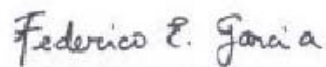# A Review of the US Coast Guard's Chief Warrant Officer (CWO) Specialties

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Contents

Summary and Introduction

Background

The Coast Guard has significantly restructured its enlisted workforce based on the results of the Joint Rating Review (JRR). The JRR, which concluded in July 2003, combined several enlisted ratings to establish four new ratings: Information Systems Technician (IT), Operations Specialist (OS), Electronics Technician (ET), and Boatswains Mate (BM)[1]. This process also did away with five enlisted ratings (Fire Control Technician (FT), Quartermaster (QM), Radarman (RD), Telecommunications Specialist (TC), and Telephone Technician (TT).

The JRR, though, did not specifically address accession paths to chief warrant officer (CWO) for the new ratings. Thus, the enlisted restructuring may have had unintended effects on the CWO corps. In addition, changes in technology and a rapid expansion of missions have led to changes in the work performed by warrant officers.

The CWO community has a long history of serving the United States Coast Guard. A new effort, similar to the JRR, was required for CWOs—to identify the effects on the CWO community from changes in enlisted to CWO career paths, as well as occupational boundaries, the effects of future missions, and other issues in support of the Future Force 21 workforce initiatives. Therefore, the Coast Guard's Assistant Commandant for Human Resources asked the Center for Naval Analyses to evaluate the CWO specialty structure and make recommendations to strengthen the CWO corps.

Tasking

As part of this effort, the Coast Guard asked CNA to address the following questions:

- What is the current role of a CWO and what new competencies will CWOs need in the future?
- Is the CWO force adequately trained?
  - What training is applicable across specialties?
  - Where are the most important training deficiencies?
- Should the current CWO specialty structure be revised?
  - Should any specialties be combined?
  - Should new specialties be created?
  - What should the source ratings be for each specialty?
- Does the Coast Guard need a CWO-5 paygrade?

Procedure

To address these questions, we first produced a comprehensive inventory of the work performed by CWOs, using a web-based competency analysis methodology to gather data from Coast Guard personnel representing the different specialties. A panel of experts then provided input on how future USCG missions will impact the work performed by CWOs.

Results

Conclusions

Our analysis revealed the following:

- Work performed in each specialty is largely different from that performed in other specialties.

- There are enough people and work to staff a Marine Safety specialty.

- There are not enough people and work to staff an IT specialty.

  — However, the Coast Guard will need high-level IT expertise in the future.

  — Some Communications CWOs are doing lower-level IT work and, as a group, they see a less clear career path than members of other specialties.

- Potential new enlisted feeder ratings exist for some CWO specialties.

- Two broad competencies—Personnel Management and Development and Business Administration—cross most CWO specialties, but personnel are inadequately trained.

- For most specialties, a CWO's role is roughly half technical oriented and half leadership oriented. Changing roles for CWOs reflect new information technology in both operational and administrative areas. Emerging work requirements for CWOs reflect future emphasis on national defense, particularly port security.

- There is insufficient evidence to support adding a W-5 paygrade.

Recommendations

Based on these findings, we recommend that the Coast Guard consider the following:

- Do not combine CWO specialties.

- Establish a Marine Safety specialty, drawing personnel from the Engineering, Materiel, and Weapons specialties, and drawing new Marine Safety CWOs from the MK and MST enlisted ratings.

- Manage the IT community to ensure that members have clear, suitable career paths.

- Consider adding IT as a source rating for the Communications (COMM) specialty.

- Train CWOs—before accession—in the areas of Personnel Management and Business Administration.

- Do not add a W-5 paygrade at this time.

Organization of this report

This report is organized as follows:

- The first section describes the data we collected and the analysis techniques used to address the study questions.

- The second section discusses our findings, in the following order:

  — Specialty structure

  — Feeder ratings

  — Training

  — Future requirements.

We discuss our recommendations at end at the second section.

Data collection and analysis methodology

Data collection

CWO specialties

CWOs currently belong to one of 14 specialties. Table 1 lists the Active and Reserve population in each specialty.

Table 1.   USCG CWO population by specialty

Specialty	Active	Reserve
Aviation Aircraft Maintenance (AVI)	77	
Bandmaster (BNDM)	3	
Boatswain (BOSN)	301	27
Communications (COMM)	98	14
Electronics (ELC)	137	9
Engineering (ENG)	367	38
Finance and Supply (F&S)	161	26
Information Officer (INF)	10	1
Materiel (MAT)	100	6
Medical Admin (MED)	22	4
Personnel (PERS)	148	26
Port Safety and Security (PSS)[a]		64
Physician's Assistant (PYA)	1	
Weapons (WEPS)	48	
Total	1,473	215

a. Port Safety and Security is a Reserve-only specialty.

In this study we looked at all CWO specialties except Bandmaster (BNDM) and Physician's Assistant (PYA), which have very small populations (fewer than ten). Our study was expanded to include the Investigator and Detailer CWO communities, which draw members from several specialties.

Job families

We defined a total of 23 separate "job families" that support the 14 CWO specialties (see table 2). In most cases, job families are major segments of the CWO specialties. For example, the Engineering specialty is made up of the Engineering Afloat-Marine Safety and Engineering Support job families. We included Investigators and Detailers (which draw members from several specialties) as separate job families. Data collection by job family ensured a more detailed and comprehensive description of the work elements.

Table 2.   CWO Job families and functional areas

Job family	Functional areas[a]
Aviation (AVI) Aircraft Maintenance Fixed-wing	C-130 Maintainer, Intermediate-level maintenance (avionics/electronics), ARSC support ('62' Occ Field Code)
Aviation (AVI) Aircraft Maintenance Rotary-wing	HH-65 Maintainer, Intermediate-level maintenance (avionics/electronics), ARSC support ('62' Occ Field Code)
Boatswain (BOSN) Line	Marine Safety, Command, First LT and Deck Officer, Navigation, Operations
Boatswain (BOSN) Staff - Marine Safety	Staff (Group, Districts, Areas), Marine Safety
Communications (COMM) and Information Systems	Information Systems, Communications, Systems Security
Communications (COMM) Staff	Security Manager, Plans and Policy (project work such as AC&I), Classified Systems Management
Detailers	Duty assignments
Electronics (ELC) Afloat	EMO Afloat
Electronics (ELC) Support	LORAN Station, ESD/ESU, Staff (Group, Districts, Areas), C2CEN & TISCOM Staff, AC&I Project Management
Engineering (ENG) Afloat - Marine Safety	Main Propulsion Assistant (MPA), Engineer Officer, Marine Safety
Engineering (ENG) Support	Marine Safety, Group Engineer Officer, NESU/MAT, Engineering Project Management (AC&I), MLC
Finance and Supply (F&S) Afloat	Supply Officer Afloat
Finance and Supply (F&S) Ashore	Supply Officer Ashore, Logistics Support & Supply Chain Management, Finance, MWR Financial/Regional Manager (ISC, exchange), Project Management

Table 2.   CWO Job families and functional areas (continued)

Job family	Functional areas[a]
Information Officer (INF) Media Motion Pictures Relations	Motion Pictures Relations/Liaison, Media Management (print, broadcast, photography)
Information Officer (INF) Public Affairs	Public Affairs, Recruiting (promotion, advertising), Strike Force, COMDT
Investigators	Criminal investigations
Materiel (MAT) Marine Safety	Marine Safety (Inspection, Certification), Group Engineer (engineering safety)
Materiel (MAT) Civil Engineering	Civil Engineer, Construction Planner
Materiel (MAT) Facilities	Public Works, Facilities Manager (base housing)
Medical Administration (MED)	Clinical Administration, Staff Medical Administration (plans, policy), Health and Safety ("K" functions)
Personnel (PERS) Administration	Personnel Administration, Personnel Services, Staff NESU/MSO admin), Transportation, Legal, Compliance
Port Safety and Security (PSS)	Port Security, Expeditionary Warfare Units (PSUs), Marine Safety
Weapons (WEPS)	Ordnance (range/armory), ELC/NESU Staff, Marine Safety

a. Functional areas for each job family were supplied by the Coast Guard at the beginning of this study.

SkillObjects

We then compiled sets of "SkillObjects" that constitute each of the job families. SkillObjects[1] are families of tasks[2] that are performed on the job together, are trained together, or are evaluated in a similar fashion. Each SkillObject contains a set of specific knowledge, skills, abilities, and tools (KSATs). The KSATs represent some of the most important worker competencies:

1. "SkillObjects" is a registered trademark of The SkillsNET Corporation.

2. Tasks are activities that are done to produce a product or service. They are work functions that typically have a beginning and an end and that are observable. Task statements are made up of one verb, one or more nouns and, in many cases, object and statement modifiers to add specificity.

- *Knowledge.* The U.S. Department of Labor's Occupational Information Network (O*NET) defines knowledge as an organized set of facts and principles necessary for successful job performance (i.e., information that workers need to know to perform their tasks).[3] In this study, knowledge items include processes, procedures, and guidelines, such as technical manuals and Coast Guard instructions. Examples of knowledge items are "Casualty Control Procedures" and "MLC Standard Operating Procedures."

- *Skills.* O*NET defines skills as work capabilities obtained from training or experience. O*NET spells out 46 basic and cross-functional skills. Examples of basic skills are reading comprehension and critical thinking. Cross-functional skills cover the following: solving problems, working with technology, working with people, working within an organizational system, and working with resources.

- *Abilities.* O*NET defines abilities as work capabilities independent of training or experience. Abilities are personal traits, such as finger dexterity and originality, which tend to be stable over long periods of time.

- *Tools.* Tools consist of resources needed to perform the tasks. Tools can be software, such as Microsoft Word, or actual tangible devices.

It is at this level—the SkillObject level—that we perform our analyses of the CWO function. The procedure for determining the SkillObjects is described below.

Step 1—Description of the tasks performed

Three to five CWOs, senior enlisted personnel, and O3Es representing each job family reviewed tasks from an existing task inventory and identified the tasks they perform. We obtained the baseline task

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3. O*NET is the Department of Labor's occupational information system used to reflect the character of occupations (via job-oriented descriptors) and people (via worker-oriented descriptors). More information can be found on the O*NET Consortium web site: www.onetcenter.org.

inventory by culling data from existing Coast Guard occupational standards, JRR content descriptions, enlisted qualifications, and other available occupational documentation.

Then, participants selected from 6 to 12 Generalized Work Activities (GWAs) from a list of 42 defined by O*NET. The GWAs describe jobs in broad types of behaviors. Examples of GWAs are "interacting with computers" and "inspecting equipment, structures, or materials." Based on their selection of GWAs, the software gave participants a set of verbs and nouns with which to build task statements. The software also allowed participants to enter their own verbs and nouns. Participants added verb and statement modifiers to add specificity. Finally, participants described the tools and knowledge items relevant to their jobs.

Step 2—Review of the tasks and skill/ability linkage

We combined the tasks, tools, and knowledge into a single list for each job family, combined those with similar wording, and removed redundant items. After this, CWO subject matter experts (SMEs) (about three per job family) reviewed the list, clarified wording, and added work elements missing from the list.

The SMEs ensured that the tasks, tools, and knowledge accurately represented the work performed in their jobs. Following the review, CNA skill analysts identified the primary enabling skills and abilities required for each task.

Step 3—Identification of SkillObjects and assignment of tools and knowledge

A new set of SMEs (one per job family) then clustered the tasks into groups that are performed on the job together, trained together, or evaluated in a similar fashion. The SMEs then assigned a meaningful title to each task cluster, and identified tools and knowledge items to each.

Step 4—SkillObject editing

CNA skill analysts prepared a clean list of clusters with the tools and knowledge links. They also reviewed the clusters, cluster names, tools, and knowledge. They clarified wording of cluster names, tools, and knowledge; when necessary, they added items to the list.

Step 5—Survey to rate the workload, criticality, and training of tasks

In our final step, during October–December 2003, we conducted a task survey of CWOs, senior enlisted personnel, and O3Es representing the various job families. Through this survey, we collected the following data about each task:

- Frequency of performance—a 5-point scale indicating the number of times the respondents performed the task in the past year.

- Time spent on task—a 5-point scale indicating the amount of time the respondent performed the task compared to most other tasks.

- Criticality of task—a 5-point-scale indicating how serious the consequences are for poor performance of the task, ranging from "no consequences" to "catastrophic."

- Training for task—We asked respondents whether they had adequate training for each task. We used the responses to this question to determine the training gaps for each task and Skill-Object.

Participants used the web-based SkillsNET software for the steps described above. For the task survey (step 5), we also provided an off-line, stand-alone version, so that personnel on ships with infrequent connectivity could participate.

Background survey

We also administered a background survey to a sample of CWOs, senior enlisted personnel, and O3Es. This survey was an add-on to the task survey explained above. As with the task survey, we provided an off-line version of this survey for ships with infrequent connectivity.

The background survey supplemented the task survey data with relevant information, such as demographic data, formal training received, and attitudes regarding training and career path.

To obtain additional information—including current rate and unit—we matched the survey data to the electronic personnel files of September 2003. To match the records, we used a combination of the participants' last names and the last four digits of their social security numbers.

Resulting data set

Overall, we received more than 1,900 completed surveys, nearly 800 of them from CWOs. Roughly 45 percent of active and reserve CWOs participated. Table 3 shows CWO participation in our survey by specialty.

Table 3. CWO survey participation by specialty

Specialty	CWO participation (percent of population)
Medical Admin (MED)	58
Aviation Aircraft Maintenance (AVI)	56
Materiel (MAT)	55
Electronics (ELC)	53
Engineering (ENG)	53
Weapons (WEPS)	50
Finance and Supply (F&S)	43
Boatswain (BOSN)	41
Personnel (PERS)	41
Communications (COMM)	38
Port Safety and Security (PSS)	33
Information Officer (INF)	27

For the purposes of this study, participant sample size was adequate for all but the INF specialty (which had only three responses). We note the small sample size in the sections of this report where we refer to the INF specialty. Participation of E-7 to E-9s and O3Es was more limited (both less than 20 percent of their total populations), so the analyses involving these groups were limited accordingly.

The final work inventory consisted of 4,386 tasks belonging to 572 SkillObjects. The number of SkillObjects per job family ranged from 8 in Detailer to 44 in Boatswain Line. The number of tasks per job family ranged from 88 in Medical Administration to 310 in Boatswain Line.

Analysis methodology

Calculating workload

To better understand the scope of the CWO work, it was necessary to evaluate the time spent in each SkillObject. We did this by deriving a relative measure of workload for each of the SkillObjects. This measure takes into account how many people said, "I perform the task," the frequency of performance, the duration of performance, and the number of tasks in each SkillObject.

We measured workload using a 25-point workload scale that combined survey responses to frequency and duration of task performance, both of which are based on 5-point scales. We measured frequency through responses to the question, "How often do you typically perform this task?" We measured duration through responses to the question, "How much time did you, yourself, spend on this task the last time you performed it?"

We then summed the workload scores for each task. For each Skill-Object, we determined a workload score by summing the workload scores of all the tasks. Each SkillObject's workload is reported as a percentage of the total workload (of the specialty, job family, or individual, depending on the analysis).

We computed workloads at the SkillObject level as a percentage of the specialty. For example, Vessel Equipment Inspection is 12 percent of the workload for the MAT Specialty. We assumed that participants were representative of their specialties, and extrapolated results to the CWO force using each job family's relative measures of the population and sample sizes. Appendix A shows the CWO workloads for all SkillObjects.

Identifying SkillObjects for which a high level of performance is critical

We identified critical SkillObjects by responses to the question: "How serious are the consequences of poor performance?" The 5-point rating scale included no consequences (1), minor (2), marginal (3), major (4), and catastrophic (5). We defined "high-performance criticality" as those SkillObjects having an average score of 3.5 or above, which included approximately the top one-fifth of all the Skill-Objects, and was about 1 standard deviation above the mean. This resulted in 103 high-performance critical SkillObjects (out of 534).[4]

Which SkillObjects are the most performance critical? Here are some examples of SkillObjects with the highest performance criticality in their job families (appendix A shows all of the critical SkillObjects):

- *Mechanic equipment installation* (Aviation Aircraft Maintenance Rotary Wing)

- *Deck Watch Operations* (Boatswain Line)

- *Electronic Key Management System* (Communications and Information Systems)

- *Trend Analysis* (Engineering Afloat–Marine Safety)

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4. Out of 572 SkillObjects, 534 had at least one positive response from a CWO in the survey data (i.e., at least one CWO who participated in the survey did at least one of the tasks in that SkillObject). The remaining SkillObjects were largely in the Detailer and Information Officer–Media Motion Picture Relations job families; no CWOs in those families participated in these surveys.

- *Work Relationship Development* (Information Officer Public Affairs)

- *Firing Plan Preparation* (Weapons).

Panel of experts

A panel of experts comprising captains, commanders, program managers, CWOs, and enlisted leaders was asked to assess how future USCG missions will impact the work performed by CWOs.[5] The panel reviewed the "as is" SkillObjects data and identified emerging Skill-Objects for CWOs, i.e., those competencies that CWOs will need to have in the future. The panel also identified organizational expectations for the roles of CWOs.

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5. Specifically, participants in the Panel of Experts sessions were the following: two captains, two civilian GS-15s, five commanders, three lieutenant commanders, one lieutenant (O3E), one CWO, and three master chiefs.

Findings

Specialty structure

Need to combine specialties

To assess whether specialties should be combined, we looked at the work performed by each job family as compared to every other job family. We first calculated the CWO workload for each SkillObject in the job families identified. We then identified SkillObjects that were common to two or more job families.

In each case where two job families performed the same SkillObject, we noted the match as a percentage of workload. For example, "Work Coordination" represents 12 percent of a PSS CWO's workload, so every job family where CWOs also do "Work Coordination" was noted as a 12-percent match with PSS. We then summed the percentage matches between all job families.

Of all the job family pairings, BOSN Line–PSS was by far the largest match at 62 percent; this was due to common SkillObjects in the areas of leadership and Port Security. No other match (between job families from different specialties) exceeded 46 percent (see table 4).

Table 4. Top workload matches[a] between job families belonging to different specialties

Source job family	Matching job family	Workload match (percent)
Port Safety and Security (PSS)	Boatswain Line (BOSN)	62
Electronics Support (ELC)	Boatswain Line (BOSN)	46
Port Safety and Security (PSS)	Aviation Aircraft Maintenance Rotary Wing (AVI)	44
Electronics Support (ELC)	Materiel Marine Safety (MAT)	43
Port Safety and Security (PSS)	Electronics Support (ELC)	43
Port Safety and Security (PSS)	Information Officer (Public Affairs)	43
Port Safety and Security (PSS)	Information Officer Media Motion Picture Relations (INF)	43
Port Safety and Security (PSS)	Boatswain Staff-Marine Safety (BOSN)	40
Electronics Support (ELC)	Boatswain Staff-Marine Safety (BOSN)	38
Electronics Support (ELC)	Aviation Aircraft Maintenance Rotary Wing (AVI)	38
Electronics Support (ELC)	Information Officer (Public Affairs)	38
Finance and Supply Ashore (F&S)	Communications & Information Systems (COMM)	37
Port Safety and Security (PSS)	Weapons (WEPS)	37
Electronics Support (ELC)	Engineering Support (ENG)	37
Communications Staff (COMM)	Boatswain Staff-Marine Safety (BOSN)	36
Port Safety and Security (PSS)	Materiel Marine Safety (MAT)	35

a. We calculated the workload match by summing the workloads of SkillObjects from the source job family that are also performed in the matching job family.

We should note that common SkillObjects between specialties were largely in leadership and administrative (versus technical) areas. We concluded from this that the technical work performed in each specialty is largely different from that performed in other specialties.

Need for new specialties

We were asked to assess whether the Coast Guard should create new CWO specialties. In particular, the Coast Guard is considering adding two new specialties: Marine Safety and Information Technology. We looked at the work performed by members of these communities to determine whether there are enough people and work to staff distinct CWO specialties in these areas.

Marine safety

Marine safety work, including vessel inspections, is currently performed by CWOs in several specialties (BOSN, ELC[6], ENG, MAT, and

WEPS). To determine whether there is an adequate number of people and work to support a separate specialty, we looked at our survey data for 42 marine safety related SkillObjects (see Appendix B); 253 CWOs in our sample reported performing tasks in at least one of them.

We then calculated workloads in these SkillObjects for each of these 253 CWOs, and compared them to his/her total workload. Of these CWOs, 64 do more than half of their work in marine safety. Accounting for the relative sizes of our sample size and the entire CWO population, this extrapolates to 120 CWOs: 44 ENG, 58 MAT, and 18 WEPS.[7]

The average workload for an ENG CWO in these SkillObjects is 44 percent (standard deviation of 20 percent); for a MAT CWO, the average workload in these SkillObjects is 84 percent (standard deviation of 11 percent); for a WEPS CWO, it is 31 percent (standard deviation of 24 percent).[8]

Our data suggest that there is sufficient work and people to support a new Marine Safety specialty. If a Marine Safety specialty were established, with the personnel who do more than half their work in that area, the CWO end-strengths of the affected specialties would be as follows:

- ENG: 361 (405 CWOs currently, minus 44 to Marine Safety)

- MAT: 48 (106 CWOs currently, minus 48 to Marine Safety)

- WEPS: 30 (48 CWOs currently, minus 18 to Marine Safety).

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6. This is based on one SkillObject in the Electronics Afloat job family (Equipment and Machinery Inspections).

7. Although there are BOSN CWOs assigned to Marine Safety Offices (MSOs), we saw no instance of a BOSN CWO with greater than 50 percent of his/her workload in marine safety SkillObjects.

8. The standard deviations noted here reflect the variation in the marine safety workloads of the CWOs in their respective specialties.

Information technology

The Coast Guard is also considering adding a separate Information Technology CWO specialty to align with the recently added IT enlisted rating. The IT rating currently feeds the ELC specialty.

As we did for marine safety, we selected IT-related SkillObjects. Appendix C lists the 25 IT SkillObjects; 112 CWOs (in COMM and ELC) reported that they do tasks in at least one of them.

We then calculated workloads in the IT SkillObjects for each of these CWOs. According to the data, no CWO spends more than 50 percent of his/her time doing IT work. The average workload for a COMMS CWO in IT was 31 percent (standard deviation of 10 percent); for an ELC CWO, the average workload is 6 percent (standard deviation of 4 percent).

Unlike in Marine Safety, our data suggest that there is insufficient work to support a new IT specialty at this time. However, there are indications that the IT community—particularly the COMMS specialty—needs some attention.

Second, data from our background survey indicate that COMMS CWOs see a significantly less clear career path in their specialty than other CWOs. We asked survey participants their level of agreement with the following statement: "I have a clearly defined career path." Respondents picked their choices from a 5-point scale, where "Strongly Agree" equals 5 and "Strongly Disagree" equals 1. Figure 1 shows the average responses for CWOs from the various specialties. COMM CWOs had the lowest level of agreement with the statement— COMM CWOs were found to be significantly lower (at the .05 confidence level) than CWOs in AVI, ENG, F&S, and PERS.

Figure 1.   Average level of agreement by specialty to the statement "I have a clearly defined career path"[a]

Average and 95% confidence interval

Mean score for "I have a clearly defined career path"

COMM MED PSS BOSN ELC MAT ENG WEPS AVI PERS F&S
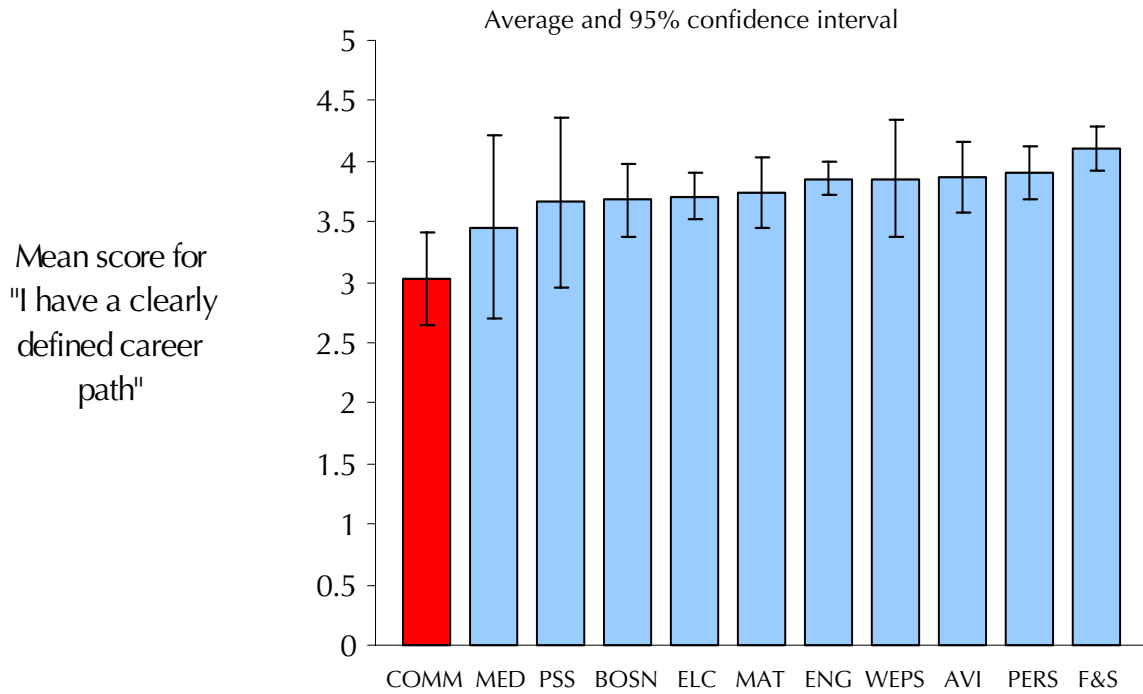
a. Responses were scored as follows: Strongly Agree, 5; Agree, 4; Neutral, 3; Disagree, 2; Strongly Disagree, 1.

The COMM specialty includes 2 job families—Communications and Information Systems (including jobs in information systems, communications, and systems security), and Communications Staff (including jobs in security management, plans and policy, and classified systems management). Appendix A lists all SkillObjects performed by COMM CWOs, ranked by percentage of workload for each job family.

The Panel of Experts suggested that COMM CWOs often do the types of IT tasks that are more suited for junior IT enlisted. This may be the result of a disconnect: the IT rating feeds the ELC specialty, while OS is the source rating for COMMS. Is it possible that COMMS CWOs are doing more of the lower-level IT work because junior IT people are not available to them?

The Coast Guard should explore this issue further, to ensure that both COMM CWOs and IT enlisted personnel have clear, suitable career paths.

Feeder ratings

The Coast Guard asked us to validate the source, or "feeder", enlisted ratings for each CWO specialty. The USCG has an established list of these ratings for the current CWO specialties. However, there may be other ratings that can successfully feed some of the specialties. We analyzed the survey data for overlap between the work of CWOs in the various specialties and that of senior enlisted personnel (E-7 to E-9).

We first calculated the CWO percentage workload for each Skill-Object in its specialty. We then looked at the enlisted data; for each rating, we noted the SkillObjects that were performed and summed their matching CWO workload. This gave us the percentage of each specialty's CWO workload that is represented in each of the enlisted ratings.

As we noted earlier, some SkillObjects are common to more than one specialty, and we accounted for this in our calculations. For example, "Work Coordination" represents 12 percent of a PSS CWO's workload, so every rating in which respondents performed "Work Coordination" was noted as having a 12-percent match with PSS. We then also noted a match for that rating in every other specialty in which "Work Coordination" exists. The workload percentage match differed by specialty.

Next, we summed the CWO workload percentage matches for all rating and specialty combinations. The potential feeder ratings in Table 5 indicate a match to SkillObjects amounting to 50 percent or more of the CWO workload for that specialty.

Table 5.   Potential new source rating list for the various specialties[a]

Specialty[b]	Potential feeder ratings[c]
AVI	AMT (100%), AVT (100%)
BOSN	BM (100%), MST (93%)
COMM	OS (100%), *IT (83%)**
ELC	ET (100%), IT (99%), *BM (54%), MST (52%), AVT (51%)*
ENG	EM (100%), MK (100%)
F&S	FS (100%), SK (100%), *OS (62%), IT (53%), MK (51%)*
INF	PA (100%)
INV	IV (100%), BM (100%)
MAT	AST (55%), DC (32%)
MED	HS (100%)
PERS	YN (100%)
PSS	IV (100%), MST (100%), PS (100%), *ET (65%), BM (62%), OS (53%), AST (50%), DC (50%)*
WEPS	GM (100%)
Marine Safety	*MK (81%)*, MST (71%)**

a. The potential new ratings (based on work overlap) are italicized (current feeder ratings are in plain text). Numbers in parentheses show the percent of CWO workload with which E7 to E9s are familiar. An asterisk (*) denotes potential feeder ratings with high percentage matches in technical (vice leadership) competencies.

b. Explanation of acronyms for specialties in this table: AVI–Aviation; BOSN–Boatswain; COMM–Communications; ELC–Electronics; ENG–Engineering; F&S–Finance & Supply; INF–Information Officer; MAT–Materiel; MED–Medical Administration; PERS–Personnel; PSS–Port Safety & Security; WEPS–Weapons.

c. Explanation of acronyms for ratings in this table: AMT–Aviation Maintenance Technician; AST–Aviation Survival Technician; AVT–Avionics Technician; BM–Boatswain's Mate; DC–Damage Controlman; EM–Electrician's Mate; ET–Electronics Technician; FS–Food Service Specialist; GM–Gunner's Mate; HS–Heath Services Technician; IT–Information Systems Technician; IV–Investigator; MK–Machinery Technician; MST–Marine Science Technician; OS–Operations Specialist; PA–Public Affairs Specialist; PS–Port Security Specialist; SK–Storekeeper; YN–Yeoman.

For the MAT specialty, AST (Aviation Survival Technician) and DC (Damage Controlman) both had low-percentage matches, considering that these are the official source ratings; we note them because they had the highest percentage matches of all the ratings for the MAT specialty. The Machinery Technician (MK) and Marine Science Technician (MST) ratings both had high-percentage matches for the set of Marine Safety SkillObjects. The Boatswain's Mate (BM) rating shows a low percentage match in this area because the matching SkillObjects represent areas that are only a small part of the CWO workload. Appendix D lists the SkillObject breakouts for all the rating/specialty matches noted as potential new feeder ratings.

In some cases, we saw high-percentage matches because only one or two people from a particular rating took the survey for a given specialty. For example, a single Avionics Technician (AVT) took the PERS survey and matched with every SkillObject, giving a 100-percent match; however, we did not consider this as sufficient evidence for a potential source rating. We eliminated these "anomalous" rating matches.

It is worth noting that several ratings show high matches with the PSS specialty. This is because a large part of the CWO workload is in leadership-oriented (vice technical) SkillObjects that are common to several other specialties.[9]

The BM rating shows a high-percentage match with the ELC specialty. Again, this is largely because of matching in leadership competencies.

In table 5, we noted with an asterisk (*) the specialty/rating matches that are largely based on overlap in technical SkillObjects. For the purposes of adding official source ratings for the different specialties, these matches are more relevant than those based on leadership Skill-Objects. For the existing specialties, the only such match was COMM/Information Systems Technician (IT). For the new Marine Safety specialty, the ratings with high-percentage matches (MK and MST) are almost completely based on technical SkillObjects.

Training

To address CWO training, we focus on two issues:

- Training that is applicable to all CWOs

- Current training deficiencies in the different specialties.

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9. These SkillObjects—Crew Mentoring and Training, Crew Management, Resource Management, Training Management, and Work Coordination —account for nearly half of the CWO workload in the PSS specialty.

Training that is applicable to all CWOs

The Coast Guard asked us to find out what types of training might be applicable across specialties. To address this issue—and to specify the areas in which the Coast Guard might benefit from general CWO training—we looked for competencies that crossed many specialties.

We identified several SkillObjects that were common to five or more of the CWO specialties. These generally fell into two training categories: Personnel Management and Development, and Business Administration.

Personnel Management and Development crossed 12 specialties (only INV did not include this competency, as shown in table 6). Personnel Management and Development includes the following competencies: developing strategies to identify, recruit, and retain a high-performing workforce; improving the performance of the workforce; providing career direction; and mentoring and training. Of all the survey responses to tasks in these work areas, 63 percent indicated either inadequate or no training.

Table 6.   Training categories common to several specialties

Work function	Specialties performing the function
Personnel Management and Development	PSS, MED, ELC, F&S, PERS, WEPS, MAT, INF, BOSN, COMM, AVI, ENG
Business Administration	
— Budget Management	F&S, ELC, INF, PERS, ENG, WEPS, MAT, BOSN
— Resource Management	PSS, ELC, ENG, WEPS, INF, BOSN, PERS, AVI
— Procurement and Contract Management	ENG, F&S, MAT, PSS, AVI
— Program Management	ELC, ENG, BOSN, MAT, PERS

Business Administration crossed eight specialties; SkillObjects included Budget Management, Resource Management, Procurement and Contract Management, and Program Management (see table 6). Of all the survey responses to tasks in these work areas, 61 percent indicated either inadequate or no training.

Training deficiencies

To find out the general level of training that CWOs receive, we asked CWOs whether they had received any formal training for their current position; 62 percent of the survey respondents indicated that they had not.

To assess where the most important training deficiencies are, we looked at the competencies that are most critical, as indicated by survey participants. As described earlier, we identified critical competencies by responses to the question: "How serious are the consequences of poor performance?" The 5-point rating scale included no consequences (1), minor (2), marginal (3), major (4), and catastrophic (5). We defined high-performance criticality as those Skill-Objects having an average score of 3.5 or above, and thus identified 103 high-performance-critical competencies.

Of the 103 high-performance-critical competencies, we identified those for which at least 20 percent of the workforce indicated they had received inadequate or no training. We then calculated the percent workload of these (i.e., the high-performance-critical competencies that lack adequate training) for each specialty. These are shown in figure 2.

Nine specialties in the CWO workforce lack adequate training for at least some high-performance-critical competencies. As shown in figure 2, AVI, INF, and INV were found to have the highest workload for which the CWOs were not trained or were trained inadequately.[10] PERS, MED, and F&S are not shown because they did not have high-performance-critical competencies (as defined above).

Table 7 shows the largest training deficiencies in high-performance-critical competencies, broken out by specialty. Areas of concern could be the electrical and mechanical areas of the AVI specialty, and witness management for the INVs. We note that training for some of these competencies may be covered through enlisted experience or on-the-job training.

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10. Further scrutiny of the training deficiencies in INF will be needed because of the small sample size (three responses).

Figure 2.   High performance critical competencies that lack adequate training[a]

% workload of critical competencies lacking adequate training
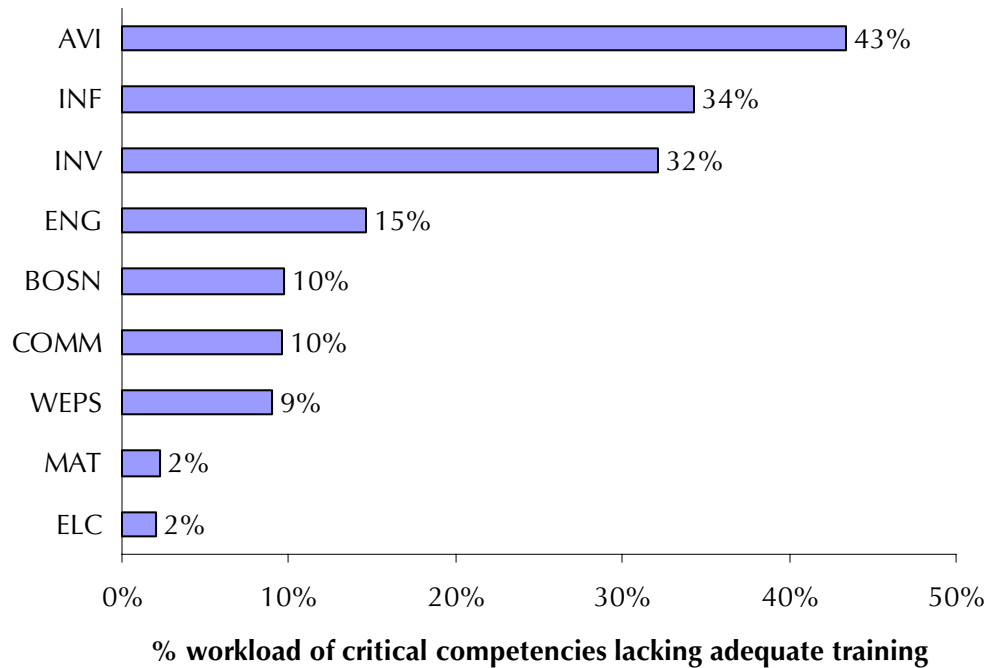
a. PERS, MED, and F&S are not shown because they did not have any high-performance-critical work functions as defined here.

Table 7.   Largest training deficiencies in high-performance-critical competencies[a]

Specialty	SkillObject	Percent inadequate training
AVI	Electrical Equipment Installation	100
	Mechanic Equipment Maintenance	80
	Work Coordination	73
	Electronic Equipment Maintenance	71
	Information Gathering and Idea Development	70
	Mechanic Equipment Installation	68
COMM	Security Evaluation	61
	Security Management	45

25

Table 7. Largest training deficiencies in high-performance-critical competencies[a] (continued)

Specialty	SkillObject	Percent inadequate training
WEPS	Firing Plan Preparation	60
	Ordnance Document and Data Management	60
	Program Development	60
	Personnel Training	48
	Ordnance Management	46
INV	Witness Management	43
	Administrative Document Review	38
	Office and Personnel Management	35
ELC	Security Management	70
	Procedure Implementation	67
	Personnel Evaluation	63
BOSN	Decision Making	60
	Work Safety Management	48
	Port Security Management	44
INF	Information Products Development	75
	Story Idea Development	75
	Program Coordination	67
	Process Evaluation	53
	Media Access Coordination	50
ENG	Data Analysis	58
	Procedure Development	53
	System Design Evaluation	48
	HAZMAT Spill Response-Clean Up	47
	Equipment Repair	47
	Control Systems Maintenance	46
MAT	Program Management	54
	Preventive Maintenance	44
	Electrical Installation and Maintenance	44
	Fire and Hazardous Materials Handling	40

a. Some of these may be covered through enlisted experience or on-the-job training.

Furthermore, we identified training deficiencies in competencies in each specialty that had the highest workload. We found that across all specialties, competencies with highest workloads (5 percent or more) that had inadequate training were in the areas of personnel and administration. Table 8 shows the competencies in each specialty that had the highest workload and inadequate training.

Table 8.   Largest training deficiencies in SkillObjects with the highest workloads

Specialty	SkillObject	Percent workload in specialty	Percent inadequate training
AVI	Work Coordination	14	73
	Record and File Maintenance	12	53
	Work Communications	9	74
	Maintenance Program Management	8	63
	Data Analysis	7	62
	Procedure Review and Development	5	83
BOSN	Work Monitoring	12	49
	Command Communications	7	58
	Training Management	5	50
	Administrative Processing	5	61
COMM	Resource Management	14	67
	Document Generation	12	63
	Training Management	7	56
	Security Maintenance	7	45
	Systems Management	6	43
	Customer Relations	6	67
ELC	Work Coordination	12	81
	Administrative Processing	10	76
	Command Communications	9	79
	Workforce Management	8	73
	Technical Consultation	7	80
	Information Analysis	6	79
	Document and Data Review	5	73

Table 8.   Largest training deficiencies in SkillObjects with the highest workloads (continued)

Specialty	SkillObject	Percent workload in specialty	Percent inadequate training
ENG	Record and Log Maintenance	8	52
	Administrative Task Processing	7	63
	Contract Management	6	60
	Work Coordination	5	59
	Database Management	5	61
	Personnel Training	5	49
F&S	Budget Management	15	62
	Resource Management	13	75
	Personnel Mentoring	10	70
	Training Management	9	60
	Workforce Management	8	75
	Correspondence Management	6	66
	Customer Relations	6	73
	LUFS Management	6	52
INF	Personnel Development	10	47
	Information Gathering	6	61
	Process Evaluation	5	53
	Administrative Processing	5	50
INV	Criminal Operations Analysis	9	31
	Office and Personnel Management	7	35
	Administrative Operations	7	30
	Intelligence Operations	6	23
MED	Resource Management	19	59
	Medical Administration	17	55
	Administrative Processing	13	65
	Mission Accomplishment	12	75
	Patient Assistance	11	56
	Workforce Management	11	58
	Personnel Training	9	62
	Patient Support	5	37

Table 8.   Largest training deficiencies in SkillObjects with the highest workloads (continued)

Specialty	SkillObject	Percent workload in specialty	Percent inadequate training
PERS	Administrative Processing	10	73
	Office Equipment Operation	10	64
	Work Coordination	8	79
	Personnel Development	8	73
	Workforce Management	6	68
	Records Management	6	67
PSS	Workforce Management	21	51
	Information Gathering	14	57
	Work Coordination	12	58
	Port Safety Management	10	32
	Resource Management	9	61
	Training Management	6	47
	Security Briefings	6	58
WEPS	Computer Software Utilization	9	49
	Administrative Processing	6	61

The role of the CWO and future workforce requirements

The role of the CWO

Throughout this study, we've heard the question: "What is a CWO? A technical expert or a manager?" According to the Coast Guard's personnel manual (PERSMAN)[2], a CWO is someone who has demonstrated "the potential to assume positions of greater responsibility requiring broader conceptual, management and leadership skills." The personnel manual goes on to say, "[w]hile administrative and technical specialty expertise is required in many assignments, CWOs must be capable of performing in a wide variety of assignments that require strong leadership skills."

We looked to our data to address this issue from the perspective of work actually being performed. We first flagged all SkillObjects as

either "Technical" or "Leadership." We then summed the workloads of the flagged SkillObjects for each job family.

Figure 3 shows that the proportion of technical and leadership work varies between and within specialties, although most show a roughly half-and-half split between leadership and technical competencies. CWOs serving as Investigators do the highest proportion of technical work, while PSS CWOs do the highest proportion of leadership work (such as personnel management and training).

Figure 3. Proportions of technical and leadership work for CWOs by job family
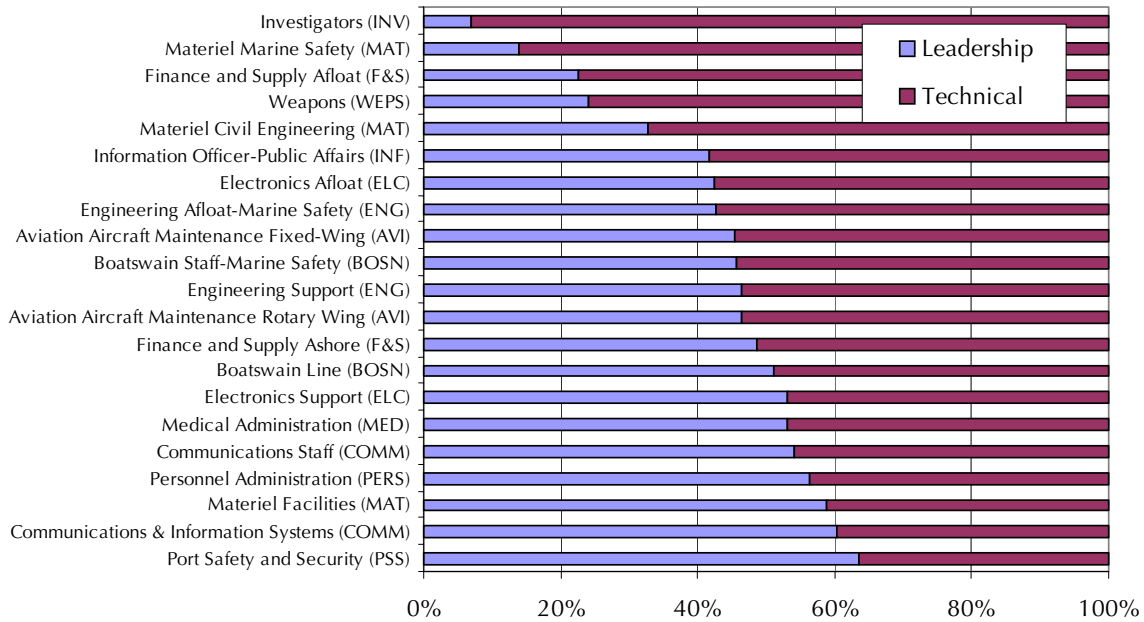
Within the MAT specialty, CWOs in Marine Safety jobs spend nearly 80 percent of their time doing technical work (largely vessel inspections), while MAT CWOs in the Material Facilities job family (public works and base housing) spend more than half of their time doing leadership work.

The panel of experts noted that often a CWO's role depends on where he/she is located. At a small office or station, a CWO has to be

the manager. At a higher command (i.e., where a line officer is present), a CWO will be relied upon as the technical expert.

Senior enlisted personnel

For comparison to the roles of CWOs within each job family, we also summed the workloads of E-7 to E-9s (see figure 4). It's important to note that responses from E-7 to E-9s were less than 20 percent of their total population; this should be taken into consideration during any interpretation of these data.

Figure 4.   Proportions of technical and leadership work for senior enlisted personnel (E-7 to E-9) by job family.
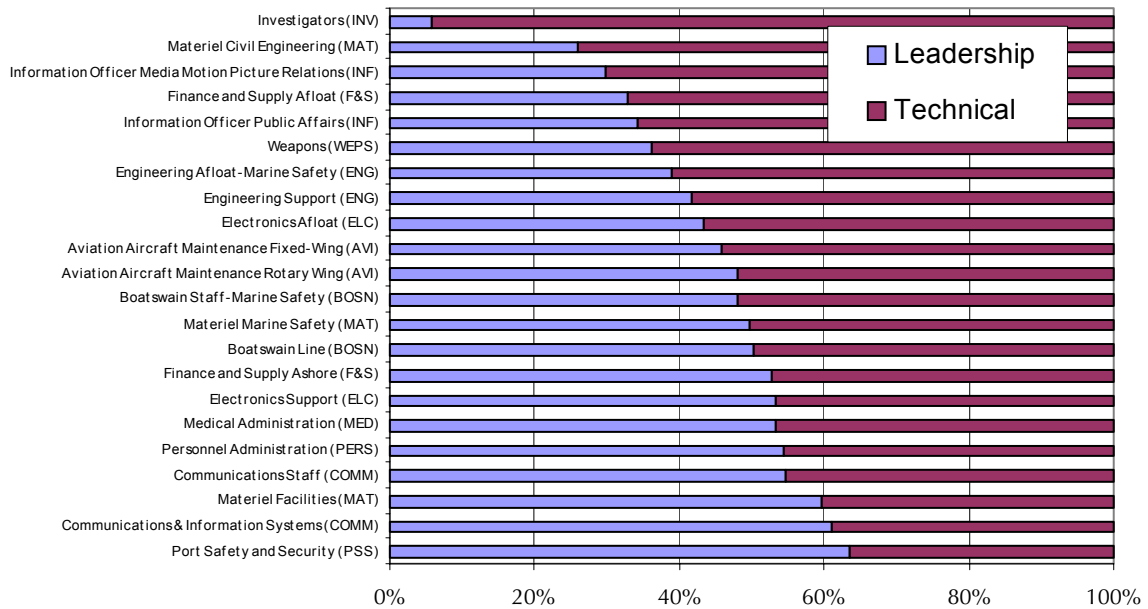
In general, the results for senior enlisted personnel were the same as for the CWOs—for most job families, the workloads were roughly split into half leadership competencies and half technical competencies. Again, Investigators do the highest proportion of technical work and PSS members do the highest proportion of leadership work.

Junior officers

In general, for most of the job families for which O3Es returned surveys, the workloads were roughly split into half leadership competencies and half technical competencies (see figure 5). O3Es in MAT Marine Safety had the highest workload in technical competencies, and O3Es in AVI-Rotary Wing had the highest workload in leadership competencies.[11]

Figure 5. Proportions of technical and leadership work for O3Es by job family
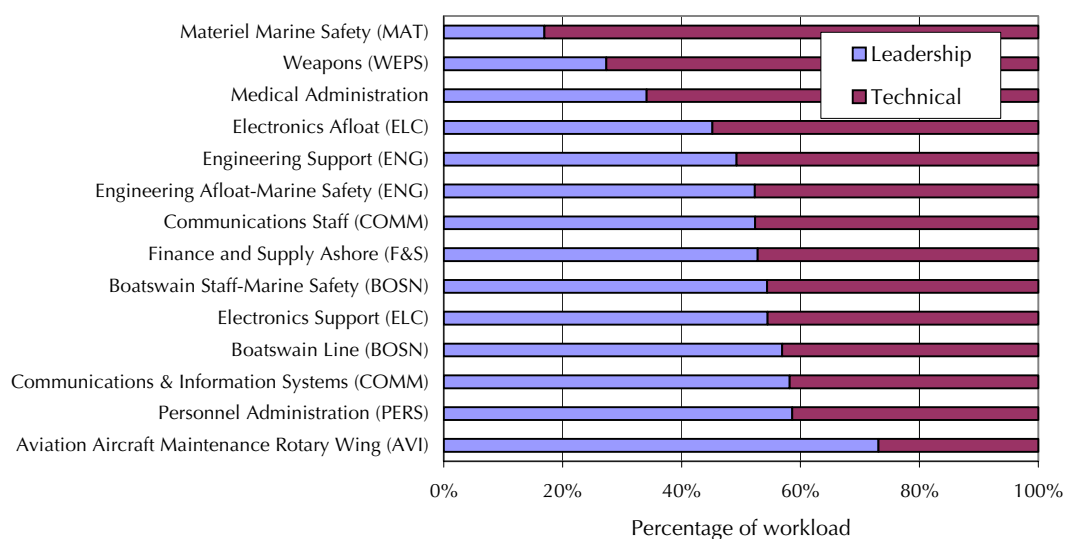
Here again, it's important to note that responses from O3Es were less than 15 percent of their population; this should be considered when interpreting data.

Based on our analysis, we found no evidence overall to suggest that the role of the CWOs is significantly different from that of senior enlisted personnel or O3Es.

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11. As a caveat, we note that these data were based on the results of only five surveys for MAT Marine Safety and two surveys for AVI-Rotary Wing.

Future roles of the CWO

We asked the panel of experts how a CWO's role may change in the future, due to the Coast Guard's new and changing missions, the transition from the Department of Transportation (DOT) to the Department of Homeland Security (DHS), emerging technologies, or any other reasons.

Table 9 shows the new roles noted by the panel of experts; many of them reflect emerging information technologies in both operational and administrative areas.

Table 9.   Future CWO roles noted by the panel of experts

Future roles	Reason	Specialty[a]
Sea marshals	National defense/port security	BOSN, COMMS, WEPS
Boarding officers	National defense/port security	
Other security leadership roles	National defense/port security	
Intelligence technical expert	Integration into DHS; integration of intelligence with FBI	
Expert in large, integrated systems	Missions depend on new C4ISR technology	ELC
Project manager		
Project officer/Systems manager	More suitable role	COMMS (for IT work)
Analyst	Implementation of TILA[b]	F&S
Higher-level manager	New information systems; detailed knowledge of pay computation unnecessary	PERS

a. This table contains the future roles for specialties addressed by the panel of experts.
b. Theater Integrated Logistics Architecture.

Emerging competencies

We were asked to find out what new competencies CWOs will need in the future. To address this issue, we asked the panel of experts to review the list of SkillObjects for their respective specialties, and note

any new SkillObjects that will be required for CWOs to perform in the future.

Table 10 shows the new SkillObjects noted at these sessions. Most of them reflect future emphasis on national defense, integration into the Department of Homeland Security (DHS), or emerging technologies.

Table 10. Future CWO competencies noted by the panel of experts

New competencies	Mission/Technology	Specialty
Emerging threats recognition	National defense	BOSN, COMMS, PSS
Anti-swimmer	National defense	
Intel info dissemination	National defense	
Use of dogs	National defense	
Vertical insertion	National defense	
Configuration management	Deepwater/integrated systems	ELC
Data fusion	Deepwater/integrated systems	
UAV operation	Deepwater/integrated systems	
Pattern recognition	Deepwater/integrated systems	
Exercise planning		AVI
Scenario analysis		
Liaison with contractors	Outsourcing	*Several*
Liaison with other agencies	Integration into DHS; Intelligence	
Integrated information systems	New information technology	
Maritime domain awareness	National defense	
Project management		

Some emerging SkillObjects were specific to a mission, such as the use of dogs for national defense (for port security). Others, such as project management, were noted as applying to all cases where new integrated technologies (both afloat and ashore, and both operational and administrative) will require CWOs to have a greater understanding of how integrated systems work, and leave the more narrow technical work to others.

Does the Coast Guard need a CWO-5 paygrade?

The Navy added the CWO-5 paygrade in 2002, as an incentive for its technical experts to stay for 30 years [3]. We were asked to look at whether the Coast Guard needs to follow suit.

We looked at years-in-service data to find out whether the Coast Guard is generally able to retain its CWOs for 30-year careers. Figure 6 shows the distribution of W-4s by years in service.

Figure 6.   Distribution of currently active CWO-4s by years in service at the end of 2004

Active CWO-4 years in service
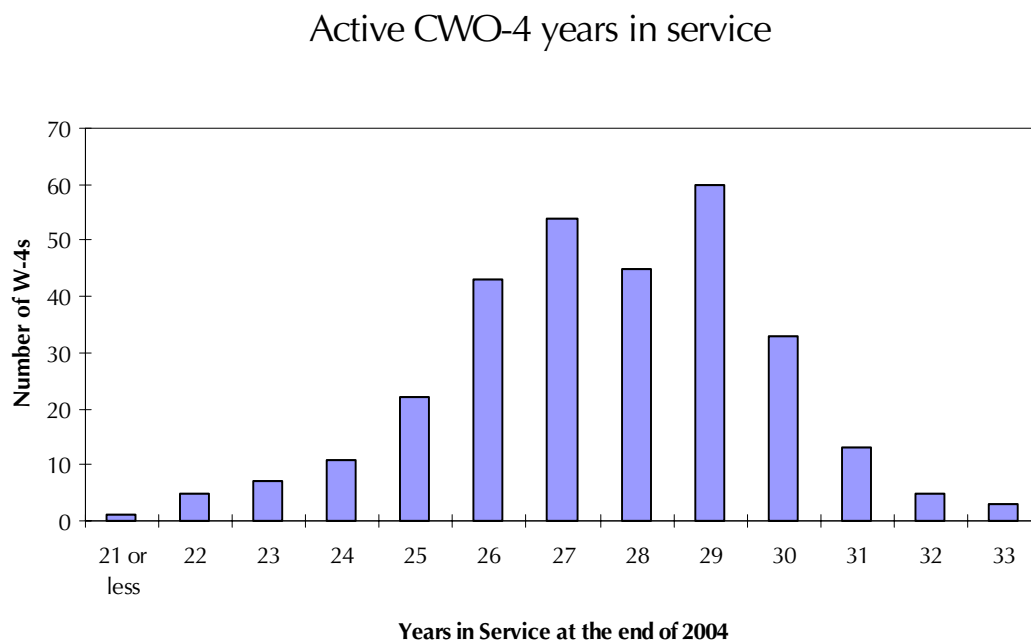
By the end of 2004, more than half of the active W-4s will have served 28 years or more, so it doesn't appear that the Coast Guard has a problem retaining its CWOs.

We then looked at the work performed by W-4s to try to determine whether any group of W-4s distinguished itself from the others (based on the SkillObject data), and therefore should be in a higher pay-

grade. We examined education level, command cadre, and self-reported roles, among others, and did not find a factor to distinguish such a group.

We also looked at the work performed by W-4s as compared to the lower CWO paygrades, in terms of percentage workloads for each SkillObject; we found no instance where W-4 workload differed by more than 10 percent from the workloads of W-3s and W-2s. Also, according to the panel of experts, the work of a W-4 is not intended to be different from that of the lower CWO paygrades; the higher paygrades are incentives for CWOs to stay in the Coast Guard.

Recommendations

Based on our analysis, we recommend that the Coast Guard consider the following:

- **Establish a Marine Safety specialty**. Because there appear to be enough people and work in marine safety, the Coast Guard should establish a Marine Safety specialty. The data show that this new specialty would be most appropriately staffed with current ENG, MAT, and WEPS personnel, with new CWOs coming from the MK and MST ratings. According to our data, these are the only enlisted ratings that have a high-percentage match (50 percent or greater) with Marine Safety CWO work.

- **Manage the IT community to ensure that there are suitable career paths for Communications CWOs and IT enlisted personnel**. While a new IT specialty may not be warranted, the community clearly needs headquarters-level attention to ensure that its members (including COMM CWOs) have suitable career paths. We recommend that the Coast Guard explore this issue further—it will benefit the Coast Guard to foster IT expertise in-house. In the future, there will be integration with information systems from other agencies within DHS, and other information systems may be out-sourced. In both these cases, successfully transitioning will require high-level IT expertise and oversight. Such high-level attention will also be needed to ensure that these new systems continue to adequately serve the Coast Guard's needs.

- **Add IT as a source rating for the COMM specialty**. We identified several ratings in which enlisted members show familiarity with more than half of the CWO-level work in particular specialties. Of these, a few specialty/rating matches were largely based on technical work; they are likely the most relevant for consideration as new source ratings. For the existing specialties, the only such match was COMM/Information Systems Technician (IT).

- **Train CWOs—before accession—in the areas of Personnel Management and Business Administration**. Personnel Management and Business Administration are competencies with high workload levels across most CWO specialties. Many CWOs indicated that they have had inadequate or no training in these competencies.

- **Provide specialty training in competencies that were not covered through enlisted experience**. Some specialty-specific CWO training is also appropriate, particularly in competencies that are not covered through previous training or experience in the enlisted ranks.

- **Do not add a W-5 paygrade at this time.** We found no evidence indicating that the Coast Guard needs the W-5 paygrade.

Appendix A: CWO workload by SkillObject

We measured workload using a 25-point workload scale that combined survey responses to frequency and duration of task performance, both of which are based on 5-point scales. We measured frequency through responses to the question, "How often do you typically perform this task?" We measured duration through responses to the question, "How much time did you, yourself, spend on this task the last time you performed it?"

We then summed the workload scores for each task. For each SkillObject, we determined a workload score by summing the sums of the workload scores of all the tasks within the SkillObject. Each SkillObject's workload is reported as a percentage of the total workload (of the specialty, job family, or individual, depending on the analysis). Table 11 shows the workloads for all the SkillObjects that respondents said they perform.

To measure criticality, we asked the question: "How serious are the consequences of poor performance?" The 5-point rating scale included (1) no consequences, (2) minor, (3) marginal, (4) major, (5) catastrophic. Table 11 shows mean criticality scores for each SkillObject.

Note: The Detailer and Information Officer–Media Motion Picture Relations job families are not represented here, because there were no CWO survey responses for these job families. The entire SkillObject database (including all tasks, tools, knowledges, and skill and ability linkages) was turned over to the Future Force 21 office at the conclusion of this project.

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload

Job Family	SkillObject	Workload (%)	Criticality
Aviation Aircraft Maintenance Fixed-Wing (AVI)	Work Coordination	22.5	3.7
	Maintenance Report and Data Review	11.4	3.6
	Aircraft Inspection	7.2	3.7
	Personnel Training and Development	7	2.9
	Work Communications	6.7	3.6
	Record and Data Maintenance	6.4	3.2
	Report Preparation and Procedures	6.3	3.2
	Avionics System Repair	6.1	3.3
	Aircraft Supply Management	5.1	3.4
	Engine/Drive Train System Repair	3.7	3.4
	Aircraft Maintenance	3.6	3.4
	Information Gathering and Idea Development	3.1	3.5
	Administrative Task Processing	2.9	3.0
	Information Presentations and Briefings	2.9	3.0
	Data Analysis	2.7	3.6
	Record and Data Entry	1.6	3.4
	Landing Gear Maintenance	0.5	2.9
	Avionics System Evaluation	0.3	3.3
Aviation Aircraft Maintenance Rotary Wing (AVI)	Record and File Maintenance	15.6	3.4
	Work Coordination	12.3	3.5
	Work Communications	9.5	3.1
	Data Analysis	8.6	3.7
	Maintenance Program Management	7.7	3.6
	Procedure Review and Development	6.7	3.2
	Database Management	5.3	3.1
	Electronic Equipment Repair	4.8	3.5
	Mechanic Equipment Repair	4.6	3.8
	Administrative Task Processing	3.8	2.8
	Report Generation	3.7	2.7
	Personnel Training	2.5	3.2
	Troubleshoot Electrical Systems	2	3.8
	Workforce Management	1.7	3.3
	Aircraft Parts Management	1.7	3.3
	Resource Management	1.3	2.8
	Information Gathering	1.1	3.2

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
	Training Development	0.8	3.0
	Contract Management	0.8	3.1
	Electronic Equipment Maintenance	0.7	3.6
	Electronic Equipment Repair	0.6	3.5
	Equipment Maintenance	0.6	2.7
	Aircraft Ground Support Equipment Operation	0.5	3.2
	Aircraft Maintenance	0.5	3.8
	Schedule Development	0.5	3.2
	Aircraft Ground support Equipment Maintenance	0.4	3.3
	Mechanic Equipment Maintenance	0.4	3.7
	Mechanic Equipment Installation	0.4	4.0
	Electronic Equipment Installation	0.3	3.6
	Troubleshoot Electronic Systems	0.2	2.6
	Material and Equipment Handling	0.1	2.2
	Preventative Maintenance	0.1	3.3
	Electrical Equipment Installation	0.1	4.0
	Electrical Equipment Repair	0	2.0
Boatswain Line (BOSN)	Work Coordination	9.7	3.3
	Command Communications	8.3	3.0
	Training Management	6.5	3.2
	Personnel Assistance and Guidance	5.2	3.3
	Information Analysis	4.2	3.4
	Record and Data Maintenance	3.9	2.9
	Administrative Processes	3.9	3.0
	Mission Planning	3.7	3.3
	Work Monitoring	3.7	3.6
	Navigational Equipment Operation	3.2	3.7
	Information Management	3	2.9
	Navigational Calculations	2.8	3.8
	Chart Manipulation	2.5	3.5
	Patrol or Search Missions	2.2	3.5
	Workforce Management	2	3.3
	Radar Operation	1.9	3.7
	Document and Report Generation	1.9	2.7
	Regulations Enforcement	1.9	3.3
	Decision Making	1.8	3.6

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
           (continued)

Job Family	SkillObject	Workload (%)	Criticality
	Computer System Management and Maintenance	1.6	2.2
	ATON Signal Management	1.5	3.7
	Equipment Maintenance	1.5	3.3
	Vessel Searches and Inspections	1.5	3.5
	Communications Equipment Operation	1.4	2.8
	Weather Forecasts and Monitoring	1.4	3.2
	Equipment Inspection	1.3	3.6
	Vessel Movement Coordination	1.3	3.6
	Facilities Maintenance	1.3	2.7
	Liaison Communications Management	1.3	3.1
	Work Safety Management	1.2	3.6
	Deck Seamanship	1.2	3.2
	Ship Communications	1.1	2.7
	Record and Data Filing	1.1	2.7
	Motor Vehicle Operation	1.1	3.3
	Investigation Management	1	3.3
	Course Plotting	0.9	3.6
	Resource Management	0.9	2.7
	Program and Process Implementation	0.8	3.3
	Deck Machinery Operation	0.8	3.8
	Security Management	0.8	3.2
	Procedure Development	0.7	3.1
	Information Gathering	0.6	3.2
	Deck Watch Operations	0.5	4.5
	Weapon Setup and Operation	0.3	3.4
	Environment Protection	0.2	3.4
	Hazardous Material Transport Monitoring	0.2	3.5
	Emergency Response	0.1	3.5
	Intelligence Communication	0.1	3.2
Boatswain Staff-Marine Safety (BOSN)	Administrative Processing	8.3	2.9
	Work Coordination	7.7	3.2
	Operational Communications	6.3	3.2
	Workforce Development	6.3	3.3
	Database Management	5.6	3.0
	Personnel Training	5.5	3.2
	Vessel Safety Inspections	5.4	3.8
	SWS III Operation and Management	4.8	2.5

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload (continued)

Job Family	SkillObject	Workload (%)	Criticality
	Workforce Management	4.3	3.3
	Command Communications	4.2	3.2
	Regulation Enforcement	4	3.5
	General Military Activity	3.5	3.2
	Training Program Management	2.8	3.3
	Legal Proceedings	2.4	3.4
	Customer Communications	2.4	3.3
	Public Relations	2.3	3.1
	Personnel Evaluation	2.1	3.5
	Operations Analysis	2.1	3.4
	Resource Management	2.1	3.3
	Investigation Management	2.1	3.3
	Marine Incident Management	2	3.3
	Document, Report, Correspondence Drafting	1.9	3.1
	Equipment Maintenance	1.2	3.7
	Marine Safety Consultation	1.1	3.4
	Mission Planning	1.1	3.4
	Navigational Equipment Operation	1.1	3.1
	Procedure Review	1	3.2
	Data and Document Maintenance	1	2.9
	Budget Management	1	3.1
	Navigational Calculations, Charts, and Plotting	0.9	3.5
	Marine Document/License Administration	0.6	3.4
	Communication System Operation	0.6	2.7
	Weather Monitoring	0.6	3.4
	Vessel Movement Coordination	0.4	3.6
	Port Security Management	0.4	3.6
	Facilities and Equipment Maintenance	0.2	3.8
	Environmental Incident Management	0.2	3.7
	Electronic Equipment Maintenance	0.1	2.7
	Environment Protection Program Management	0.1	3.7
	Customer Consultations	0.1	3.0
Communications & Information Systems (COMM)	Project Management	16.8	3.1
	Administration and Information Management	10.1	2.6
	Systems Management	8.9	3.1
	Training Management	8.8	3.0

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
	Customer Relations	8.6	3.1
	Information Gathering and Verification	7.4	2.6
	Personnel Mentoring	7.2	3.1
	Security Management	6.1	3.6
	Process Improvement	5.9	3.0
	Performance Awards & Evaluations	3.9	2.9
	Trend Analysis	3.9	3.1
	Files Management	3.7	3.0
	Process Evaluation	3.7	3.0
	Systems Editing	2.5	2.6
	Customer Needs Assessment	1.5	2.6
	Electronic Key Management System	0.9	4.0
Communications Staff (COMM)	Documentation Preparation	14.7	2.6
	Work Coordination and Management	12.4	2.9
	Security Evaluation	7.5	3.5
	Project Management	7.5	3.1
	Personnel Evaluations and Mentoring	6.4	3.1
	Performance Enhancement Training	6.4	3.4
	Security Management	5.5	3.5
	Resource Management	5	3.1
	Training Management	4.5	2.5
	Personnel Management	4	2.8
	Technology Training	3.8	2.9
	Project Development	3.6	2.9
	Security Maintenance	3.5	3.6
	Web Applications	2.6	2.4
	COMSEC Management	2.3	3.3
	IT Systems Evaluation	2.2	2.1
	COMSEC Inventory Management	1.7	4.0
	Systems Maintenance	1.7	2.2
	Job Aid Development	1.5	2.9
	Network configuration	1	3.0
	IT systems Troubleshooting	0.8	2.4
	Systems Management	0.7	3.4
	Computer Configuration	0.5	2.7
	Computer Installation	0.4	1.4

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
Electronics Afloat (ELC)	Communications	16.1	2.9
	Personnel Training	9.9	3.5
	Work Coordination	9.7	3.4
	Budget Management	9.5	3.2
	Equipment and Machinery Inspections	6.4	3.4
	General Military Activities	5.4	2.6
	Plan and Program Development	5.4	3.5
	Electronic Systems Management	5.1	3.2
	Process and Records Evaluation	4.7	3.0
	Technical Consultation	4.5	3.4
	Job Knowledge	4.3	2.5
	Information Gathering	3.9	2.6
	Resource Management	3.6	3.2
	Administrative Processes	2.9	2.5
	Personnel Evaluation	2.9	3.7
	System and Equipment Maintenance	2.3	3.4
	Problem Solving	2	3.3
	Procedure Implementation	0.6	3.8
	System Evaluation	0.6	2.8
	Public Relations	0.3	1.3
Electronics Support (ELC)	Work Coordination	11.9	3.2
	Administrative Processes	10.7	2.9
	Communications	8.4	3.2
	Technical Consultation	6.9	3.3
	Information Analysis	6.3	3.5
	Document and Data Review	6.2	2.9
	Workforce Management	5.3	3.1
	Information Gathering	4.4	2.7
	Resource Management	3.8	3.2
	Personnel Training	3.7	3.3
	Electronic Equipment Inspection	3.7	3.4
	Technical Information Review	3.3	2.7
	Career and Performance Guidance	3.3	3.1
	Loran Management	3.2	3.5
	Budget Management	3.2	3.6
	Plan and Program Development	2.9	3.1

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
	Equipment Operation	2.7	3.4
	Program and Process Management	2.5	3.2
	Electronic Equipment Repair	2	3.3
	Security Management	1.9	3.5
	Equipment Installation and Configuration	1.9	3.2
	Training Evaluation and Development	1.3	3.1
	Electronic Equipment Maintenance	0.6	3.2
Engineering Afloat-Marine Safety (ENG)	Reference Material Review	9.7	3.2
	Record and Log Maintenance	8.7	3.0
	Personnel Training	8.3	3.2
	Instructions and Procedure Promulgation	7.4	3.3
	Equipment Operations	7.4	3.4
	Information Analysis	6.9	3.4
	Command Interaction & Communication	6.1	3.0
	Supply System/Database Management	5.9	3.0
	Equipment Operation Monitoring	5.9	3.6
	Work Coordination	5.7	3.2
	Equipment Repair	5.2	3.7
	CMplus Administrator	5	3.2
	Personnel Evaluation	3.9	3.4
	Trend Analysis	3.6	3.8
	Contract Management	3	3.4
	Equipment Troubleshooting	2.8	3.6
	Work Monitoring	1.4	3.4
	HAZMAT Spill Response-Clean Up	1.3	3.6
	Budget Management	1	3.1
	Report Generation	0.9	3.0
Engineering Support (ENG)	Administrative Task Processing	12.4	2.7
	Database Management	9.4	3.0
	Contract Management	8.4	3.3
	Record and Log Maintenance	6.9	2.8
	Resource Management	6.1	3.0
	Workforce Management	4.8	3.4
	Work Coordination	4.1	3.1
	Data Analysis	4.1	3.6
	Command Communications	3.7	3.3

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
	Program Management	3.6	3.1
	Engineering Document and Data Interpretation	3.2	3.3
	Information Gathering	3.1	3.3
	Procedure Development	3.1	3.5
	Budget Management	3	3.3
	Engineering Consultation	2.9	3.3
	Equipment Maintenance	2.8	3.4
	Document Review	2.6	3.1
	Personnel Training	2.5	3.1
	Technical Information Maintenance	2.5	2.8
	General Military Activity	1.8	3.2
	System Design Evaluation	1.6	3.5
	Control Systems Maintenance	1.1	3.6
	Equipment Installation and De-Installation	1	3.5
	Motor Vehicle and Machinery Operation	1	3.1
	Engine/Motor Maintenance	1	3.7
	Electrical Equipment Maintenance	0.9	3.3
	Self Development	0.8	2.9
	Training Evaluation	0.6	2.8
	Engineering System Operation	0.5	3.7
	Clerical	0.4	2.9
Finance and Supply Afloat (F&S)	Training	7.4	2.9
	Commercial Procurement	6.8	3.1
	Files Management	6.4	2.8
	Financial Management	5.4	3.3
	Information Verification	5.3	3.0
	Procurement Management	5.2	3.0
	Logistics	4.8	3.2
	Account Management	4.7	3.3
	Ancillary Services	4.5	2.8
	Communications	4.4	2.8
	Awards and Evaluations	4.3	2.8
	Correspondence Generation and Management	4.1	2.8
	Budget Management	4.1	3.1
	LUFS Management	4	3.0
	Personnel Management	3.9	2.9
	Inventory Management	3.8	3.2

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
	Personnel Mentoring	3.7	2.8
	Resource Management	3.2	2.9
	CMPlus	2.9	3.0
	Shipping and Receiving Management	2.4	3.0
	Correspondence Preparation	2.4	3.0
	Account Maintenance	2.2	3.2
	MILSTRIP	2.2	3.0
	Property Management	1.8	2.9
Finance and Supply Ashore (F&S)	Resource Management	16.7	3.1
	Personnel Mentoring	12.4	3.1
	Financial Management	10.7	3.4
	Training	10.3	3.1
	Personnel Management	9.2	2.9
	Customer Relations	8.2	3.1
	Budget Management	7.2	3.4
	Correspondence Management	6.2	2.8
	LUFS	6.1	3.2
	Records an Reports Management	5.7	3.1
	Property Management	5	3.0
	CMPlus	2.3	3.2
Information Officer (Public Affairs)	Personnel Development	10.4	3.5
	Information Gathering	5.7	3.1
	Process Evaluation	5.4	3.5
	Administrative Processes	5.1	2.9
	Workforce Management	4.6	3.5
	Public Communications	4.3	3.3
	News Article Writing	3.8	3.1
	General Military Activities	3.7	2.9
	News Information Analysis	3.7	3.1
	Audio/Visual Information Processing and Recording	3.6	3.2
	Work Coordination	3.6	3.2
	Coast Guard Inquiries Management	3.1	2.9
	Work Relationships Development	3	3.9
	News Media Access Coordination	2.9	3.6
	Office Equipment Operation	2.8	2.6

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
	Office Communications	2.7	3.2
	Self Development	2.7	2.9
	Public Affairs Program Management	2.7	3.3
	Project Planning	2.5	3.5
	Information Product Editing	2.3	3.6
	Office Budget Management	2.2	3.4
	Web Site Maintenance	2.2	2.9
	Equipment Operations	2	3.0
	Briefing Materials Generation	2	3.3
	Story Idea Development	1.7	3.8
	Internal Information Dissemination	1.6	3.1
	News and Information Presentation	1.5	3.2
	Resource Management	1.5	3.3
	Information Analysis	1.4	3.3
	Photographic Project Coordination	1.3	3.3
	Record and File Maintenance	1.1	2.7
	Information Products Development	0.9	3.5
	News Material Dissemination	0.8	3.0
	Program Coordination	0.7	3.7
	Interview Materials Generation	0.5	3.7
Investigators (INV)	Weapons and Equipment Management	10	3.7
	Criminal Operations Analysis	9.1	3.3
	Criminal Operations	8.1	3.4
	Protective Service Operations (PSO)	7.5	3.6
	Office and Personnel Management	6.9	3.1
	Administrative Operations	6.8	3.1
	Intelligence Operations	5.9	3.0
	Case Management	5.1	3.4
	Evidence Management	4.9	3.3
	Criminal Operations Investigations	4.6	3.6
	Case Presentation	4	3.4
	Protective Service Operations (PSO) Management	3.9	3.0
	Administrative Report Preparation	3.7	3.0
	Administrative Document Review	3.7	3.2
	Suspect Management	3.2	3.4
	Administrative Document Preparation	3.1	3.0
	Crime Scene Management	2.5	3.3

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload (continued)

Job Family	SkillObject	Workload (%)	Criticality
	Training	2.3	3.3
	Intelligence Documentation	1.9	3.0
	Intelligence Dissemination	1.7	3.0
	Witness Management	1	3.0
	Confidential Source Management	0.1	3.0
	Use of Force	0.1	N/A
Materiel Civil Engineering (MAT)	Information Gathering	18.3	3.1
	Planning, Estimating, and Scheduling	14.9	3.5
	Contract Management	14.5	3.3
	Information Analysis	13.7	3.4
	Preventive Maintenance	8.5	3.5
	Program and Project Coordination	7.7	3.6
	Training Management	3.8	3.2
	Biennial Assessment	3.5	3.1
	Budget and Account Management	3.3	3.3
	Exterior Structural Installation and Construction	2.2	2.6
	Electrical Installation and Maintenance	1.9	3.6
	Fire and Hazardous Materials Handling	1.8	3.8
	Exterior and Interior Repairs	1.5	2.0
	Interior Structural Installation and Construction	1.4	2.9
	Plumbing and Welding	1.4	2.0
	Mild Steel Products	1.2	2.7
	Interior Construction	0.3	2.0
Materiel Facilities (MAT)	Files Management	14.8	2.9
	Project Management	12.9	3.2
	Performance Enhancement	12.6	3.1
	Work Coordination	9.9	3.0
	Product Research	8.2	2.9
	Site and Facility Inspection	5.9	3.2
	Safety Strategies	5	3.2
	Procurement Management	4.9	3.1
	Personnel Management	4.6	3.1
	Document Creation	4.1	3.0
	Emergency Strategies	4	3.2
	Contract Management	3.8	3.3
	Blueprint and Schematic Interpretation	3.3	3.3

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
	Training Management	3.2	3.0
	PMS Management	2.7	3.1
Materiel Marine Safety (MAT)	Vessel Equipment Inspection	15.3	3.3
	Vessel Systems Inspection	9.1	3.3
	SPV System Inspection	8.9	3.3
	Safety Equipment Inspection	7.7	3.7
	Vessel Inspection	7.7	3.5
	System and Equipment Testing	7	3.6
	Work Evaluation	5.3	3.5
	Report and Data Evaluation	4.4	3.4
	Record and Document Inspection	4	3.3
	Rules and Regulations Enforcement	3.5	3.2
	Personnel Management	2.9	3.1
	Cargo Handling and Inspections	2.8	3.5
	Data Analysis	2.2	3.4
	Vessel Electric System Inspection	2	3.1
	Record and Log Maintenance	1.9	3.0
	Self Development	1.7	3.0
	Inspection Reports and Data Analysis	1.5	2.9
	Navigational Equipment Inspection	1.4	2.9
	Communications System Inspection	1.4	2.9
	Work Coordination	1.3	3.0
	Motor Vehicle Operation	1	3.7
	Work Communication	0.8	3.1
	Command Communications	0.8	3.2
	General Military Activity	0.8	2.7
	Administrative Request Processing	0.7	2.2
	Work Inspection	0.7	3.7
	Facilities Maintenance	0.6	1.8
	Facilities Inspection	0.6	2.7
	Work Instructions Development	0.6	2.7
	Incident Analysis	0.5	3.4
	Procedure Development	0.3	3.0
	Mathematical Calculations	0.2	4.0
	Budget Management	0.2	2.9
	Contract Management	0.2	2.9
	Maintenance Planning	0.2	2.7

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
Medical Administration (MED)	Resource Management	19.3	3.2
	Medical Administration	17.4	3.2
	Ancillary Support	13.1	2.8
	Mission Accomplishment	12.1	2.9
	Patient Assistance	11.1	3.2
	Personnel Management	10.7	2.8
	Personnel Training	8.5	3.2
	Patient Support	5.3	3.0
	Military Management	2.6	2.0
Personnel Administration (PERS)	Office Equipment Operation	9.9	2.6
	Work Coordination	7.9	2.9
	Personnel Development	7.8	3.2
	Workforce Management	5.9	2.8
	Records Management	5.7	2.9
	Administrative Procedure Management	5.4	3.0
	Administrative Form and Document Processing	5.1	3.0
	General Military Activities	4.9	2.5
	Database Management	4.5	3.0
	Process Evaluation	4.1	3.1
	Educational Consultation	3.4	3.2
	Administrative Process Assistance	3.4	3.2
	Document Edit	3.4	3.0
	Special Document Preparation	2.9	3.0
	Data Analysis	2.8	3.2
	Budget Management	2.7	3.2
	Training Management	2.5	2.9
	Personnel Evaluation	2.4	3.3
	Contractor Communications	2.4	3.1
	Information Presentations and Briefings	2.3	2.8
	Information Gathering	2.2	2.8
	Administrative Action Communications	2.1	2.9
	Personnel Training	1.7	2.8
	Program Administration	1.2	3.4
	Training Development	1.2	2.6
	Resource Management	0.8	2.6
	CGSW Management	0.6	2.5
	Service Request	0.5	2.8
	Unit Communications	0.5	2.6

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
	Recreational Services Management	0.2	3.2
Port Safety and Security (PSS)	Information Gathering	13.9	3.2
	Crew Mentoring and Training	13.1	3.2
	Work Coordination	12.4	3.0
	Resource Management	9.1	2.9
	Crew Management	8.2	2.8
	Training Management	6	2.6
	Security Briefings	5.7	3.0
	Port Security	5.6	3.1
	Port Safety Management	4.3	3.3
	Exercise Assessment and Planning	3.9	2.7
	Process Evaluation and Improvement	3.8	2.7
	Port Investigations	3.4	3.1
	Report Documentation and Preparation	3.3	2.9
	Port Inspections	2.4	2.8
	Port Safety Planning	1.7	3.3
	Pollution Containment	1.5	2.5
	Budget and Procurement Management	1.4	2.6
	Inventory Management	0.4	3.0
Weapons (WEPS)	Vessel Safety Inspections	10.6	3.4
	Computer Software Utilization	8.6	2.3
	Vessel Equipment Inspections	5.8	3.8
	Administrative Processing	5.7	2.7
	Data and Document Maintenance	4.8	2.8
	Report and Document Review	4.3	2.9
	Liaison Communications Management	4.2	3.1
	Electronic and Electric Equipment Maintenance	4	3.7
	MSO Investigations and Legal Proceedings	3.5	3.2
	CASEREP Systems Management	3.1	3.4
	Repair Work Evaluation	2.9	3.6
	Workforce Management	2.9	3.0
	Safety Equipment Inspections	2.7	4.3
	Information Gathering	2.7	3.3
	MSO Communications and Correspondence	2.4	3.0
	Resource Management	2.1	3.4
	Weapon System Operations	2	3.8
	Vessel Operations Monitoring	2	3.9

Table 11. All SkillObjects within each job family, ranked by percentage CWO workload
(continued)

Job Family	SkillObject	Workload (%)	Criticality
	Communications Systems Operation	1.8	2.6
	Personnel Training	1.8	3.7
	Correspondence Generation	1.5	2.6
	Ordnance Document and Data Management	1.5	3.6
	Marine Documents Inspection and Review	1.4	3.2
	Preventive Maintenance Management	1.4	2.9
	Data Analysis	1.3	3.8
	Budget Management	1.3	3.5
	MSO Administrative Work	1.2	3.0
	Maintenance Records Review	1.2	3.0
	Document Generation	1.2	3.0
	Procedure Evaluation	1.1	3.4
	Weapon Systems Data Maintenance	1.1	3.0
	Ordnance Management	1.1	4.0
	Vessel Security Inspections	1.1	4.0
	Work Coordination	1	3.7
	Operational Communications	0.8	3.3
	Performance Evaluation	0.8	3.3
	Ordnance Safety Management	0.7	3.8
	Procedure Development	0.7	3.0
	Security Patrols	0.6	4.0
	Ordnance Documents Review	0.4	2.6
	Program Development	0.4	3.6
	Environmental Incident Response Management	0.3	3.2
	Firing Plan Preparation	0.1	4.4

Appendix B: Marine Safety SkillObjects

To determine whether there is an adequate number of people and work to support a new Marine Safety specialty, we looked at our survey data for SkillObjects that encompass marine safety work. Table 12 lists the 42 marine safety related SkillObjects.

Table 12. Marine Safety SkillObjects by job family

Job Family	SkillObject
Boatswain Line (BOSN)	Work Safety Management
Boatswain Staff-Marine Safety (BOSN)	Marine Incident Management
	Marine Safety Consultation
	Resource Management
	Vessel Safety Inspections
Electronics Afloat (ELC)	Equipment and Machinery Inspections
Engineering Afloat-Marine Safety (ENG)	Equipment Operation Monitoring
	HAZMAT Spill Response-Clean Up
	Personnel Training
	Reference Material Review
	Work Coordination
	Work Monitoring
Materiel Marine Safety (MAT)	Cargo Handling and Inspections
	Incident Analysis
	Inspection Reports and Data Analysis
	Navigational Equipment Inspection
	Personnel Management
	Record and Document Inspection
	Record and Log Maintenance
	Report and Data Evaluation
	Rules and Regulations Enforcement

Table 12. Marine Safety SkillObjects by job family (continued)

Job Family	SkillObject
	Safety Equipment Inspection
	SPV System Inspection
	System and Equipment Testing
	Vessel Electric System Inspection
	Vessel Equipment Inspection
	Vessel Inspection
	Vessel Systems Inspection
	Work Evaluation
	Work Inspection
Weapons (WEPS)	Environmental Incident Response Management
	Maintenance Records Review
	Marine Documents Inspection and Review
	MSO Administrative Work
	MSO Communications and Correspondence
	MSO Investigations and Legal Proceedings
	Repair Work Evaluation
	Safety Equipment Inspections
	Vessel Equipment Inspections
	Vessel Operations Monitoring
	Vessel Safety Inspections
	Vessel Security Inspections

Appendix C: IT SkillObjects

To determine whether there is an adequate number of people and work to support a new Information Technology (IT) specialty, we looked at our survey data for SkillObjects that encompass IT work. Table 13 lists the 25 IT related SkillObjects

Table 13. Information Technology SkillObjects by job family

Job Family	SkillObject
Communications & Information Systems (COMM)	Files Management
	Security Management
	Systems Editing
	Systems Management
	Training Management
	Trend Analysis
Communications Staff (COMM)	Computer Configuration
	Computer Installation
	IT Systems Evaluation
	IT systems Troubleshooting
	Job Aid Development
	Network configuration
	Security Evaluation
	Security Maintenance
	Security Management
	Systems Maintenance
	Systems Management
	Technology Training
	Web Applications

Table 13. Information Technology SkillObjects by job family (continued)

Job Family	SkillObject
Electronics Afloat (ELC)	Electronic Systems Management
	Information Gathering
	System Evaluation
	Technical Consultation
Electronics Support (ELC)	Equipment Installation and Configuration
	Equipment Operation

Appendix D: Potential feeder ratings

Potential feeder ratings were determined by summing CWO workload percentages that were matched by each of the ratings.

In each of the tables below, the first column is the SkillObject; the second column is the percentage of the workload represented by that SkillObject for the CWOs in that specialty. Subsequent columns represent rating matches—where respondents from a rating indicated that they perform tasks in that SkillObject, the CWO workload percentage was carried over into that column. The sum of these percentages for each rating is given in the bottom row of each table.

The ratings listed in the tables below are as follows: AST–Aviation Survival Technician; AVT–Avionics Technician; BM–Boatswain's Mate; DC–Damage Controlman; ET–Electronics Technician; IT–Information Systems Technician; MK–Machinery Technician; MST–Marine Science Technician; OS–Operations Specialist.

Table 14. Potential feeder rating for the Communications (COMM) specialty

COMM SkillObjects	CWO workload (%)	IT match (%)
Administration and Information Management	6.7	6.7
Computer Configuration	0.2	
Computer Installation	0.1	
COMSEC Inventory Management	0.6	
COMSEC Management	0.8	
Customer Needs Assessment	1.0	1.0
Customer Relations	5.7	5.7
Documentation Preparation	5.0	5.0
Electronic Key Management System	0.6	
Files Management	2.5	2.5

Table 14. Potential feeder rating for the Communications (COMM) specialty (continued)

COMM SkillObjects	CWO workload (%)	IT match (%)
Information Gathering and Verification	4.9	4.9
IT Systems Evaluation	0.8	
IT systems Troubleshooting	0.3	
Job Aid Development	0.5	
Network configuration	0.3	
Performance Awards & Evaluations	2.6	2.6
Performance Enhancement Training	2.2	2.2
Personnel Evaluations and Mentoring	2.2	
Personnel Management	1.4	1.4
Personnel Mentoring	4.7	4.7
Process Evaluation	2.5	2.5
Process Improvement	3.9	3.9
Project Development	1.2	
Project Management	13.6	13.6
Resource Management	1.7	
Security Evaluation	2.6	
Security Maintenance	1.2	1.2
Security Management	5.9	5.9
Systems Editing	1.7	1.7
Systems Maintenance	0.6	
Systems Management	6.1	6.1
Technology Training	1.3	1.3
Training Management	7.4	7.4
Trend Analysis	2.6	2.6
Web Applications	0.9	
Work Coordination and Management	4.2	
Total	100.0	82.5

Table 15. Potential feeder ratings for the Electronics (ELC) specialty

ELC SkillObjects	CWO workload (%)	AVT match (%)	BM match (%)	MST match (%)
Administrative Processes	9.5	9.5	9.5	9.5
Administrative Processes	0.3	0.3	0.3	0.3
Budget Management	3.9	3.9	3.9	3.9
Career and Performance Guidance	2.9	2.9	2.9	2.9
Communications	9.3	9.3	9.3	9.3
Document and Data Review	5.5			
Electronic Systems Management	0.6			
Electronic Equipment Inspection	3.3			
Electronic Equipment Maintenance	0.5			
Electronic Equipment Repair	1.8	1.8		
Equipment and Machinery Inspections	0.7			
Equipment Installation and Configuration	1.7			
Equipment Operation	2.4			
General Military Activities	0.6			
Information Analysis	5.5			
Information Gathering	4.4			
Job Knowledge	0.5			
Loran Management	2.9			
Personnel Evaluation	0.3	0.3		
Personnel Training	4.4		4.4	4.4
Plan and Program Development	3.2			
Problem Solving	0.2			
Procedure Implementation	0.1		0.1	0.1
Process and Records Evaluation	0.5			
Program and Process Management	2.2	2.2	2.2	
Public Relations	0.0			
Resource Management	3.7	3.7	3.7	3.7
Security Management	1.7		1.7	1.7
System and Equipment Maintenance	0.3			
System Evaluation	0.1			
Technical Consultation	6.6			
Technical Information Review	2.9			
Training Evaluation and Development	1.2	1.2		
Work Coordination	11.6	11.6	11.6	11.6
Workforce Management	4.7	4.7	4.7	4.7
Total	100.0	51.4	54.3	52.1

Table 16. Potential feeder ratings for the Finance and Supply (F&S) specialty

F&S SkillObjects	CWO workload (%)	IT match (%)	MK match (%)	OS match (%)
Account Maintenance	0.6			
Account Management	1.4			
Ancillary Services	1.3			
Awards and Evaluations	1.2			
Budget Management	6.3	6.3	6.3	6.3
CMPlus	2.5		2.5	
Commercial Procurement	2.0		2.0	
Communications	1.2	1.2	1.2	1.2
Correspondence Generation and Management	1.2			
Correspondence Management	4.4			
Correspondence Preparation	0.7			
Customer Relations	5.8	5.8		5.8
Files Management	1.8			
Financial Management	9.2	9.2	9.2	9.2
Information Verification	1.5			
Inventory Management	1.1			
Logistics	1.4			
LUFS	4.4			
LUFS Management	1.2			
MILSTRIP	0.6			
Personnel Management	7.7	7.7	7.7	7.7
Personnel Mentoring	9.9	9.9		9.9
Procurement Management	1.5			
Property Management	4.1			
Records an Reports Management	4.0			
Resource Management	12.8	12.8	12.8	12.8
Shipping and Receiving Management	0.7			
Training	9.5		9.5	9.5
Total	100.0	53.0	51.1	62.5

Table 17. Potential feeder rating for Investigators

Investigator SkillObjects	CWO workload (%)	BM match (%)
Administrative Document Preparation	3.1	3.1
Administrative Document Review	3.7	3.7
Administrative Operations	6.8	6.8
Administrative Report Preparation	3.7	3.7
Case Management	5.1	5.1
Case Presentation	4.0	4.0
Confidential Source Management	0.1	0.1
Crime Scene Management	2.5	2.5
Criminal Operations	8.1	8.1
Criminal Operations Analysis	9.1	9.1
Criminal Operations Investigations	4.6	4.6
Evidence Management	4.9	4.9
Intelligence Dissemination	1.7	1.7
Intelligence Documentation	1.9	1.9
Intelligence Operations	5.9	5.9
Office and Personnel Management	6.9	6.9
Protective Service Operations (PSO)	7.5	7.5
Protective Service Operations (PSO) Management	3.9	3.9
Suspect Management	3.2	3.2
Training	2.3	2.3
Use of Force	0.1	0.1
Weapons and Equipment Management	10.0	10.0
Witness Management	1.0	1.0
Total	100.0	100.0

Table 18. Potential feeder ratings for the Port Safety and Security (PSS) specialty

PSS SkillObjects	CWO workload (%)	AST match (%)	BM match (%)	DC match (%)	ET match (%)	OS match (%)
Budget and Procurement Management	1.4	1.4		1.4		
Crew Management	8.2	8.2	8.2	8.2	8.2	8.2
Crew Mentoring and Training	13.1	13.1	13.1	13.1	13.1	13.1
Exercise Assessment and Planning	3.9					
Information Gathering	13.9					
Inventory Management	0.4					
Pollution Containment	1.5					
Port Inspections	2.4				2.4	
Port Investigations	3.4		3.4			
Port Safety Management	4.3		4.3		4.3	
Port Safety Planning	1.7					
Port Security	5.6		5.6		5.6	
Process Evaluation and Improvement	3.8				3.8	3.8
Report Documentation and Preparation	3.3					
Resource Management	9.1	9.1	9.1	9.1	9.1	9.1
Security Briefings	5.7					
Training Management	6.0	6.0	6.0	6.0	6.0	6.0
Work Coordination	12.4	12.4	12.4	12.4	12.4	12.4
Total	100.0	50.0	62.0	50.0	64.8	52.5

We did not identify any new potential feeder ratings for the MAT specialty. We did note, though, that the official feeder ratings had relatively low percentage matches with the CWO work, and so we have included the table below.

Table 19. Feeder ratings for the Materiel (MAT) specialty

MAT SkillObjects	CWO workload (%)	AST match (%)	DC match (%)
Administrative Request Processing	0.5	0.5	
Biennial Assessment	0.2		0.2
Blueprint and Schematic Interpretation	0.6	0.6	0.6
Budget and Account Management	0.2	0.2	0.2
Budget Management	0.1	0.1	0.1
Cargo Handling and Inspections	2.2		
Command Communications	0.6	0.6	0.6
Communications System Inspection	1.0		
Contract Management	1.7	1.7	1.7
Data Analysis	1.7	1.7	
Document Creation	0.7	0.7	0.7
Electrical Installation and Maintenance	0.1		0.1
Emergency Strategies	0.7	0.7	0.7
Exterior and Interior Repairs	0.1		0.1
Exterior Structural Installation and Construction	0.1		0.1
Facilities Inspection	0.4	0.4	0.4
Facilities Maintenance	0.4	0.4	
Files Management	2.5	2.5	2.5
Fire and Hazardous Materials Handling	0.1		0.1
General Military Activity	0.6	0.6	0.6
Incident Analysis	0.3	0.3	
Information Analysis	0.9		0.9
Information Gathering	1.2		1.2
Inspection Reports and Data Analysis	1.2	1.2	
Interior Construction	0.0		0.0
Interior Structural Installation and Construction	0.1		0.1
Maintenance Planning	0.1	0.1	
Mathematical Calculations	0.2		
Mild Steel Products	0.1		0.1
Motor Vehicle Operation	0.8	0.8	0.8

Table 19. Feeder ratings for the Materiel (MAT) specialty (continued)

MAT SkillObjects	CWO workload (%)	AST match (%)	DC match (%)
Navigational Equipment Inspection	1.1		
Performance Enhancement	2.1	2.1	2.1
Personnel Management	3.0	3.0	3.0
Planning, Estimating, and Scheduling	1.0		1.0
Plumbing and Welding	0.1		0.1
PMS Management	0.5	0.5	0.5
Preventive Maintenance	0.5		0.5
Procedure Development	0.3	0.3	
Procurement Management	0.8	0.8	0.8
Product Research	1.4	1.4	1.4
Program and Project Coordination	0.5		0.5
Project Management	2.2	2.2	2.2
Record and Document Inspection	3.1	3.1	
Record and Log Maintenance	1.5		1.5
Report and Data Evaluation	3.4		
Rules and Regulations Enforcement	2.7	2.7	
Safety Equipment Inspection	5.9	5.9	
Safety Strategies	0.8	0.8	0.8
Self Development	1.3	1.3	1.3
Site and Facility Inspection	1.0	1.0	1.0
SPV System Inspection	6.8		
System and Equipment Testing	5.3		
Training Management	0.8	0.8	0.8
Vessel Electric System Inspection	1.5		
Vessel Equipment Inspection	11.8	11.8	
Vessel Inspection	5.9		
Vessel Systems Inspection	7.0		
Work Communication	0.6	0.6	
Work Coordination	2.7	2.7	2.7
Work Evaluation	4.1		
Work Inspection	0.5		
Work Instructions Development	0.4	0.4	
Total	100.0	54.5	32.0

Similarly, we assessed the potential feeder ratings for the new Marine Safety specialty, by calculating CWO workload percentages for all the Marine Safety SkillObjects (table 20).

Table 20. Potential feeder ratings for new Marine Safety specialty

Job family-Marine Safety SkillObject	CWO workload (%)	MK match (%)	MST match (%)	BM[a] match (%)
Boatswain Line (BOSN)-Work Safety Management	1.7		1.7	1.7
Boatswain Staff-Marine Safety (BOSN)-Marine Incident Management	1.1		1.1	1.1
Boatswain Staff-Marine Safety (BOSN)-Marine Safety Consultation	0.6		0.6	0.6
Boatswain Staff-Marine Safety (BOSN)-Resource Management	1.1		1.1	1.1
Boatswain Staff-Marine Safety (BOSN)-Vessel Safety Inspections	2.9		2.9	2.9
Electronics Afloat (ELC)-Equipment and Machinery Inspections	0.5			
Engineering Afloat-Marine Safety (ENG)-Equipment Operation Monitoring	3.8	3.8		
Engineering Afloat-Marine Safety (ENG)-HAZMAT Spill Response-Clean Up	0.8	0.8	0.8	
Engineering Afloat-Marine Safety (ENG)-Personnel Training	5.4	5.4		
Engineering Afloat-Marine Safety (ENG)-Reference Material Review	6.3	6.3	6.3	
Engineering Afloat-Marine Safety (ENG)-Work Coordination	3.7	3.7	3.7	
Engineering Afloat-Marine Safety (ENG)-Work Monitoring	0.9	0.9	0.9	
Materiel Marine Safety (MAT)-Cargo Handling and Inspections	2.0		2.0	
Materiel Marine Safety (MAT)-Incident Analysis	0.3		0.3	
Materiel Marine Safety (MAT)-Inspection Reports and Data Analysis	1.1	1.1	1.1	
Materiel Marine Safety (MAT)-Navigational Equipment Inspection	1.0	1.0	1.0	
Materiel Marine Safety (MAT)-Personnel Management	2.1	2.1	2.1	
Materiel Marine Safety (MAT)-Record and Document Inspection	2.9	2.9	2.9	
Materiel Marine Safety (MAT)-Record and Log Maintenance	1.4	1.4	1.4	
Materiel Marine Safety (MAT)-Report and Data Evaluation	3.2	3.2	3.2	
Materiel Marine Safety (MAT)-Rules and Regulations Enforcement	2.5	2.5	2.5	
Materiel Marine Safety (MAT)-Safety Equipment Inspection	5.6	5.6	5.6	
Materiel Marine Safety (MAT)-SPV System Inspection	6.4	6.4		
Materiel Marine Safety (MAT)-System and Equipment Testing	5.0	5.0	5.0	
Materiel Marine Safety (MAT)-Vessel Electric System Inspection	1.4	1.4	1.4	
Materiel Marine Safety (MAT)-Vessel Equipment Inspection	11.0	11.0	11.0	
Materiel Marine Safety (MAT)-Vessel Inspection	5.5	5.5	5.5	

Table 20. Potential feeder ratings for new Marine Safety specialty (continued)

Job family-Marine Safety SkillObject	CWO workload (%)	MK match (%)	MST match (%)	BM[a] match (%)
Materiel Marine Safety (MAT)-Vessel Systems Inspection	6.5	6.5	6.5	
Materiel Marine Safety (MAT)-Work Evaluation	3.8	3.8		
Materiel Marine Safety (MAT)-Work Inspection	0.5	0.5		
Weapons (WEPS)-Environmental Incident Response Management	0.1			
Weapons (WEPS)-Maintenance Records Review	0.3			
Weapons (WEPS)-Marine Documents Inspection and Review	0.4			
Weapons (WEPS)-MSO Communications and Correspondence	0.6			
Weapons (WEPS)-MSO Investigations and Legal Proceedings	0.9			
Weapons (WEPS)-Repair Work Evaluation	0.8			
Weapons (WEPS)-Safety Equipment Inspections	0.7	0.7	0.7	
Weapons (WEPS)-Vessel Equipment Inspections	1.5			
Weapons (WEPS)-Vessel Operations Monitoring	0.5			
Weapons (WEPS)-Vessel Safety Inspections	2.8			
Weapons (WEPS)-Vessel Security Inspections	0.3			
Total	100.0	81.3	71.2	7.4

a. The BM rating showed a low total percentage match (7.4%), and we did not include it in the list of potential source ratings for a Marine Safety specialty. However, we've included it here for reference purposes.

References

[1] U.S. Coast Guard, ALCOAST 317/03. For more information, see http://www.uscg.mil/ff21/jrr/

[2] COMDTINST M1000.6A, US Coast Guard Personnel Manual.

[3] Chief of Naval Operations, NAVADMIN 02/337. Viewable at http://www.bupers.navy.mil/navadmin/nav02/nav02337.txt

List of figures

List of tables

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