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Operation Desert Fox

In January, COMUSNAVCENT asked CNA to conduct a quicklook analysis of Operation Desert Fox—the air strikes against Iraq in December 1998. Our analysis was broad and covered many topics:

- The role and contributions of naval forces in achieving surprise and success
- Strike execution and effectiveness, including TLAM issues
- Information campaign
- Defense from chemical/biological warfare
- Counter-mine operations.

Our analysis showed that Desert Fox was both a political and an operational success. The NCA's political goals seem to have been met, as evidenced by the shift in regional attitudes toward Saddam Hussein. Operationally, the CINC's objectives were accomplished—in large part due to the element of surprise. Naval forces—particularly the use of only TLAM and naval TACAIR on the first night—were key to achieving surprise. The operation highlighted the ever-increasing demand for TLAM. But it also demonstrated that the ability to conduct 100-percent organic strikes from aircraft carriers remains an important national military capability and should be considered when designing the carrier air wing of the future.

Our analysis also made a quantitative connection between the training and readiness of aircraft squadrons that participated in Desert Fox and their performance in getting bombs on target. Previous analysis has shown that air wing readiness decreases dramatically after a deployment but rises before the air wing deploys again (the so-called *bathtub curve*). Our Desert Fox analysis showed that aircrews that achieved high readiness six months before deploying performed twice as well as those that achieved high readiness only a short time before deploying. This analysis will help identify the kinds of training that are critical to developing certain combat skills, and quantify the duration and steepness of the learning curve that aircrews experience when they conduct actual combat operations.
(Dr. Igor Mikolic-Torreira, (703) 824-2290)

CAX training program

The Combined Arms Exercise (CAX) program at the Marine Corps Air-Ground Combat Center (MCAGCC), Twenty-nine Palms, California, is the Marine Corps' most advanced live-fire unit-level combined arms training program for ground and air fire support with maneuver at the tactical level. CG MCAGCC asked CNA to analyze the CAX training program.

We used a mission-skills-based approach to develop an analytic methodology for examining the CAX training program, and developed recommendations for improving the effectiveness of the program. Our recommendations apply to both MCAGCC trainers and the CAX exercise forces. For MCAGCC, our recommendations fall into three broad areas: better preparing the exercise force, addressing identified training issues, and maintaining identified program strengths. For the exercise forces, the recommendations fall into two broad areas: better pre-CAX preparation and taking advantage of opportunities. Our study results have implications for analyzing other training programs, structuring unit training processes during work-ups for deployments, and understanding the connection between tactical training and the development of mission readiness.
(Dr. Bill Brobst, (703) 824-2689)

TMDI 98

In response to tasking from the Chairman of the Joint Chiefs of Staff, CINCUSACOM developed Theater Missile Defense Initiative (TMDI) 98 to address joint theater air and missile defense (JTAMD) integration issues within the context of an expeditionary environment. The TMDI 98 demonstration phase was conducted in February 1999 as part of JTFEX 99-1. CNA provided a core group of analysts and the leadership for the multi-Service analysis support team (MAST) that was chartered to provide analytical support for the demonstration plan and execution.

The CNA analysts on the MAST studied three sets of issues:

- Critical joint force integration issues associated with separating afloat area air defense coordinator (AADC) functions from the JFACC and airspace control authority (ACA), and the subsequent transition of those functions to a single Marine-hosted command ashore. We also examined sensor retargeting and retasking, intelligence collection, and the development and sharing of intelligence preparation of the battlespace (IPB) products.
- Passive defense, attack operations, and active defense planning and execution. Analysis of planning included both pre-demonstration planning events and planning opportunities during the demonstration.
- Airspace management and the coordination of JTAMD with force flow and component maneuvers.
  (Dr. Ralph Passarelli, (703) 824-2617)

Managing EA-6B lifetimes

For several years CNA's representatives at VAQWINGPAC have focused on one aspect of managing EA-6B lifetimes—fatigue life expenditure (FLE). A scientific approach enabled us to gain the data and knowledge necessary to develop a rational and quantitative plan for managing FLE. That plan supported adequate training and allowed for full use of the asset during real-world operations, and at the same time maintained the viability of the platform itself until the target date of 2015. We continue to monitor and actively oversee the FLE management plan.

More recently, the CNA representative has analyzed the re-winging schedule for EA-6Bs. His work showed that if re-wingings are not done at the correct times, the program could significantly *decrease* the net availability of EA-6B airframes. The CNA representative developed an optimal re-winging schedule that uses the projected re-wing funds in a way that maximizes the net EA-6B airframe availability.
(Dr. Igor Mikolic-Torreira, (703) 824-2290)

Land-based search and rescue

Should the Navy continue to maintain its own land-based search and rescue (SAR) units? The expense of the units and the alternatives available argue against it. We examined units whose primary mission is land-based SAR. Operational cost of these 12 units ranges from about $2.3 million to about $5 million per year. Search and rescue performed by those units is expensive not because of the absolute costs but because their activity rates are extremely low. In the past eight years, the 12 units responded to less than one search and rescue call per unit per year. The alternatives are many and varied. Many commercial helicopter service providers have SAR capability and the flexibility to function in any location. In some cases, the Coast Guard is nearby and capable of handling Navy SAR incidents.

Our analysis supports making a change. We recommended that the Navy use other government agencies with SAR capability or outsource to commercial helicopter service providers. If implemented, this recommendation will allow for the elimination of two older aircraft types, reduce the requirement for new replacement aircraft, and realize operational savings of at least $27 million annually.
(Mr. Perkins Pedrick, (703) 824-2747)

Survey of readiness and logistics support

CNA surveyed more than 100 experienced Fleet operators and logistics managers—a mix of officers, senior enlisted, and civilians—on their perceptions of the current state of readiness and logistics support in the Fleet and how it compares to five years ago. The surveys were supplemented by interviews in Norfolk and San Diego. We found widespread dissatisfaction with the current level of support and consistent agreement that conditions had worsened in the past five years.

Experienced personnel—those who have seen both good times and bad—uniformly reported a drop in readiness over the past five years. The greatest perceived decline in support was in spares and manning. The most dramatic change was reported within the aviation community, but the surface and submarine communities showed a similar pattern. Areas that showed the least decline were commercial support (technical representatives in the Fleet), equipment reliability, and the technical data that support day-to-day maintenance. Despite the general negative report card, those surveyed believed that IMPAC cards and contractor maintenance have made positive contributions to fleet readiness.
(Mr. Anthony DiTrapani, (703) 824-2282)

Operating in a CBW environment

In early 1998, OPNAV N51 asked CNA to analyze the Navy's ability to operate in a chemical and biological warfare (CBW) environment. Our approach was three-pronged. First, we developed a baseline of Navy counter-proliferation activities and compared them to OSD, JCS, regional CINC, and other Services' activities. We then developed specific operational scenarios and measures of effectiveness (MOEs), and used them to evaluate the Navy's ability to operate in a CBW environment. Finally, CNA held a workshop attended by Fleet, OPNAV, and SYSCOM personnel who discussed operations in a CBW environment.

Our analysis found that the Navy is involved in counter-proliferation activities, but the efforts are disconnected and lack emphasis at the Fleet level. Based on our analysis, we recommended that DoD broaden its definition of the CBW environment to include the *threat* of and the *actual use* of CBW, thereby creating a true picture of the operational environment. (Currently, because of the lack of focus on the entire operating environment, all Services are focusing on passive defense measures.) We also recommended the development of a specific Navy counter-proliferation policy and doctrine, funding profiles, training, and technical analyses (to include understanding the effect of CBW during extended carrier and amphibious operations and the specific vulnerability of ships at sea to CBW attack). Finally, we recommended that one OPNAV organization be responsible for coordinating all Navy counter-proliferation activities, including the development of a Navy counter-proliferation master plan. That plan would include, in addition to the Navy's counter-proliferation doctrine and policy, a long-term funding strategy for all counter-proliferation functional areas of responsibility (counterforce, active defense, and passive defense).
(Mr. Jim East, (703) 824-2849)

Enlistment bonuses that work

In fiscal year 1998, the Marine Corps awarded about 1,000 enlistment bonuses in the difficult recruiting months of February through May. According to recruiters, the bonuses—which are paid upon completion of bootcamp and initial skill training—were awarded only if needed to *close the deal*. But if bonuses are used as deal closers, do recruits receiving a bonus have a weaker commitment to joining the Marine Corps? We examined the bootcamp attrition of recruits from the four difficult months and found that recruits with bonuses have considerably lower attrition rates than those without bonuses. Convinced that the bonuses are indeed cost-effective, the Marine Corps has decided to increase the number of bonuses awarded this year.
(Dr. Aline Quester, (703) 824-2728)

USCG roles and missions

President Clinton recently established an interagency task force on Coast Guard roles and missions. The task force will seek to identify and distinguish which Coast Guard roles, missions, and functions may be added or enhanced, maintained at current levels of performance, reduced, or eliminated. It will also consider whether these roles, missions, and functions may be better performed by private organizations, public authorities, local or state governments, or other federal agencies. In addition to these requirements, the task force also will advise as to how these roles, missions, and functions may be performed more effectively and efficiently. The task force will consider how Coast Guard roles and missions should evolve through the year 2020. The last review of Coast Guard roles and missions was completed in 1982.

The Coast Guard has asked CNA to provide analytical support to the task force. We have started to develop research and issue papers to support the task force's deliberations in six areas: maritime security, national defense, natural resources, safety, mobility, and business processes. In each of these areas, we are attempting to show how Coast Guard roles and missions have changed since the 1982 review and to project potential future trends that may affect Coast Guard roles and missions. As an example, in the national defense area, we are examining the effects that new initiatives, such as the National Fleet concept and the growing use of the Coast Guard as an instrument to support CINC engagement strategies, may have on Coast Guard roles and missions.

Although the task force will undertake a comprehensive review of all Coast Guard roles and missions, it will give special attention to the deepwater operating environment. The Coast Guard is in the early stages of developing a comprehensive program to replace the capabilities of its existing deepwater fleet of specialized ships, aircraft, and C4ISR systems.

The task force is chaired by the Deputy Secretary of Transportation Mortimer L. Downey and includes senior representatives from other cabinet-level departments, members of the President's staff, and members of staff advisory councils. The Commandant of the Coast Guard, Admiral James M. Loy, is also a member of the council. The task force is scheduled to complete its work by the Fall of 1999.
(Dr. Mark Lewellyn, (703) 824-2190)

Dr. Greg Swider cited for superior service

In recognition of his outstanding performance as CNA's field representative to the Sixth Fleet, Dr. Greg Swider has been awarded the Department of the Navy's Superior Public Service Award. While assigned to Sixth Fleet, Dr. Swider contributed analytically to a variety of operational issues, including Sixth Fleet's strategic vision, long-term readiness, and TLAM command and control in NATO. The citation notes that Dr. Swider's "broad knowledge of scientific principles and his appreciation of the sea-going perspective enabled him to analyze current operations for significant improvements in the ability of Sixth Fleet to accomplish its mission."

The CNA Quarterly provides summaries of research conducted by the Center for Naval Analyses.
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