
E5/6	FY81	20251	34929	0.59
E5/6	FY82	19016	37838	0.51
E4	FY78	11387	25413	0.49
E4	FY79	13465	26680	0.53
E4	FY80	14533	29249	0.54
E4	FY81	15176	29622	0.54
E4	FY82	12909	29260	0.48
E1/3	FY78	7317	22783	0.30
E1/3	FY79	7288	23091	0.30
E1/3	FY80	7539	21287	0.33
E1/3	FY81	8243	22047	0.35
E1/3	FY82	8278	24527	0.33
NONRATED	FY78	9383	20546	0.41
NONRATED	FY79	8622	18676	0.43
NONRATED	FY80	9029	21457	0.44
NONRATED	FY81	10175	21487	0.44
NONRATED	FY82	9526	21380	0.41

---------- DUTYTYPE=SEA OCEAN=PACIFIC ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	50419	107623	0.46
TOTAL	FY79	54437	99297	0.52
TOTAL	FY80	52225	98207	0.53
TOTAL	FY81	51131	98428	0.51
TOTAL	FY82	46289	98446	0.47
E7/9	FY78	4330	7718	0.55
E7/9	FY79	4634	6592	0.65
E7/9	FY80	3732	6234	0.58
E7/9	FY81	3400	6484	0.53
E7/9	FY82	3242	6584	0.50
E5/6	FY78	17881	33682	0.54
E5/6	FY79	19089	29624	0.61
E5/6	FY80	16186	29525	0.62
E5/6	FY81	17823	28692	0.62
E5/6	FY82	16095	30097	0.54
E4	FY78	11952	25127	0.52
E4	FY79	14309	24307	0.59
E4	FY80	14407	24981	0.61
E4	FY81	13565	24484	0.58
E4	FY82	11191	23449	0.52
E1/3	FY78	8009	22022	0.34
E1/3	FY79	7947	21500	0.35
E1/3	FY80	7116	19255	0.37
E1/3	FY81	7743	20070	0.36
E1/3	FY82	7849	21342	0.35
NONRATED	FY78	8247	19074	0.39
NONRATED	FY79	7858	17274	0.42
NONRATED	FY80	8182	18212	0.44
NONRATED	FY81	8000	18698	0.43
NONRATED	FY82	7912	16974	0.41

---------- DUTYTYPE=SEA RATING=SHIP OPERATIONS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	8541	17995	0.50
TOTAL	FY79	10020	17342	0.56
TOTAL	FY80	10353	16444	0.62
TOTAL	FY81	9678	17108	0.58
TOTAL	FY82	8609	19487	0.47
E7/9	FY78	1039	1870	0.56
E7/9	FY79	1092	1601	0.62
E7/9	FY80	971	1492	0.62
E7/9	FY81	864	1640	0.56
E7/9	FY82	771	1784	0.45
E5/6	FY78	3162	6040	0.55
E5/6	FY79	3870	5711	0.65
E5/6	FY80	4002	5493	0.72
E5/6	FY81	3807	5487	0.71
E5/6	FY82	3299	6290	0.55
E4	FY78	2784	5454	0.59
E4	FY79	3280	5293	0.64
E4	FY80	3529	5236	0.70
E4	FY81	3168	4948	0.67
E4	FY82	2547	5405	0.56
E1/3	FY78	1556	4631	0.32
E1/3	FY79	1778	4737	0.35
E1/3	FY80	1851	4223	0.42
E1/3	FY81	1839	5033	0.37
E1/3	FY82	1992	6008	0.33

---------- DUTYTYPE=SEA RATING=MARINE ENGINEERING ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	20767	42270	0.49
TOTAL	FY79	20660	42026	0.49
TOTAL	FY80	22553	41984	0.54
TOTAL	FY81	21159	43986	0.49
TOTAL	FY82	20583	47015	0.45
E7/9	FY78	2032	3535	0.57
E7/9	FY79	2008	3188	0.60
E7/9	FY80	1828	3195	0.57
E7/9	FY81	1661	3460	0.50
E7/9	FY82	1652	3632	0.46
E5/6	FY78	8578	15550	0.56
E5/6	FY79	8499	14820	0.55
E5/6	FY80	9148	14479	0.63
E5/6	FY81	8346	15292	0.57
E5/6	FY82	8031	17691	0.48
E4	FY78	5681	11350	0.55
E4	FY79	6219	12152	0.54
E4	FY80	7269	12954	0.61
E4	FY81	7019	13784	0.55
E4	FY82	6294	14115	0.50
E1/3	FY78	4476	11835	0.35
E1/3	FY79	4134	11866	0.34
E1/3	FY80	4308	11356	0.36
E1/3	FY81	4133	11450	0.34
E1/3	FY82	4606	11577	0.37

---------- DUTYTYPE=SEA RATING=SHIP MAINTENANCE ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	4881	10094	0.49
TOTAL	FY79	5038	9370	0.51
TOTAL	FY80	5242	9455	0.57
TOTAL	FY81	5415	9370	0.57
TOTAL	FY82	4726	9712	0.50
E7/9	FY78	445	726	0.60
E7/9	FY79	446	650	0.65
E7/9	FY80	376	637	0.60
E7/9	FY81	340	809	0.47
E7/9	FY82	391	834	0.47
E5/6	FY78	1889	3249	0.59
E5/6	FY79	2024	2941	0.64
E5/6	FY80	2167	3040	0.76
E5/6	FY81	2179	2902	0.73
E5/6	FY82	1916	3315	0.62
E4	FY78	1270	2577	0.55
E4	FY79	1426	2663	0.56
E4	FY80	1630	2986	0.61
E4	FY81	1773	2704	0.65
E4	FY82	1262	2807	0.53
E1/3	FY78	1277	3542	0.34
E1/3	FY79	1142	3116	0.32
E1/3	FY80	1069	2792	0.36
E1/3	FY81	1123	2955	0.36
E1/3	FY82	1157	2756	0.38

------ DUTYTYPE=SEA RATING=AVIATION MAINTENANCE WEAPONS ------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	12799	29718	0.44
TOTAL	FY79	14750	26240	0.52
TOTAL	FY80	11944	25723	0.46
TOTAL	FY81	11920	26043	0.46
TOTAL	FY82	11379	28730	0.41
E7/9	FY78	1636	2827	0.56
E7/9	FY79	1706	2148	0.68
E7/9	FY80	1102	1921	0.53
E7/9	FY81	982	2286	0.47
E7/9	FY82	1050	2602	0.43
E5/6	FY78	6239	11988	0.52
E5/6	FY79	6954	9900	0.63
E5/6	FY80	5564	9888	0.57
E5/6	FY81	5395	9720	0.56
E5/6	FY82	5184	10607	0.50
E4	FY78	3433	8632	0.43
E4	FY79	4528	7497	0.57
E4	FY80	3775	8090	0.51
E4	FY81	3941	8654	0.51
E4	FY82	3508	8618	0.45
E1/3	FY78	1491	6271	0.23
E1/3	FY79	1562	6695	0.22
E1/3	FY80	1503	5824	0.23
E1/3	FY81	1602	5983	0.24
E1/3	FY82	1637	6903	0.24

-------- DUTYTYPE=SEA RATING=AVIATION GROUND SUPPORT ---------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	2507	5456	0.48
TOTAL	FY79	3034	5448	0.55
TOTAL	FY80	2864	5385	0.53
TOTAL	FY81	3270	5061	0.63
TOTAL	FY82	2678	5094	0.53
E7/9	FY78	160	305	0.55
E7/9	FY79	174	308	0.57
E7/9	FY80	164	270	0.57
E7/9	FY81	161	275	0.59
E7/9	FY82	136	312	0.47
E5/6	FY78	801	1511	0.53
E5/6	FY79	982	1243	0.72
E5/6	FY80	711	1345	0.56
E5/6	FY81	872	1336	0.66
E5/6	FY82	757	1566	0.52
E4	FY78	943	1830	0.60
E4	FY79	1255	1823	0.71
E4	FY80	1302	1969	0.72
E4	FY81	1429	2070	0.77
E4	FY82	1185	1842	0.65
E1/3	FY78	603	1810	0.33
E1/3	FY79	623	2074	0.30
E1/3	FY80	687	1801	0.34
E1/3	FY81	808	1380	0.47
E1/3	FY82	600	1374	0.40

------ DUTYTYPE=SEA RATING=AVIATION OPERATIONS CONTROL -------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	1395	2918	0.47
TOTAL	FY79	1375	2817	0.48
TOTAL	FY80	1332	2703	0.49
TOTAL	FY81	1309	2910	0.47
TOTAL	FY82	1198	3196	0.39
E7/9	FY78	191	305	0.59
E7/9	FY79	174	260	0.63
E7/9	FY80	131	263	0.48
E7/9	FY81	136	270	0.52
E7/9	FY82	130	283	0.48
E5/6	FY78	809	1271	0.63
E5/6	FY79	788	1134	0.66
E5/6	FY80	758	1104	0.68
E5/6	FY81	705	1272	0.62
E5/6	FY82	697	1423	0.50
E4	FY78	281	742	0.40
E4	FY79	273	832	0.36
E4	FY80	324	859	0.39
E4	FY81	337	814	0.43
E4	FY82	225	791	0.32
E1/3	FY78	114	600	0.18
E1/3	FY79	140	591	0.22
E1/3	FY80	119	477	0.22
E1/3	FY81	131	554	0.22
E1/3	FY82	146	699	0.22

---------- DUTYTYPE=SEA RATING=WEAPONS CONTROL ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	8253	18345	0.44
TOTAL	FY79	8977	17304	0.50
TOTAL	FY80	8511	17435	0.48
TOTAL	FY81	8053	17477	0.46
TOTAL	FY82	7715	18036	0.43
E7/9	FY78	873	1754	0.50
E7/9	FY79	1024	1681	0.59
E7/9	FY80	903	1643	0.55
E7/9	FY81	801	1591	0.51
E7/9	FY82	804	1649	0.50
E5/6	FY78	4676	9543	0.50
E5/6	FY79	5022	8556	0.55
E5/6	FY80	4670	8787	0.54
E5/6	FY81	4831	9110	0.55
E5/6	FY82	4888	9997	0.50
E4	FY78	1996	5328	0.36
E4	FY79	2205	5628	0.41
E4	FY80	2124	6063	0.38
E4	FY81	1961	5797	0.34
E4	FY82	1567	5163	0.30
E1/3	FY78	708	1720	0.33
E1/3	FY79	726	1439	0.44
E1/3	FY80	614	1042	0.46
E1/3	FY81	460	979	0.41
E1/3	FY82	456	1227	0.37

---------- DUTYTYPE=SEA RATING=ORDNANCE SYSTEMS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	3688	8106	0.46
TOTAL	FY79	4121	7217	0.52
TOTAL	FY80	4128	6700	0.60
TOTAL	FY81	3796	6511	0.58
TOTAL	FY82	3301	7052	0.49
E7/9	FY78	421	666	0.59
E7/9	FY79	427	544	0.68
E7/9	FY80	337	460	0.66
E7/9	FY81	250	522	0.50
E7/9	FY82	252	591	0.46
E5/6	FY78	1440	2684	0.57
E5/6	FY79	1748	2403	0.66
E5/6	FY80	1747	2404	0.73
E5/6	FY81	1655	2296	0.71
E5/6	FY82	1495	2541	0.61
E4	FY78	1019	2238	0.50
E4	FY79	1193	2016	0.57
E4	FY80	1221	2124	0.61
E4	FY81	1187	1880	0.63
E4	FY82	870	1821	0.54
E1/3	FY78	808	2518	0.29
E1/3	FY79	753	2254	0.30
E1/3	FY80	823	1712	0.41
E1/3	FY81	704	1813	0.37
E1/3	FY82	684	2099	0.33

---------- DUTYTYPE=SEA RATING=SENSOR OPERATIONS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	3055	6814	0.47
TOTAL	FY79	3402	6785	0.50
TOTAL	FY80	3401	6821	0.50
TOTAL	FY81	3332	6952	0.48
TOTAL	FY82	3338	7102	0.47
E7/9	FY78	299	618	0.46
E7/9	FY79	368	531	0.63
E7/9	FY80	298	539	0.55
E7/9	FY81	274	564	0.50
E7/9	FY82	300	579	0.53
E5/6	FY78	1411	2908	0.52
E5/6	FY79	1556	2838	0.54
E5/6	FY80	1523	2977	0.53
E5/6	FY81	1660	2938	0.56
E5/6	FY82	1686	2892	0.58
E4	FY78	911	2022	0.45
E4	FY79	982	2171	0.47
E4	FY80	1032	2027	0.50
E4	FY81	892	2328	0.42
E4	FY82	842	2281	0.38
E1/3	FY78	434	1266	0.38
E1/3	FY79	496	1245	0.38
E1/3	FY80	548	1278	0.42
E1/3	FY81	506	1122	0.40
E1/3	FY82	510	1350	0.38

---------- DUTYTYPE=SEA RATING=CONSTRUCTION ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	3490	5723	0.56
TOTAL	FY79	3085	5363	0.54
TOTAL	FY80	2396	6048	0.43
TOTAL	FY81	2987	6646	0.47
TOTAL	FY82	2783	6829	0.41
E7/9	FY78	220	447	0.51
E7/9	FY79	260	416	0.59
E7/9	FY80	244	372	0.62
E7/9	FY81	193	383	0.52
E7/9	FY82	210	356	0.56
E5/6	FY78	1211	1999	0.58
E5/6	FY79	1291	1762	0.68
E5/6	FY80	948	2141	0.49
E5/6	FY81	1231	2043	0.59
E5/6	FY82	1227	2120	0.59
E4	FY78	894	1244	0.68
E4	FY79	729	1299	0.59
E4	FY80	508	1660	0.37
E4	FY81	709	1966	0.41
E4	FY82	641	1927	0.36
E1/3	FY78	1165	2033	0.49
E1/3	FY79	805	1886	0.39
E1/3	FY80	696	1875	0.37
E1/3	FY81	854	2254	0.38
E1/3	FY82	705	2426	0.27

---------- DUTYTYPE=SEA RATING=HEALTH CARE ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	3772	6572	0.56
TOTAL	FY79	4096	6083	0.64
TOTAL	FY80	3731	6172	0.61
TOTAL	FY81	3605	6245	0.58
TOTAL	FY82	3475	7300	0.52
E7/9	FY78	537	821	0.64
E7/9	FY79	565	777	0.69
E7/9	FY80	490	790	0.61
E7/9	FY81	450	772	0.58
E7/9	FY82	427	764	0.56
E5/6	FY78	1379	2400	0.58
E5/6	FY79	1602	2233	0.68
E5/6	FY80	1446	2226	0.66
E5/6	FY81	1403	2195	0.64
E5/6	FY82	1229	2341	0.54
E4	FY78	889	1763	0.61
E4	FY79	1159	1673	0.68
E4	FY80	1147	1825	0.71
E4	FY81	1129	2229	0.56
E4	FY82	1265	2133	0.59
E1/3	FY78	967	1588	0.47
E1/3	FY79	770	1400	0.50
E1/3	FY80	646	1331	0.41
E1/3	FY81	623	1049	0.50
E1/3	FY82	554	2062	0.36

---------- DUTYTYPE=SEA RATING=ADMINISTRATION ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	4875	8779	0.55
TOTAL	FY79	4944	8266	0.57
TOTAL	FY80	4605	8668	0.56
TOTAL	FY81	5048	9451	0.56
TOTAL	FY82	4752	10206	0.49
E7/9	FY78	667	1086	0.58
E7/9	FY79	717	943	0.71
E7/9	FY80	559	927	0.59
E7/9	FY81	564	1026	0.58
E7/9	FY82	543	1180	0.49
E5/6	FY78	2092	3232	0.64
E5/6	FY79	2041	2835	0.66
E5/6	FY80	1833	3139	0.64
E5/6	FY81	2189	3199	0.70
E5/6	FY82	1935	3396	0.58
E4	FY78	1430	2380	0.64
E4	FY79	1526	2546	0.65
E4	FY80	1568	2709	0.62
E4	FY81	1533	2755	0.61
E4	FY82	1351	2731	0.57
E1/3	FY78	686	2081	0.32
E1/3	FY79	660	1942	0.30
E1/3	FY80	645	1893	0.33
E1/3	FY81	762	2471	0.32
E1/3	FY82	923	2899	0.32

---------- DUTYTYPE=SEA RATING=LOGISTICS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	11816	22985	0.51
TOTAL	FY79	12654	20805	0.57
TOTAL	FY80	11591	20434	0.57
TOTAL	FY81	11705	21339	0.56
TOTAL	FY82	10489	22754	0.48
E7/9	FY78	1097	1786	0.61
E7/9	FY79	1155	1535	0.69
E7/9	FY80	933	1517	0.61
E7/9	FY81	869	1709	0.54
E7/9	FY82	853	1787	0.48
E5/6	FY78	4897	9092	0.54
E5/6	FY79	5105	7718	0.60
E5/6	FY80	4336	7660	0.58
E5/6	FY81	4269	8045	0.55
E5/6	FY82	3941	8583	0.47
E4	FY78	3369	6004	0.60
E4	FY79	3871	5752	0.69
E4	FY80	3870	5794	0.69
E4	FY81	3674	5209	0.73
E4	FY82	2949	5441	0.61
E1/3	FY78	2453	6103	0.37
E1/3	FY79	2523	5800	0.40
E1/3	FY80	2452	5463	0.44
E1/3	FY81	2893	6376	0.44
E1/3	FY82	2746	6943	0.39

---------- DUTYTYPE=SEA RATING=MEDIA ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	879	1466	0.57
TOTAL	FY79	899	1457	0.61
TOTAL	FY80	724	1588	0.49
TOTAL	FY81	841	1734	0.50
TOTAL	FY82	820	1757	0.48
E7/9	FY78	75	121	0.57
E7/9	FY79	74	92	0.68
E7/9	FY80	60	92	0.64
E7/9	FY81	53	119	0.50
E7/9	FY82	51	127	0.41
E5/6	FY78	359	555	0.59
E5/6	FY79	356	471	0.69
E5/6	FY80	270	579	0.53
E5/6	FY81	342	592	0.59
E5/6	FY82	352	669	0.57
E4	FY78	300	395	0.78
E4	FY79	307	475	0.76
E4	FY80	269	603	0.52
E4	FY81	330	667	0.52
E4	FY82	307	573	0.54
E1/3	FY78	145	395	0.35
E1/3	FY79	162	419	0.36
E1/3	FY80	125	314	0.34
E1/3	FY81	116	356	0.33
E1/3	FY82	110	388	0.27

---- DUTYTYPE=SEA RATING=COMMUNICATIONS AND INTELLIGENCE -----

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	6374	12234	0.51
TOTAL	FY79	6787	11527	0.56
TOTAL	FY80	6212	10988	0.55
TOTAL	FY81	6344	10806	0.58
TOTAL	FY82	5414	11248	0.49
E7/9	FY78	677	1100	0.59
E7/9	FY79	671	974	0.64
E7/9	FY80	543	938	0.56
E7/9	FY81	592	1017	0.59
E7/9	FY82	538	1092	0.51
E5/6	FY78	2695	4621	0.58
E5/6	FY79	2763	4099	0.63
E5/6	FY80	2543	4392	0.61
E5/6	FY81	2879	4136	0.67
E5/6	FY82	2538	4376	0.59
E4	FY78	1822	3467	0.58
E4	FY79	2212	3348	0.66
E4	FY80	2060	3290	0.63
E4	FY81	1880	3080	0.63
E4	FY82	1389	3033	0.49
E1/3	FY78	1180	3046	0.34
E1/3	FY79	1141	3106	0.35
E1/3	FY80	1066	2368	0.38
E1/3	FY81	993	2573	0.37
E1/3	FY82	949	2747	0.33

---------- DUTYTYPE=SEA ACTIVITY=AMPHIBIOUS SHIPS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	11120	24389	0.45
TOTAL	FY79	12564	23652	0.51
TOTAL	FY80	12782	23525	0.54
TOTAL	FY81	12752	23608	0.53
TOTAL	FY82	11575	24489	0.47
E7/9	FY78	818	1355	0.61
E7/9	FY79	827	1264	0.63
E7/9	FY80	775	1181	0.64
E7/9	FY81	642	1226	0.54
E7/9	FY82	635	1300	0.50
E5/6	FY78	3021	5725	0.56
E5/6	FY79	3743	5379	0.66
E5/6	FY80	3719	5048	0.73
E5/6	FY81	3446	5010	0.70
E5/6	FY82	2961	5686	0.55
E4	FY78	2661	5705	0.53
E4	FY79	3520	5771	0.62
E4	FY80	3597	5684	0.65
E4	FY81	3420	5558	0.65
E4	FY82	2900	5532	0.58
E1/3	FY78	1704	5411	0.30
E1/3	FY79	1788	5749	0.31
E1/3	FY80	1899	5467	0.34
E1/3	FY81	2185	5597	0.36
E1/3	FY82	2164	6103	0.35
NONRATED	FY78	2916	6193	0.41
NONRATED	FY79	2686	5489	0.45
NONRATED	FY80	2792	6145	0.46
NONRATED	FY81	3059	6217	0.46
NONRATED	FY82	2915	5868	0.44

---------- DUTYTYPE=SEA ACTIVITY=CARRIERS CV ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	12176	26052	0.46
TOTAL	FY79	12636	24630	0.49
TOTAL	FY80	12327	24103	0.50
TOTAL	FY81	12478	24315	0.51
TOTAL	FY82	11154	24784	0.45
E7/9	FY78	748	1215	0.59
E7/9	FY79	735	1086	0.66
E7/9	FY80	625	961	0.61
E7/9	FY81	532	1051	0.54
E7/9	FY82	531	1200	0.48
E5/6	FY78	3225	5243	0.61
E5/6	FY79	3413	4634	0.69
E5/6	FY80	3050	4525	0.67
E5/6	FY81	2815	4645	0.64
E5/6	FY82	2771	5201	0.56
E4	FY78	2985	5818	0.59
E4	FY79	3590	5619	0.65
E4	FY80	3676	5911	0.67
E4	FY81	3617	6028	0.66
E4	FY82	2939	5867	0.56
E1/3	FY78	1909	6057	0.30
E1/3	FY79	1858	6370	0.29
E1/3	FY80	1837	5836	0.29
E1/3	FY81	2120	5730	0.34
E1/3	FY82	1998	5852	0.32
NONRATED	FY78	3309	7719	0.38
NONRATED	FY79	3040	6921	0.40
NONRATED	FY80	3139	6870	0.44
NONRATED	FY81	3394	6861	0.46
NONRATED	FY82	2915	6664	0.40

---------- DUTYTYPE=SEA ACTIVITY=CARRIERS CVN ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	3167	8312	0.37
TOTAL	FY79	3502	8315	0.42
TOTAL	FY80	3846	8536	0.46
TOTAL	FY81	4129	10102	0.43
TOTAL	FY82	4116	11169	0.37
E7/9	FY78	273	374	0.65
E7/9	FY79	213	376	0.59
E7/9	FY80	207	365	0.55
E7/9	FY81	195	449	0.47
E7/9	FY82	176	533	0.36
E5/6	FY78	1244	2354	0.52
E5/6	FY79	1260	2133	0.56
E5/6	FY80	1208	2264	0.56
E5/6	FY81	1224	2496	0.52
E5/6	FY82	1156	2933	0.41
E4	FY78	633	1638	0.43
E4	FY79	799	2114	0.45
E4	FY80	1078	2120	0.53
E4	FY81	1139	2104	0.58
E4	FY82	903	2551	0.43
E1/3	FY78	340	1632	0.20
E1/3	FY79	413	1496	0.25
E1/3	FY80	407	1422	0.28
E1/3	FY81	530	2071	0.30
E1/3	FY82	693	2216	0.29
NONRATED	FY78	677	2314	0.27
NONRATED	FY79	817	2196	0.35
NONRATED	FY80	946	2365	0.41
NONRATED	FY81	1041	2982	0.35
NONRATED	FY82	1188	2936	0.37

---------- DUTYTYPE=SEA ACTIVITY=CRUISERS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	5848	13733	0.42
TOTAL	FY79	6822	12991	0.50
TOTAL	FY80	7797	11214	0.65
TOTAL	FY81	5694	11142	0.51
TOTAL	FY82	4740	11573	0.41
E7/9	FY78	494	884	0.54
E7/9	FY79	556	740	0.68
E7/9	FY80	487	672	0.67
E7/9	FY81	356	695	0.52
E7/9	FY82	338	709	0.47
E5/6	FY78	2055	4280	0.50
E5/6	FY79	2484	3951	0.60
E5/6	FY80	2637	3518	0.71
E5/6	FY81	2001	3620	0.57
E5/6	FY82	1845	3993	0.47
E4	FY78	1358	3325	0.43
E4	FY79	1785	3383	0.55
E4	FY80	1980	2976	0.65
E4	FY81	1432	2799	0.52
E4	FY82	1055	2799	0.42
E1/3	FY78	915	2943	0.28
E1/3	FY79	958	2759	0.32
E1/3	FY80	1404	2095	0.57
E1/3	FY81	900	2113	0.40
E1/3	FY82	753	2408	0.31
NONRATED	FY78	1026	2301	0.40
NONRATED	FY79	1039	2158	0.44
NONRATED	FY80	1289	1953	0.63
NONRATED	FY81	1005	1915	0.49
NONRATED	FY82	749	1664	0.38

---------- DUTYTYPE=SEA ACTIVITY=DESTROYERS DD ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	6392	13516	0.50
TOTAL	FY79	6743	13826	0.49
TOTAL	FY80	7804	14283	0.56
TOTAL	FY81	7375	13449	0.52
TOTAL	FY82	6558	12786	0.49
E7/9	FY78	425	828	0.57
E7/9	FY79	485	853	0.56
E7/9	FY80	530	833	0.62
E7/9	FY81	467	786	0.57
E7/9	FY82	447	760	0.58
E5/6	FY78	1825	3781	0.55
E5/6	FY79	2127	3953	0.54
E5/6	FY80	2571	4133	0.66
E5/6	FY81	2627	3781	0.67
E5/6	FY82	2295	3722	0.60
E4	FY78	1704	3302	0.60
E4	FY79	1935	3508	0.58
E4	FY80	2173	3830	0.62
E4	FY81	1980	3716	0.55
E4	FY82	1621	3434	0.50
E1/3	FY78	1093	3007	0.36
E1/3	FY79	1122	3264	0.34
E1/3	FY80	1358	2949	0.42
E1/3	FY81	1131	2867	0.35
E1/3	FY82	1162	2809	0.39
NONRATED	FY78	1345	2598	0.48
NONRATED	FY79	1074	2248	0.44
NONRATED	FY80	1172	2538	0.47
NONRATED	FY81	1170	2299	0.45
NONRATED	FY82	1033	2061	0.42

---------- DUTYTYPE=SEA ACTIVITY=DESTROYERS DDG ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	6587	12817	0.49
TOTAL	FY79	6489	12008	0.51
TOTAL	FY80	6077	11645	0.51
TOTAL	FY81	6114	11920	0.51
TOTAL	FY82	5475	12295	0.45
E7/9	FY78	494	855	0.56
E7/9	FY79	514	754	0.64
E7/9	FY80	424	664	0.58
E7/9	FY81	387	709	0.56
E7/9	FY82	343	766	0.47
E5/6	FY78	1989	3499	0.59
E5/6	FY79	2145	3206	0.63
E5/6	FY80	2037	3155	0.65
E5/6	FY81	2086	3211	0.67
E5/6	FY82	1871	3500	0.55
E4	FY78	1654	3156	0.54
E4	FY79	1755	3241	0.56
E4	FY80	1752	3342	0.55
E4	FY81	1724	3317	0.54
E4	FY82	1362	3143	0.46
E1/3	FY78	1258	3296	0.34
E1/3	FY79	1206	3021	0.36
E1/3	FY80	998	2588	0.35
E1/3	FY81	970	2729	0.34
E1/3	FY82	1038	2949	0.34
NONRATED	FY78	1192	2011	0.50
NONRATED	FY79	869	1786	0.44
NONRATED	FY80	866	1896	0.46
NONRATED	FY81	947	1954	0.46
NONRATED	FY82	861	1937	0.41

---------- DUTYTYPE=SEA ACTIVITY=FRIGITES ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	7235	16247	0.44
TOTAL	FY79	8068	15573	0.50
TOTAL	FY80	8030	16543	0.50
TOTAL	FY81	8358	17097	0.49
TOTAL	FY82	7952	17683	0.45
E7/9	FY78	608	1093	0.55
E7/9	FY79	636	999	0.61
E7/9	FY80	572	988	0.56
E7/9	FY81	496	1113	0.48
E7/9	FY82	548	1094	0.50
E5/6	FY78	2367	4497	0.55
E5/6	FY79	2688	4248	0.60
E5/6	FY80	2682	4595	0.61
E5/6	FY81	2868	4793	0.61
E5/6	FY82	2699	5216	0.53
E4	FY78	1780	3897	0.49
E4	FY79	2168	4039	0.56
E4	FY80	2312	4558	0.56
E4	FY81	2314	4671	0.52
E4	FY82	1983	4481	0.47
E1/3	FY78	1239	4095	0.28
E1/3	FY79	1407	3976	0.33
E1/3	FY80	1325	3707	0.33
E1/3	FY81	1419	3728	0.35
E1/3	FY82	1508	4255	0.34
NONRATED	FY78	1241	2665	0.42
NONRATED	FY79	1169	2311	0.45
NONRATED	FY80	1139	2695	0.45
NONRATED	FY81	1261	2792	0.42
NONRATED	FY82	1214	2637	0.41

--------- DUTYTYPE=SEA ACTIVITY=MISCELLANEOUS SHIPS ---------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	3462	7096	0.49
TOTAL	FY79	3854	6685	0.55
TOTAL	FY80	3898	6266	0.61
TOTAL	FY81	3349	6196	0.53
TOTAL	FY82	3260	6382	0.52
E7/9	FY78	310	514	0.62
E7/9	FY79	316	492	0.63
E7/9	FY80	325	445	0.68
E7/9	FY81	272	470	0.59
E7/9	FY82	228	457	0.49
E5/6	FY78	1260	2327	0.56
E5/6	FY79	1396	2167	0.61
E5/6	FY80	1367	2015	0.66
E5/6	FY81	1164	1976	0.60
E5/6	FY82	1132	2088	0.56
E4	FY78	804	1591	0.57
E4	FY79	1011	1544	0.66
E4	FY80	1037	1496	0.73
E4	FY81	823	1487	0.58
E4	FY82	697	1533	0.53
E1/3	FY78	418	1207	0.33
E1/3	FY79	511	1165	0.40
E1/3	FY80	495	997	0.45
E1/3	FY81	420	936	0.40
E1/3	FY82	467	943	0.47
NONRATED	FY78	670	1457	0.40
NONRATED	FY79	620	1317	0.42
NONRATED	FY80	674	1313	0.50
NONRATED	FY81	670	1327	0.48
NONRATED	FY82	736	1361	0.48

---------- DUTYTYPE=SEA ACTIVITY=SUBMARINES SSN ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	3743	8378	0.45
TOTAL	FY79	3757	8723	0.43
TOTAL	FY80	3896	9149	0.43
TOTAL	FY81	4074	9696	0.43
TOTAL	FY82	3661	9834	0.37
E7/9	FY78	446	852	0.52
E7/9	FY79	486	836	0.57
E7/9	FY80	413	863	0.49
E7/9	FY81	442	985	0.47
E7/9	FY82	416	1061	0.40
E5/6	FY78	2234	4578	0.48
E5/6	FY79	2125	4572	0.45
E5/6	FY80	2134	4680	0.46
E5/6	FY81	2100	4903	0.45
E5/6	FY82	2027	5230	0.39
E4	FY78	602	1303	0.36
E4	FY79	675	1993	0.36
E4	FY80	752	2017	0.38
E4	FY81	682	2156	0.31
E4	FY82	621	2155	0.31
E1/3	FY78	302	803	0.36
E1/3	FY79	261	880	0.32
E1/3	FY80	372	867	0.42
E1/3	FY81	482	1057	0.45
E1/3	FY82	403	931	0.37
NONRATED	FY78	159	342	0.44
NONRATED	FY79	193	442	0.43
NONRATED	FY80	223	722	0.34
NONRATED	FY81	358	595	0.60
NONRATED	FY82	212	507	0.38

---------- DUTYTYPE=SEA ACTIVITY=SUBMARINES SSBN ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	4493	10495	0.43
TOTAL	FY79	5101	10347	0.49
TOTAL	FY80	5204	10260	0.50
TOTAL	FY81	6182	9115	0.62
TOTAL	FY82	4278	8751	0.49
E7/9	FY78	615	1092	0.55
E7/9	FY79	665	981	0.64
E7/9	FY80	564	942	0.58
E7/9	FY81	612	870	0.67
E7/9	FY82	412	897	0.47
E5/6	FY78	2546	5727	0.46
E5/6	FY79	2861	5281	0.52
E5/6	FY80	2896	5182	0.55
E5/6	FY81	3359	4778	0.67
E5/6	FY82	2423	4746	0.51
E4	FY78	824	2098	0.39
E4	FY79	887	2510	0.39
E4	FY80	1011	2649	0.39
E4	FY81	1251	2178	0.51
E4	FY82	779	1888	0.42
E1/3	FY78	239	782	0.31
E1/3	FY79	345	721	0.41
E1/3	FY80	310	567	0.48
E1/3	FY81	436	639	0.62
E1/3	FY82	333	538	0.53
NONRATED	FY78	269	796	0.33
NONRATED	FY79	343	854	0.40
NONRATED	FY80	423	920	0.44
NONRATED	FY81	524	650	0.63
NONRATED	FY82	331	682	0.47

---------- DUTYTYPE=SEA ACTIVITY=SUPPORT SHIPS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	6637	14118	0.46
TOTAL	FY79	7248	12866	0.53
TOTAL	FY80	7400	11778	0.60
TOTAL	FY81	6807	11269	0.58
TOTAL	FY82	5774	11359	0.48
E7/9	FY78	421	718	0.56
E7/9	FY79	447	611	0.68
E7/9	FY80	386	533	0.67
E7/9	FY81	293	575	0.54
E7/9	FY82	295	574	0.51
E5/6	FY78	1604	2853	0.57
E5/6	FY79	1843	2528	0.68
E5/6	FY80	1831	2282	0.77
E5/6	FY81	1642	2162	0.76
E5/6	FY82	1331	2453	0.56
E4	FY78	1606	3095	0.60
E4	FY79	1941	3041	0.66
E4	FY80	2126	2912	0.73
E4	FY81	1923	2473	0.77
E4	FY82	1321	2432	0.60
E1/3	FY78	848	2663	0.29
E1/3	FY79	1003	2620	0.36
E1/3	FY80	1048	2039	0.44
E1/3	FY81	962	2275	0.42
E1/3	FY82	960	2502	0.37
NONRATED	FY78	2138	4789	0.41
NONRATED	FY79	2014	4066	0.44
NONRATED	FY80	2009	4012	0.49
NONRATED	FY81	1982	3784	0.47
NONRATED	FY82	1867	3898	0.45

---------- DUTYTYPE=SEA ACTIVITY=TENDERS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	8446	17286	0.48
TOTAL	FY79	8439	16040	0.50
TOTAL	FY80	9450	19198	0.57
TOTAL	FY81	10091	19813	0.50
TOTAL	FY82	10920	18825	0.56
E7/9	FY78	744	1362	0.54
E7/9	FY79	801	1226	0.62
E7/9	FY80	769	1322	0.64
E7/9	FY81	733	1455	0.52
E7/9	FY82	830	1339	0.59
E5/6	FY78	2743	5174	0.53
E5/6	FY79	2846	4665	0.57
E5/6	FY80	3046	5621	0.64
E5/6	FY81	3297	5688	0.58
E5/6	FY82	3650	5718	0.64
E4	FY78	1807	3533	0.55
E4	FY79	1878	3691	0.54
E4	FY80	2499	4789	0.64
E4	FY81	2788	4721	0.60
E4	FY82	2671	4356	0.66
E1/3	FY78	1431	3684	0.37
E1/3	FY79	1363	3398	0.37
E1/3	FY80	1424	3616	0.42
E1/3	FY81	1461	3850	0.36
E1/3	FY82	1814	3952	0.43
NONRATED	FY78	1721	3533	0.44
NONRATED	FY79	1551	3060	0.46
NONRATED	FY80	1712	3850	0.50
NONRATED	FY81	1812	4099	0.42
NONRATED	FY82	1955	3460	0.47

---------- DUTYTYPE=SEA ACTIVITY=HELICOPTORS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	1606	3925	0.42
TOTAL	FY79	1738	3642	0.45
TOTAL	FY80	1607	3490	0.46
TOTAL	FY81	1557	3895	0.42
TOTAL	FY82	1427	4100	0.36
E7/9	FY78	190	288	0.62
E7/9	FY79	169	230	0.66
E7/9	FY80	117	214	0.53
E7/9	FY81	110	259	0.49
E7/9	FY82	127	272	0.48
E5/6	FY78	708	1513	0.50
E5/6	FY79	844	1306	0.59
E5/6	FY80	786	1161	0.65
E5/6	FY81	743	1174	0.63
E5/6	FY82	618	1375	0.48
E4	FY78	407	1057	0.41
E4	FY79	491	1030	0.48
E4	FY80	472	970	0.50
E4	FY81	418	1174	0.44
E4	FY82	374	1170	0.35
E1/3	FY78	176	763	0.23
E1/3	FY79	135	782	0.16
E1/3	FY80	144	804	0.18
E1/3	FY81	158	815	0.17
E1/3	FY82	184	881	0.20
NONRATED	FY78	125	304	0.38
NONRATED	FY79	99	294	0.31
NONRATED	FY80	88	341	0.28
NONRATED	FY81	128	473	0.29
NONRATED	FY82	124	402	0.26

------- DUTYTYPE=SEA ACTIVITY=RECONNAISSANCE SQUADRONS -------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	1674	4851	0.36
TOTAL	FY79	2228	4771	0.45
TOTAL	FY80	2031	4755	0.42
TOTAL	FY81	2027	4501	0.43
TOTAL	FY82	1872	4625	0.41
E7/9	FY78	182	393	0.47
E7/9	FY79	233	340	0.63
E7/9	FY80	188	286	0.59
E7/9	FY81	143	311	0.48
E7/9	FY82	146	368	0.43
E5/6	FY78	850	1965	0.45
E5/6	FY79	1068	1742	0.57
E5/6	FY80	926	1770	0.53
E5/6	FY81	890	1602	0.53
E5/6	FY82	836	1652	0.51
E4	FY78	399	1315	0.33
E4	FY79	652	1242	0.51
E4	FY80	553	1278	0.47
E4	FY81	568	1233	0.48
E4	FY82	504	1190	0.47
E1/3	FY78	146	860	0.17
E1/3	FY79	188	1005	0.19
E1/3	FY80	216	847	0.22
E1/3	FY81	250	803	0.27
E1/3	FY82	197	900	0.22
NONRATED	FY78	97	318	0.26
NONRATED	FY79	87	442	0.23
NONRATED	FY80	148	574	0.27
NONRATED	FY81	176	552	0.28
NONRATED	FY82	189	515	0.34

---------- DUTYTYPE=SEA ACTIVITY=ATTACK SQUADRONS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	3750	8992	0.41
TOTAL	FY79	4476	8159	0.51
TOTAL	FY80	3763	8453	0.45
TOTAL	FY81	3894	8893	0.44
TOTAL	FY82	3616	9288	0.40
E7/9	FY78	333	595	0.54
E7/9	FY79	393	437	0.75
E7/9	FY80	234	407	0.55
E7/9	FY81	211	469	0.48
E7/9	FY82	232	540	0.47
E5/6	FY78	1633	2967	0.54
E5/6	FY79	1994	2480	0.73
E5/6	FY80	1544	2490	0.62
E5/6	FY81	1552	2430	0.64
E5/6	FY82	1416	2648	0.55
E4	FY78	1038	2523	0.42
E4	FY79	1314	2045	0.59
E4	FY80	1138	2363	0.55
E4	FY81	1195	2428	0.53
E4	FY82	990	2400	0.47
E1/3	FY78	345	1780	0.19
E1/3	FY79	436	2139	0.21
E1/3	FY80	458	1777	0.22
E1/3	FY81	478	2074	0.23
E1/3	FY82	499	2275	0.21
NONRATED	FY78	401	1127	0.34
NONRATED	FY79	339	1058	0.30
NONRATED	FY80	389	1416	0.30
NONRATED	FY81	458	1492	0.28
NONRATED	FY82	479	1425	0.31

---------- DUTYTYPE=SEA ACTIVITY=FIGHTER SQUADRONS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	4094	8725	0.46
TOTAL	FY79	4182	8093	0.49
TOTAL	FY80	3776	8001	0.46
TOTAL	FY81	3728	8539	0.44
TOTAL	FY82	3552	8774	0.41
E7/9	FY78	396	563	0.65
E7/9	FY79	355	447	0.69
E7/9	FY80	258	373	0.61
E7/9	FY81	194	439	0.47
E7/9	FY82	234	468	0.50
E5/6	FY78	1855	2890	0.61
E5/6	FY79	1801	2485	0.67
E5/6	FY80	1655	2285	0.70
E5/6	FY81	1442	2314	0.64
E5/6	FY82	1434	2457	0.58
E4	FY78	1039	2506	0.44
E4	FY79	1322	2126	0.58
E4	FY80	1079	2311	0.52
E4	FY81	1120	2562	0.50
E4	FY82	993	2454	0.44
E1/3	FY78	442	1591	0.24
E1/3	FY79	323	1885	0.18
E1/3	FY80	392	1655	0.21
E1/3	FY81	463	1823	0.23
E1/3	FY82	471	2031	0.22
NONRATED	FY78	362	1175	0.34
NONRATED	FY79	381	1150	0.32
NONRATED	FY80	392	1377	0.29
NONRATED	FY81	509	1401	0.33
NONRATED	FY82	420	1364	0.28

---------- DUTYTYPE=SEA ACTIVITY=PATROL SQUADRONS ----------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	2586	7305	0.36
TOTAL	FY79	3024	6779	0.43
TOTAL	FY80	2638	6923	0.38
TOTAL	FY81	2650	7265	0.37
TOTAL	FY82	2434	7675	0.33
E7/9	FY78	370	756	0.48
E7/9	FY79	417	587	0.62
E7/9	FY80	257	536	0.45
E7/9	FY81	263	597	0.47
E7/9	FY82	236	626	0.38
E5/6	FY78	1386	3074	0.45
E5/6	FY79	1551	2699	0.54
E5/6	FY80	1327	2951	0.47
E5/6	FY81	1308	3080	0.44
E5/6	FY82	1275	3209	0.40
E4	FY78	552	1674	0.35
E4	FY79	687	1819	0.40
E4	FY80	689	2005	0.37
E4	FY81	700	1912	0.38
E4	FY82	536	1905	0.31
E1/3	FY78	163	1130	0.14
E1/3	FY79	222	1079	0.19
E1/3	FY80	193	830	0.19
E1/3	FY81	190	908	0.19
E1/3	FY82	200	1158	0.18
NONRATED	FY78	115	671	0.18
NONRATED	FY79	147	595	0.22
NONRATED	FY80	172	601	0.27
NONRATED	FY81	189	768	0.25
NONRATED	FY82	187	777	0.23

------- DUTYTYPE=SEA ACTIVITY=MISCELLANEOUS SQUADRONS --------

PAYGRADE	FY	LOSSES	ES	TURNOVER
TOTAL	FY78	780	1934	0.42
TOTAL	FY79	798	1327	0.47
TOTAL	FY80	521	1461	0.37
TOTAL	FY81	670	1345	0.48
TOTAL	FY82	507	1335	0.39
E7/9	FY78	88	204	0.44
E7/9	FY79	108	130	0.62
E7/9	FY80	59	129	0.42
E7/9	FY81	65	143	0.49
E7/9	FY82	58	136	0.43
E5/6	FY78	355	766	0.49
E5/6	FY79	336	534	0.50
E5/6	FY80	226	578	0.41
E5/6	FY81	290	523	0.53
E5/6	FY82	234	517	0.45
E4	FY78	208	416	0.52
E4	FY79	201	343	0.53
E4	FY80	141	371	0.41
E4	FY81	180	383	0.52
E4	FY82	124	356	0.36
E1/3	FY78	90	402	0.23
E1/3	FY79	100	243	0.27
E1/3	FY80	61	260	0.23
E1/3	FY81	69	186	0.27
E1/3	FY82	57	227	0.27
NONRATED	FY78	39	146	0.24
NONRATED	FY79	53	77	0.43
NONRATED	FY80	34	123	0.33
NONRATED	FY81	66	110	0.54
NONRATED	FY82	34	99	0.30

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