

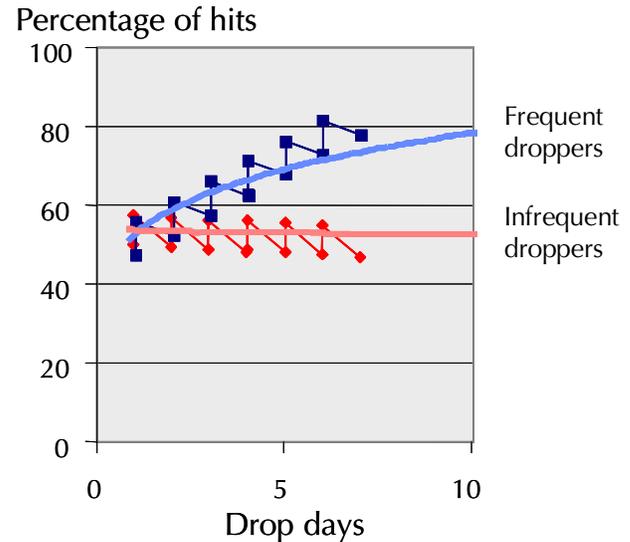
Aircrew training and combat proficiency

On 24 March 1999, NATO launched Operation Allied Force, a 78-day campaign of air strikes against targets in the Federal Republic of Yugoslavia. The U.S. Navy flew about 1,560 strike sorties in support of the operation. CNA analysis of the strike performance revealed a strong connection between a specific training event and combat proficiency. Specifically, participation in the Strike-Fighter Advanced Readiness Program (SFARP) improved an aircrew's ability to put bombs on target during combat operations.

We also found that *recent* combat experience improved proficiency in subsequent combat missions. Our analysis showed that although an aircrew's proficiency improved with every bomb dropped, the improvement decayed each day the aircrew did not drop. The figure shows the proficiency curves for F-14 and F/A-18 aircrew in Operation Allied Force. For those aircrew that dropped bombs frequently—the F-14 aircrew—we saw a positive learning curve, signifying cumulative improvement; for those that dropped less frequently—the F/A-18 aircrew—we saw a flat curve, signifying no cumulative improvement. In other words, the ability of F-14 aircrew to put bombs on target improved over the duration of the operation; the ability of F/A-18 aircrew did not improve.

This result enabled us to quantify the rate at which aircrew gained and lost combat proficiency in the the operation. The model, shown by the jagged lines on the figure, enables us to predict combat proficiency based on the frequency of bomb drops. Conversely, it enables us to develop guidelines for how often aircrew must drop bombs to achieve a specific level of proficiency.

(Dr. Alan Brown, (703) 824-2358)



Bomb-dropping frequency vs. combat proficiency

Revamping the USMC recruiting structure

In each of the last five years, the Marine Corps Recruiting Command has met its recruiting goals. To achieve its national recruiting mission, however, the command has come to rely on six disproportionately large districts with 48 recruiting stations. The Marines believe that a more balanced structure would minimize risk to the overall recruiting mission and asked CNA to participate in an effort to achieve balance among the districts and their recruiting stations.

We began by developing projections of the recruiting market. Currently, the districts in the western United States are assigned more structure and larger recruiting goals than those in the east. Our projections indicated that in the near future the potential recruit market will grow faster in the west than the east, exacerbating current structure imbalances. Working with a National Structure Working Group, we formulated a three-year plan

that shifts five recruiting stations between districts and reassigns about 50 of 2,650 recruiter billets. The result? A recruiting structure that is better balanced and better aligned with the recruiting market.

(Mr. Anton Jareb, (703) 824-2492)

The retirement choice

For those military personnel who entered service after 31 July 1986 and intend to serve for 20 years, an important decision is at hand: they must choose between two retirement options. The first option, High-3, is the more familiar. It bases retirement pay on the average basic pay for the highest 36 months of the individual's career, typically the last 3 years of service. The second option, REDUX, is becoming available for the first time, as service members joining after 31 July 1986 enter their fifteenth year of service. Under REDUX, the service member receives a \$30,000 cash bonus at 15 years of service, but at the cost of reduced retirement income.

How should they decide which option to take? A DoD website, www.pay2000.dtic.mil, provides information and examples to help in the decision. CNA did some calculations using a different approach that may provide useful in evaluating the REDUX option.

Consider REDUX's \$30,000 bonus as a "loan" given at 15 years of service. The payment scheme for this loan is smaller retirement checks over the retirement years. The service member "pays" nothing back until retirement, when "interest" in the form of reduced checks starts coming due. We calculated the interest rate for this \$30,000 loan. It increases with grade at retirement and falls with age and years of service at retirement. For E-6s to O-4s retiring after 20 years of service, the interest rate varies from 7.9 to 12.4 percent.

In most cases, however, the amount of interest adds up to many times the amount of the loan. Take, for example, an E-8 retiring at age 38 after 20 years of service. If he lived to age 79, he would

pay an "interest rate" of 8.5 percent—that is, he would receive almost \$200,000 less in retirement checks than one who chose the High-3 option. He would "pay back" \$30,000 for the principal and \$168,600 in interest. This very high interest amount contrasts sharply with home mortgages, for which the payback amount is typically about double the amount borrowed.

(Dr. Aline Quester, (703) 824-2728), and Gary Lee (USMC, ret.), (703) 824-2499)

Operation Phantom Menace

After completing Operation Phantom Menace, Commander, Third Fleet and Commander, ASW Forces Pacific (CTF-12) asked CNA to reconstruct and analyze the operation. We used raw and reconstructed data from CTF-12 and other participating commands to assess the effectiveness of the operation. We generated such traditional ASW measures of effectiveness as statistics on contact time and level of effort by platform. We also quantified two new measures of effectiveness related to the Web-Centric ASW Network (WeCAN). Then we conducted parametric analyses to examine the sensitivity of specific aspects of performance to changes in target parameters and the settings of our systems.

Our evaluation also considered how well the ASW Roadmap, developed by the Director, Anti-Submarine Warfare Requirements Division, addresses those ASW capabilities that emerged as marginal or deficient in Operation Phantom Menace. We found that many near-term ASW operational requirements or initiatives outlined as essential or critical in the ASW Roadmap were conformed to or important in Operation Phantom Menace. But we also identified areas of the ASW Roadmap that could be strengthened.

In comparing Operation Phantom Menace to recent, similar operations, we identified capabilities that have been consistently strong or poor and then determined the reasons for differences in performance. Although we were able to identify several factors that may have contributed to

the successes, the data were insufficient to quantify the significance of many of these.

The detail and completeness of our reconstruction and analysis has made it a baseline for future reconstructions. By using the same approach, we will be able to reconstruct and analyze similar operations in near-real time as the raw data become available.

(Dr. Harvey Spivack, (703) 824-2310)

Maritime Defense Zone

The Commanders of Maritime Defense Zones, Atlantic (MDZLANT) and Pacific (MDZPAC), asked CNA to study the evolving role of the Maritime Defense Zone. As the fleet commanders' principal advisors in all matters affecting naval coastal warfare (NCW), the MDZ are facing new challenges:

- New threats—including weapons of mass destruction—imperil U.S. forces overseas and ports in the continental United States.
- NCW forces are in high demand by unified CINCs for real-world force protection and by OPNAV for waterside force protection in CONUS.
- Changes to the Unified Command Plan and the *Forces for Unified Commands* document may affect the MDZ organization.

Although headed by the Coast Guard Area Commanders, the MDZ are third-echelon Navy commands that report to CINCLANTFLT and CINCPACFLT. We observed differences between the commands, reflecting the priorities and responsibilities of their superiors: MDZPAC focuses on the expeditionary mission; MDZLANT, in contrast, increasingly focuses on CONUS issues, based on perceptions of an increased asymmetric threat at home.

Differences also exist between the MDZ and Amphibious Groups Two and Three, which also are responsible for NCW. The MDZ focus on the long-term mission of sustainment and embrace

the harbor defense/port security (HD/PS) model of NCW operations. The PHIBGRUs have embraced a different model for NCW: the Fleet Security Officer/Force Protection Officer (FSO/FPO).

The overriding need for coordination amongst the commands led us to a recommendation that builds cooperation into the structure. We recommended double-hatting the commodore of the NCW Group as the deputy MDZ commander. The double-hatting would result in a structure that would ensure that the fleet commanders' NCW advisors—the MDZ commanders—have the information they need to do the job, and it would give the NCW groups a stake in MDZ. This recommendation is only a first step. More study is needed to understand the bigger picture into which MDZ and NCW fit and to craft a structure and a division of responsibilities that make sense in the 21st century. For now, Navy and Coast Guard leadership may want to consider our recommendation for institutionalizing cooperation between the MDZ and NCW commands.

(Ms. Karen Smith, (703) 824-2575)

The future of the JMSDF

With over fifty major surface combatants, sixteen submarines, and a hundred P-3s, the Japanese Maritime Self-Defense Force (JMSDF) is by far the most capable allied naval force in Asia. In recent years it has taken on additional responsibilities, but due to both strategic shifts in northeast Asia and domestic political and economic problems, its future direction is uncertain. OPNAV N3/N5 asked CNA to examine the future direction of the JMSDF and its implications for the U.S. Navy.

We examined the future roles of the JMSDF, focusing first on its traditional role of defending Japan, and then on its other roles of military operations other than war, rear area support for U.S. forces in areas surrounding Japan, and military engagement. Finally, we analyzed its potential role in power projection. For each role, we

identified existing or potential missions and capabilities. Then we evaluated each role and supporting missions and capabilities in terms of U.S. strategic and naval objectives for Japan.

We concluded that the JMSDF is likely to continue to support mutual U.S. and Japanese naval objectives for the foreseeable future, and provided specific recommendations for the U.S. Navy to enhance the degree and quality of that support. For example, in calling for a JMSDF that complements U.S. naval forces, we stressed the importance of JMSDF anti-submarine warfare and mine countermeasures missions and capabilities. We provided recommendations on JMSDF surface fleet composition, to include the option of sea-based theater ballistic missile defense. We recommended against changing the basic responsibilities between JMSDF defensive and USN power projection roles. We supported a JMSDF role in missions other than war, and recommended USN positions on alternative JMSDF force structures for which the JMSDF leadership has already requested advice or may seek U.S. assistance. We also provided insights into Japanese thinking about the JMSDF and regional contingencies. Finally, given that, in Japan, the way in which recommendations are made is just as important as the recommendations themselves, we provided advice on approaches to Japanese government officials who can influence the future direction of the JMSDF.

(Mr. Hank Kenny, (703) 824-2605)

2000 Annual Conference

Every year, CNA hosts a conference to stimulate discussion and debate on issues of vital importance to national security. This year's conference, *National Security in the 21st Century: Defense Issues*

for the New Administration, held on 29 and 30 November, explored defense issues that will arise in the early days of the new administration. From the myriad potential issues, we chose to examine five:

- How should the U.S. use its military?
- What should be done about a personnel crisis—if one exists?
- What are the technical, operational, and policy implications of a sea-based component to national missile defense?
- How should the Services integrate efforts in light of new expeditionary doctrines?
- Is the U.S. building the wrong military?

Following discussion of these issues, an integrating panel ranked the many issues facing the new administration. Currently, we're compiling the insights generated by the conference into a report to present to the new administration.

(Ambassador Linton Brooks, (703) 824-2587)

Dr. Mike Smith cited for superior service

In recognition of his outstanding performance as Scientific Analyst for the Director, Assessment Division, Dr. Mike Smith has been awarded the Department of the Navy's Superior Public Service Award. The citation commended Dr. Smith's contributions to the 1999 and 2000 IWAR cycles and the CPAM end game: "Dr. Smith developed the final fiscally-constrained alternatives and potential trade-offs between aviation and surface warfare programs in a series of remarkably complex and intense sessions. Dr. Smith's work clearly defined the problem for the Navy, facilitating critical force structure discussions between



Department of Navy leadership during development of the FY02-07 POM.”