

Navy campaign analysis

Campaign analyses must include not only well-developed scenarios and concepts of operations and employment for both friendly and threat forces, but also analytical tools that help quantify differences in campaign outcomes and naval warfighting capabilities that might arise from different combinations of platforms and CONOPs. Because of the growing importance of these analyses, the assumptions, employment concepts, simulation models, and quantitative measures used are receiving growing scrutiny.

One concern is the use of “static” CONOPs for both friendly and threat forces. Many campaign models are run under the assumption that the style of employment of forces would not change materially as a campaign proceeds. In an effort to remedy this problem, OPNAV’s Assessment Division (N81), with our support, conducted the Program Review (PR)-07 CONOPS wargame at CNA. In the final round of the wargame, more than 40 flag and general officers and senior civilians examined two major combat operation scenarios. The result was a more detailed and realistic CONOPS than has previously been available to guide the campaign analyses N81 conducts for OPNAV.

CNA analysts are also developing world-class modeling capability within DoN. We are working to bring more transparency to the models the Navy uses by critiquing the underlying methodologies and assumptions and, where possible, benchmarking them against real-world data. (Contact: Dr. Stuart Dunn, (703) 824-2444)

Technology for littoral antisubmarine warfare

CNA conducted a military utility assessment of projects within the Office of Naval Research’s Littoral Antisubmarine Warfare (LASW) Future Naval Capability. The two acoustic sensor projects we consid-

ered—the Deployable Autonomous Distributed System and the Littoral ASW Multistatic Program (LAMP)—combine existing sensing technologies with remote monitoring and control, airborne deployment, and extended life to break the link between the sensor and its monitoring platform. This technology, if successful, has the potential to increase ASW search rates without increasing the number of ASW platforms. Our analysis shows that LAMP, in particular, could significantly improve ASW force effectiveness in a standard planning scenario. Unlike the other projects we looked at, which are ongoing, the lightweight torpedo project is scheduled to begin in 2006; its goal is to develop a package of improvements to the new Mk 54 hybrid torpedo. Because that package has not yet been completely determined, our work has helped ONR identify the potential improvements that would have the greatest operational impact. (Contact: Dr. David Ruskin, (703) 824-2311)

Evaluation of non-traditional recruits

The National Guard ChalleNGe program is a boot-camp-style training and mentoring program for 16- to 18-year-old high-school dropouts. From FY98 through FY02, DoD ran a 5-year pilot treating home-schooled and ChalleNGe program recruits as high school-diploma graduates (HSDGs). That is, they were exempt from the cap placed on non-HSDGs. A CNA study evaluated how these recruits compared with other recruits. Because of the substantial cost of replacing recruits who do not fulfill their initial obligation, attrition rates serve as our primary outcome measure, but we also examine other measures, including aptitude, type of discharge, presence of waivers, and reason for separation. In 2001, we completed the first phase of the study, tracking 12-month attrition. At the time we saw mixed results. A few subgroups—home-schoolers with above-average test scores and Army and Marine ChalleNGe recruits—had attrition comparable to that of HSDGs.

In the next phase of the study, we tracked 24-month and 36-month attrition and found that the attrition of non-traditional groups relative to others worsened over time. After 36 months, the attrition for home-schoolers and ChalleNGe recruits is comparable to the attrition of those who are not graduates or have only a General Equivalency Diploma. This holds for all sub-groups. Our findings on other measures match up with our attrition findings; homeschooled and ChalleNGe GED recruits are not strong recruits. We recommend that they not be treated as if they are traditional high school diploma graduates for recruiting purposes. (Contact: Dr. Jennie Wenger, (706) 369-0437)

Marine Corps' success in recruiting Hispanics

The Hispanic population has grown dramatically over time—to over 12 percent of the population in 2003—and is predicted to grow another 25 percent over the next decade. As this population has grown, so has its representation in the Marine Corps. Hispanics were almost 14 percent of Marine Corps enlisted accessions in FY02, a higher share than in any other military service. Once in the Marine Corps, Hispanic recruits perform well. We find that they are more likely than other recruits to complete bootcamp and the first term of service, even after controlling for other differences.

OSD asked CNA to explore the reasons for the Marine Corps' success in recruiting and retaining Hispanics. We found that the Marine Corps does not target Hispanics, but its systematic and focused recruiting approach contributes to its success with this market. For example, the Marine Corps' strong emphasis on building relationships with the families of potential recruits seems particularly to appeal to Hispanic recruits and their parents. Emphasis on core values and sameness also seems to resonate with Hispanic populations.

There are, however, challenges that may affect the service's ability to recruit Hispanics in the future (high dropout rates, citizenship, and language fluency, for example). We have recommended actions DoD can take to ensure future success in recruiting Hispanics. (Contact: Dr. Aline Quester, (703) 824-2728)

Smartship's return on investment

The Navy has developed a group of integrated systems and technologies intended to improve the efficiency of ship manning and maintenance. These systems and technologies are collectively known as the Smartship Integrated Ship Controls (ISC) system. The Navy asked CNA to determine the appropriate cost/benefit metrics for this system and to perform a return-on-investment analysis. Confining our analysis to cruisers in the CG-47 class, we identified and refined appropriate metrics by interviewing ships' officers, program managers, and Navy Department engineers. We then estimated the effect of the Smartship ISC system on these metrics by comparing outcomes on them for cruisers before and after the Smartship installation, as well as for non-ISC cruisers operating during the same time period.

We found that although Smartship hasn't achieved all of its intended goals, it is a good investment. The expected savings in maintenance and fuel consumption haven't materialized, but we did find savings in manpower. More importantly, the Smartship investments contribute to faster workups by allowing for engineering watch training in parallel with other training. We identified this unexpected benefit while observing operations at sea during training periods. The faster training alone justifies the continuation of the program. (Contact: Dr. William Sims, (703) 824-2500)

Navy first-term attrition holding steady at 30 percent

We have released our *Attrition and Reenlistment Report* under the sponsorship of N1H. We found that the Navy has reached the CNO's earlier goal of reducing first-term attrition to 30 percent and has held attrition at that level for several quarters. When we broke down the rate into its three phases—bootcamp, post-bootcamp training, and fleet—we found that bootcamp attrition and fleet attrition have been flat for the past year and that attrition in post-bootcamp training continues to decline slightly.

We also found that first-term reenlistment rates are at historically high levels and attribute that to two

factors: a sluggish growth in civilian jobs and increases in military compensation. Both basic pay and sea pay have increased over the past five years.

In looking at the seasonality of bootcamp attrition, we found a surge in recruits in the summer and that they are of a higher quality. We also found that bootcamp attrition is at its lowest for these summer recruits. The quality of summer recruits is only part of the reason that summer bootcamp attrition is lower. Even when we controlled for recruit quality, we found that summer recruits have lower attrition. Some possible explanations are that the bootcamp environment in the summer may be more positive or that the higher-quality recruits in the summer create a positive peer effect that fosters success for everyone. (Contact: Dr. Henry Griffis, (703) 824-2208)

Impact of encroachment on training and operational readiness

In looking at the effects of encroachment on unit readiness as seen from the Marine Corps Headquarters level, we determined how unit capabilities are affected by specific encroachment issues and encroachment-induced training restrictions at a major base complex. This approach, when applied to all Marine Corps training areas, can provide Headquarters a way to quantify the effects on training and, in turn, operational capabilities and readiness. We also identified the elements needed to develop an information database focused on unit capabilities and policies and actions at the service headquarters level. The Marine Corps Range Management System (RMS) contains all of this information for a subset of key Marine training ranges. Although RMS contains much of the requisite information at the right level of detail for headquarters-level decision support, it does not yet allow integration of the information across ranges or unit capabilities.

A standardized method for describing range characteristics would support automated integration of range information. We proposed a set of characteristic labels similar to, but more detailed than, such current range descriptors as “infantry live-fire” or “restricted airspace.” These essential range characteristics would be hierarchal, with each level, from general to specific,

allowing increasing, standardized, specific range description. Thus, each training requirement would include a standardized training range requirement, allowing an automated Marine Corps-wide match to be made between training requirement and range characteristic. (Contact: Dr. Alan C. Brown, (703) 824-2358)

Logistics modernization

Logistics modernization (LM) is a Marine Corps initiative to improve the effectiveness of logistics support to the warfighter by applying best practices from the private sector. It does so by modernizing Marine Corps logistics processes and systems to improve the way critical battlefield resources are managed and delivered to the warfighter. The end results are more accurate and timely visibility of Marine Air-Ground Task Force (MAGTF) resources, the ability to realign logistics capabilities in accordance with the MAGTF Commander’s priorities, and increased MAGTF combat power. We assessed the LM initiative to date and concluded that LM is critical to the Marine Corps for two reasons. First, the Operation Iraqi Freedom experience highlighted the fact that the Marine Corps continues to suffer from systemic logistics problems that reduce combat effectiveness. The lack of progress in addressing these challenges argues for new and innovative logistics processes and systems similar to those proposed by LM. Second, future operating concepts can't be implemented without the process and system changes enabled by LM. We also found that the LM initiative is not on track. Although progress has been made, a significant amount of work remains.

We developed recommendations highlighting the actions required for LM to move forward expeditiously. These included the importance of gaining the active support and involvement of the Commandant Marine Corps (CMC), the required focus on acquisition of critical IT enablers, the vetting of the logistics operational architecture through the Expeditionary Force Development System, and the criticality of a re-energized communications and outreach effort to ensure that all understand what LM is and what it will do for the warfighter. We briefed the results of this assessment to CMC in January and, based on that

briefing, CMC and DC I&L are implementing our recommendations. (Contact: Dr. Joseph A Mickiewicz, (703) 824-2788)

Joint Force Maritime Component Commander Wargame

Commander, Fleet Forces Command asked the Navy Warfare Development Command (NWDC) to develop procedures for the operation of the Joint Force Maritime Component Commander (JFMCC). NWDC, Second Fleet, and the Marine Corps Combat Development Command documented those procedures in a JFMCC TACMEMO and exercised the TACMEMO in a wargame hosted by NWDC and the Naval War College in November 2003.

NWDC asked CNA to help develop the wargame and lead the wargame analysis, thus providing an objective assessment of the JFMCC processes and procedures NWDC could use to strengthen the JFMCC TACMEMO and the JFMCC concept. We helped develop wargame objectives, organize the analysis, lead the analysis team, and analyze the results. Those results have been briefed to a wide audience, including CFFC, Third Fleet, Second Fleet, MCCDC, CCDG-2, CCDG-1, the Marine Corps Warfighting Lab, and OPNAV Deep Blue.

Our impact on the development of JFMCC can be observed in the TACMEMO revision process and the Navy's plans for further exploring JFMCC issues in the upcoming Sea Viking 2004 exercise. (Contact: Dr. Brian E. Walsh, (703) 824-2497)

OPNAV Fellows Program

In July 2003, at the direction of the CNO, CNA launched a new program to help improve the quality of analysis on the OPNAV staff—the OPNAV Fellows Program (OFP). The OFP has two major goals: help new OPNAV staff officers think more logically and analytically, and help them understand, evaluate, and

interpret better the analyses of others. Upon leaving the program, they are better equipped to provide improved staff support to their branch and division directors and to the leadership of OPNAV, including the VCNO and CNO. This program is designed for O-4s and O-5s with no Washington experience and no graduate-level operations analysis education who are heading to demanding staff jobs in key OPNAV divisions.

Billets exist for about 40 officers annually to be able to benefit from the program, and selected officers have begun to fill those billets. Before reporting to OPNAV, these officers first spend three months at CNA's Alexandria headquarters, where they each undergo a tailored program designed by CNA senior analysts and the leadership of the receiving shop collaboratively. CNA has surveyed the initial "graduates" of this new program, and their evaluations thus far have been favorable. We plan to follow up by asking the recipient shops and fellows further evaluation questions once each fellow has been in place in OPNAV for six months. OPNAV and CNA will then adjust the program as needed. (Contact: Peter M. Swartz, CAPT, USN (Ret), (703) 824-2876)