Professional Knowledge Book

Class of 2020

AN INTRODUCTION TO THE U.S. NAVY AND MARINE CORPS
PROFESSIONAL DEVELOPMENT

Class of 2020,

The Navy Warfare pins and Marine Eagle, Globe, and Anchor on the cover of this Professional Knowledge Book (Pro-Book) represent the service assignments for the Class of 2017.

Regardless of which one you are assigned in the fall of 2019, there is a core professional knowledge that you are required to attain prior to receiving a commission as a trained Navy or Marine Corps Officer from the U.S. Naval Academy. The Midshipmen Training Program (MTP) is a primary means of accomplishing that requirement.

The MTP consists of six basic components:

1. **Midshipmen Qualification Standards (MQS)** – books that are divided by class year and contain core learning objectives (LO). Yours is in the back of this Pro-Book.
2. **References** – used to acquire the knowledge necessary to complete the MQS. They include this Pro-Book, websites listed in each MQS, and files posted at: http://www.usna.edu/Training/Professional%20Knowledge%20References.php#fndtn-panel13CReferences.
3. **Instruction Periods** – used for “come-arounds” and other training opportunities during which you will show that you have mastered the LOs.
4. **4/C Pro-Quizzes/Exam** – quizzes administered weekly to assess comprehension of the applicable LOs, and a Pro-Exam administered at the end of the fall semester as a mid-point evaluation for Plebe Year.
5. **Professional Competency Boards (PCB)** – oral boards administered to 4/C midshipmen in the spring to objectively assess comprehension of all LOs for the year.
6. **Professional Competency Assessments (PCA)** – multiple-choice exams administered to upper class (non-Plebe) midshipmen to objectively assess comprehension of LOs.

The MTP is managed by the Training Department. It is part of a training continuum that includes the Career Information Program (CIP) managed by the Professional Development (PRODEV) Division, and Core Courses taught by PRODEV and the Leadership Education and Development (LEAD) Division. This continuum is intended to:

- Prepare you for each summer’s training events
- Enable you to make informed choices regarding your preferences for service assignment
- Prepare you to be a junior officer

As you move forward during this year, take pride in your growing knowledge and understanding of the Naval Service. Take advantage of this opportunity and it will contribute to your success here at the academy, and more importantly in the Fleet.

CDR R. A. Campbell
Training Officer
United States Naval Academy
### 4/C PROFESSIONAL TRAINING SCHEDULE

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<th>Professional Topic</th>
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<td>2</td>
<td>29Aug – 02Sep</td>
<td>Financial Literacy</td>
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<td>Military Courtesies, Customs, and Ceremonies &amp; USNA Notable Graduates</td>
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<td><strong>ACADEMIC RESERVE PERIOD</strong></td>
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<td>03Oct – 07Oct</td>
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<td>Naval Air Warfare Platforms</td>
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<td>*07Nov – 11Nov</td>
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<td>20</td>
<td>10Apr – 21Apr</td>
<td>PROFESSIONAL COMPETENCY BOARDS</td>
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**Notes:**

1. MQS will be distributed during the Fall Reform.

2. Respective MQS learning objectives must be signed off in full prior to a plebe taking a quiz, exam, or board.

3. The Brigade Training Staff shall develop questions for all Pro-Quizzes, the Pro-Exam, and the Professional Competency Boards using the MQS learning objectives. The 4/C Training Officer shall provide guidance and review all quiz and exam questions.

4. Come-arounds should focus on evaluating a plebe’s preparedness for Pro-Quizzes, the Pro-Exam, and PCBs. A plebe should arrive at the come-around already knowing the required information.

5. Come-arounds shall be conducted daily during the week using designated Instruction Periods listed in the Battle Rhythm contained in the Midshipmen Regulations (MIDREGS). They may only be scheduled outside of these periods if a scheduling conflict arises for an upper class midshipmen or the plebe.

6. Pro-Quizzes and the Pro-Exam shall be completed on Fridays between 1900 and 2000 in accordance with the MIDREGS Battle Rhythm. **Plebes on an approved Movement Order (MO) during this time should complete the quiz or exam between 1900 and 2000 on the Sunday that immediately follows.**

*Dates with an asterisk in the chart above denote holiday-shortened weeks.*
**PRO-QUIZ AND EXAM QUESTION TYPES AND GRADING CRITERIA**

<table>
<thead>
<tr>
<th>QUESTION TYPE</th>
<th>GRADING CRITERIA</th>
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<tbody>
<tr>
<td>MULTIPLE CHOICE</td>
<td>CORRECT per the key – Full credit</td>
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<tr>
<td></td>
<td>INCORRECT – No credit</td>
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<tr>
<td>TRUE OR FALSE</td>
<td>CORRECT per the key – Full credit</td>
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<td></td>
<td>INCORRECT – No credit</td>
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<tr>
<td>MATCHING</td>
<td>CORRECT per the key – Full credit</td>
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<tr>
<td></td>
<td>Partial credit awarded to each correctly matched item in the list.</td>
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<tr>
<td>FILL IN THE BLANK</td>
<td>CORRECT per the key – Full credit</td>
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<tr>
<td></td>
<td>INCORRECT – No credit</td>
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<tr>
<td>LIST</td>
<td>Each answer in the list should be correct per the key (i.e., verbatim). Credit</td>
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<td>awarded for each correct item in the list.</td>
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<tr>
<td>LIST AND DESCRIBE</td>
<td>Each answer in the list should be correct per the key (i.e., verbatim). Credit</td>
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<tr>
<td></td>
<td>awarded for each correct item in the list.</td>
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<tr>
<td></td>
<td>Incorrect, incomplete, or no description results in no credit for that item.</td>
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<tr>
<td>STATE VERBATIM</td>
<td>CORRECT per the key – Full credit</td>
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<tr>
<td></td>
<td>INCORRECT – No credit</td>
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<tr>
<td>STATE BRIEFLY</td>
<td>CORRECT per the key – Full credit (does not need to be verbatim) Grader should</td>
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<td>assign credit based on the midshipman’s demonstrated understanding.</td>
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**Notes:**
1. The Pro-Quizzes and Pro-Exam are written by the Brigade Training Staff and reviewed by the 4/C Training Officer.
2. Each Pro-Quiz shall consist of no more than 20 questions.
3. The Pro-Exam shall consist of 30 questions.
4. Passing is 70%.
5. There are no retakes for Pro-Quizzes.
WEEK 1: MIDSHIPMAN REGULATIONS

Midshipman Regulations (COMDTMIDNINST 5400.6T) are supplementary to U.S. Navy Regulations, 1990. Members of the Brigade and all personnel subordinate to the Commandant of Midshipmen shall comply with the substance, spirit, and intent of these directives at all times. Nothing in these regulations should be construed as taking priority over sound judgment or doing the right thing. Situations may arise where good judgment will be the only regulation, and midshipmen are expected to conduct themselves per Navy core values in these situations. These regulations apply at all times. Midshipmen are required to comply with the requirements set forth in this instruction during the summer training periods as well as during the academic year.

This chapter is included to test your knowledge, understanding, and application of Midshipmen Regulations. You are responsible to know and comply with all the material included in Midshipmen Regulations and thus not limited to the following areas identified for evaluation.

http://www.usna.edu/Commandant/Directives/Instructions/5000-5999/COMDTMIDNINST%205400.6S_MIDSHIPMAN%20REGULATIONS%20MANUAL.pdf

WEEK 2: FINANCIAL LITERACY

Financial Literacy is an extremely important matter at the U.S. Naval Academy. LT Nathaniel Lopez is the USNA Midshipmen Financial Advisor, located in Bancroft Hall 3008. His mission is to provide personal finance guidance and information to the Brigade of Midshipmen. The midshipmen pay system is just as important in order for midshipmen to understand their source of income while attending USNA. The Disbursing Officer, located in Bancroft Hall 4002, runs the midshipmen pay system.

It is important that every midshipman attending USNA learn about personal finance and the midshipmen pay system in order to gain control of their finances. While attending USNA over the next 4 years, midshipmen will earn approximately a minimum of $14,600 of net pay through the midshipmen stipend (explained in Section I). Additionally, at the end of their 3/C year they will be offered the Career Loan of up to $36,000. Therefore, knowledge of personal finance and the midshipmen pay system is vital for midshipmen to make educated financial decisions. As future leaders, financial literacy is not only essential to make smart financial choices, but to help guide those Sailors/Marines who may find themselves in financial need.

I. Understanding the Midshipmen Pay System

The midshipmen stipend (pay/allowances) is appropriated for midshipmen to be outfitted and to financially fulfill military and academic responsibilities while at the Naval Academy. Congress establishes the midshipmen stipend at 35% of the base pay rate of an O-1 with fewer than two years of service. The stipend for the calendar year 2016 is $1,040.70 per month. After the following deductions; Taxes, Social Security, Medicare, Service Member Group Life Insurance (SGLI), Personal Deductions, and the Advance for Clothing and Equipment (ACE) Loan repayment, the standard monthly pay amounts released to midshipmen is:

- $100 for 4/C MIDN ($1,200 per year)
- $200 for 3/C MIDN ($2,400 per year)
- $300 for 2/C MIDN ($3,600 per year)
- 1/C MIDN pay ranges from approx. $340-$830 ($7,405.00 per year average)

There are many factors associated with the midshipmen pay system. Not only do midshipmen need to understand how much they are receiving per month, but where to access the money, how to read their Leave and Earnings Statement (LES), and to overall understand the midshipmen pay system. The following terminology will help better understand this system:

- MyPay (https://mypay.dfas.mil/mypay.aspx). An online pay account management system that was created and maintained by the Defense Finance and Accounting Service (DFAS). It provides
pay and tax information for military members, retirees, and numerous federal civilian employees. This is where you, as a midshipman, will be able to view your Leave and Earnings Statements. You must log in/change your password at least **once every 150 days** to avoid issues login in. Make it a habit to view your LES once per month.

- **Leave and Earnings Statement (LES)**. The LES is a comprehensive statement of a member’s leave and earnings showing your entitlements, deductions, leave information, and tax withholding information. Leave and Earning Statements are available through the MyPay website for all midshipmen. **It is the responsibility of each midshipman to monitor their pay, identify pay issues as quickly as possible, and report findings to the Disbursing Office in Bancroft Hall Room 4002.**

- **Pay Day**. Midshipmen are paid once per month at the beginning of each month for the *previous month’s work*. For example, a 4/C midshipman will receive pay of $100 on 1 September for the month of August. This pay is considered “August pay” even though the payment is received in the month of September.

- **Held Pay**. Held Pay is an account managed by the Disbursing Office and DFAS. To ensure sufficient funds are available to meet future mandatory issue requirements (i.e. gear, uniforms, books, etc.), not all net pay is released into each midshipman’s monthly pay and part of it is deposited into their Held Pay account. For example, if a 3/C midshipman makes $1,040.70 and pays $600 in deductions, the midshipman’s monthly pay is $200 and $240.70 is deposited into their Held Pay account. This process will continue from month to month, allowing midshipmen to accumulate funds into their Held Pay account. If enough Held Pay accumulates, it will be released into the February, July, and November pay in order to provide midshipmen with extra income. Funds in the Held Pay account will be released as long as they surpass the following minimums:
  - **No minimum for 4/C MIDN as they do not accumulate Held Pay**
  - **$450 for 3/C MIDN**
  - **$1,000 for 2/C MIDN**
  - **Held Pay does not apply to 1/C MIDN**

  If the account is not above the minimum, no Held Pay will be released. The maximum Held Pay amount that can be released is $750. These payments are labeled as “Semester Utility Pay” on your LES, under the Entitlements column. Midshipmen can monitor their Held Pay balance each month on their LES. **This balance can be found under the Summary column, on the second to last line labeled as “Cr Fwd.”**

- **Advance for Clothing and Equipment (ACE) Loan**. The ACE loan is an interest free government loan of $8,500 established by Congress to provide funding for initial mandatory gear, uniforms, and equipment costs during Plebe Summer. Each midshipman is placed on an automatic payment plan, withdrawn from his or her stipend, to repay the ACE loan by the end of his or her 2/C year. Applying outside funding will allow midshipmen to accumulate more Held Pay.

- **Outside Funds**. The estimated costs over four years of a midshipman’s ACE loan, gear, uniform and textbook issue is approximately $17,500. Therefore, **midshipmen may apply up to $17,500 in outside funds, but are not required to**. Authorized outside funds include personal checks, public or private scholarships, and college savings plans such as the state 529 plans.

- **Taxes**. Midshipmen pay is subject to Federal Income Tax Withholding (FITW), Federal Insurance Contribution Act withholding (FICA), and in most cases, State Income Tax Withholding (SITW). Federal and State income tax is withheld based on the following defaults:
  - Marital status: Single
  - Number of exemptions: 01
  - State of legal residence: As declared in Permit to Report; if not declared, Maryland. All midshipmen are required to file their taxes by 15 April of each year. To do so, midshipmen must obtain tax documents such as the W-2 (document information that is submitted to the IRS) by logging into MyPay.

- **Servicemember Group Life Insurance (SGLI)**. SGLI is provided by the Veteran’s Association to all service members at a monthly rate of 6.5 cents per $1,000 of coverage. All midshipmen are given the maximum coverage of $400,000 as default coverage. Midshipmen can elect to reduce
their coverage in increments of $50,000. To change SGLI coverage amounts visit the Midshipmen Personnel Office in Bancroft Hall 4001.

- **Naval Academy Business Services Division (NABSD).** NABSD is the retail arm of the Naval Academy that operates all retail services on the Yard, including the Midshipmen Store, Uniform Store, and Textbook Store. In addition, NABSD provides midshipmen with a no-interest credit card known as the “Midstore card” for use at the Midshipmen, Uniform, and Textbook Stores. Remember, the more you charge on your Midstore card, the less Held Pay you will be entitled to as it will be used to pay off the Midstore card balance.

- **Charitable Allotments.** Midshipmen are authorized to contribute to two charitable organizations through allotments from their pay: Combined Federal Campaign (CFC) and Navy Marine Corps Relief Society (NMCRS). Allotments are deducted from January through March for CFC and from April through June for NMCRS. Allotment values must be divisible by three, as they will be split between three months. For example, a midshipman who donates $12.00 to CFC will see a CFC allotment of $4.00 on each of his/her January, February, and March LES’s.

- **Travel Reimbursement.** Midshipmen are reimbursed for travel performed under official orders. This includes travel to the Naval Academy when inducted, travel to/from summer cruises, and other official travel.

- **Commuted rations (COMRATS).** It is earned at the daily ration rate ($12.25 per day for 2016) when midshipmen are on authorized status away from USNA, specifically, leave periods like Summer Leave, Thanksgiving, Christmas, and Spring Break. COMRATS is not taxable.

### II. Personal Finance

Personal finance is thought as the study and analysis of your own finances to achieve financial success. Just as it is important to understand how midshipmen earn their pay, they must also learn how to manage their pay. Money management is easily achieved by having an understanding in topics such as financial tools, budgeting, and money habits. By gaining knowledge from these topics, midshipmen will be able to practice personal finance and in turn become financially responsible.

### Financial Tools

A ‘Financial Tool’ is thought of a metaphor to help you achieve your financial goals. Just like any other tool, it is important to learn how to ‘use’ them, and not ‘abuse’ them. The following are the most common financial tools available only through Banks and/or Financial Institutions (USAA, Navy Federal Credit Union, Vanguard, etc.):

- **Checking account.** A transactional deposit account held at a financial institution that allows for withdrawals and deposits. Money held in a checking account is liquid and can be withdrawn using checks, ATM’s, debit cards, and other methods. This is thought as ‘your everyday use account.’

- **Savings account.** A deposit account held at a bank or other financial institution that provides principal security and a modest interest rate. It typically pays out better interest than a checking account. Depending on the specific type of savings account, the account holder may not be able to write checks from the account and is likely to have a limited number of free transfers/transactions. Most people set aside funds in savings accounts for short-term financial goals like saving for a vacation or buying a car.

- **Money Market account.** An interest-bearing account that typically pays a higher interest rate than a savings account, and which provides the account holder with limited check-writing ability. Similar to the interest earned on checking and savings accounts, the interest earned on a money market account is taxable. **Individuals typically use money market accounts for short-term savings and emergency funds.**

- **Certificates of Deposit (CD).** A CD is money borrowed by the bank from their customers. A CD entitles the customer to receive interest. The term of a CD generally ranges from one month to 5 years. The longer the terms of the CD is, the better the interest paid out will be. CDs generally pay out better interest than savings accounts and money market accounts. In addition, they are primarily used by individuals for short-term financial goals ranging up to 5 years.

- **Bonds.** A debt investment in which an individual loans money to an entity (corporate or government) that borrows the funds for a defined period of time at a fixed interest rate. Bonds are
used by companies, municipalities, U.S., and foreign governments to finance a variety of projects and activities. Bonds are generally purchased by individuals looking to achieve better returns than those offered by bank related services.

- **Mutual Funds.** An investment vehicle that is made up of a pool of funds contributed by many investors for the purpose of investing in securities such as stocks, bonds, money market instruments, and similar assets. Mutual funds are created by Financial Institutions and are operated by their fund managers. The fund managers oversee the fund’s capital and attempt to produce gains and income for the investors. When investors contribute to mutual funds, they are in essence purchasing shares of a portfolio composed of different securities. Mutual Funds are a great way to create a diversified portfolio of investments as it considered less of a risk.

- **Exchange Traded Funds (ETFs).** A security that tracks a specific market sector, a commodity, or a basket of assets. ETFs are exactly like Mutual Funds but are not actively managed by the fund managers. ETFs can be purchased through the stock exchanges (i.e. New York Stock Exchange) as it trades like regular stocks. In order for investors to purchase investments through the exchanges, they must open a brokerage account via a Financial Institution.

- **Stocks.** A type of security that signifies ownership in a corporation. There are two main types of stock: common and preferred. Common stock usually entitles the owner to vote at shareholders’ meetings and to receive dividends. Preferred stock generally does not have voting rights, but has a higher claim on assets and earnings than the common shares. Shares of stock can also be purchased through brokerage accounts.

- **Individual Retirement Accounts (IRA).** IRAs are an investing tool used by individuals to save specifically for retirement. There are two types of IRAs: Traditional and Roth. Contributions to the Traditional IRA may be tax deducted each year, which lowers your taxable income. However, those from the Roth IRA are not. **Withdrawals after age 59½ from a Traditional IRA are taxed, while those from a Roth IRA are tax-free.** Most IRAs can be obtained through Financial Institutions and/or Banks to begin your retirement planning. On December of 2014, the U.S. Department of Treasury launched an IRA called MyRA (My Retirement Account). MyRA was designed to help any U.S. Citizen jump-start their retirement savings without the costs/fees, complicated investment options, and risk of losing money. For more information, please visit www.myra.gov.

- **Credit Cards.** A card issued by a Financial Institution giving the holder an option to borrow funds, usually at point of sale. Credit cards charge interest and are primarily used for short-term financing. Interest usually begins one month after a purchase is made and borrowing limits are pre-set according to the individual’s credit rating. Since credit cards are a financial tool, it is a matter of ‘using’ the tool to build credit and not ‘abusing’ it by piling debt.

- **Loans.** The act of giving money, property, or other material goods to another party in exchange for future repayment of the principal amount, along with interest or other finance charges.

**Interest**

Interest is expressed as the charge for the privilege of borrowing or lending money, typically expressed as an Annual Percentage Rate (APR). If you are borrowing from a credit card, you need to understand how much interest you are paying. Likewise, if you are lending, understand how much interest you are making. **The higher the interest, the more money you pay or make. There are two types of Interests:**

- **Compound Interest.** Compound interest is charged on the amount borrowed or lent plus the interest it has accrued. Therefore, compound interest can be thought of as ‘interest on interest/amount’, and will make your debt or investment grow at a faster rate than simple interest would. For example, Annual Percentage Yield (APY)

- **Simple Interest.** Simple interest does not compound, it is only charged on the amount borrowed or lent. For example, Annual Percentage Rate (APR)

When obtaining debt through the usage of credit cards or loan, most Financial Institutions use compound interest in order to make more money off you. However, there are financial predators such as ‘Payday Loans’ that one must be wary about and avoid at all costs due to their outrageous terms/conditions and high interest rates.
Servicemembers Civil Relief Act (SCRA)

The SCRA is an Act passed by Congress in 1940 to protect the rights of servicemembers. The primary purpose of the SCRA is to ease legal and financial burdens on military personnel and their families. The SCRA can protect servicemembers from evictions, leases, default judgments, outrageous interest rates, and many more. For example, under the SCRA you can reduce or cap interest rates on any credit card or other loans you acquired before you entered the military to 6% per year for the period you remain on active duty. The Judge Advocate General’s (JAG) Corps community can assist any military personnel with legal advice pertaining to the SCRA.

Credit Reports

Your Credit Report is a detailed report of an individual’s credit history prepared by a credit bureau and used by a lender to determine a loan applicant’s creditworthiness. Your Credit Report is composed of credit history such as credit card, loans, previous or current home addresses, number of late payments, Bankruptcy, accounts on default, etc. Here are important facts you need to understand about Credit Reports:

- **How to obtain it.** You can either pay for the Credit Report through well-trusted websites like www.myfico.com or receive a free Credit Report through www.annualcreditreport.com (it only includes the report, but does not show you a score).
- **Three different Credit Agencies.** The three different credit agencies are Experian, Equifax, and Transunion. They should all correlate with each other in terms of information/history on your Credit Report. However, it is your job to ensure they all have the same information, as you are your only auditor when it comes to your Credit Report.
- **Credit Score.** A three-digit number (ranges from 300-850) that tells creditors how likely you are to pay back the money you want to borrow. Here is a breakdown how creditors view you based on your Credit Score range:
  - <630: Bad credit
  - 630-689: Fair credit
  - 690-719: Good credit
  - 720-850: Excellent

Remember, the lower your credit score, the riskier you appear to lenders. Hence, a lower credit score will qualify you for a higher the interest, meaning you will be charged more to borrow money, or not qualify you at all. Credit scores are also used more and more by potential employers, landlords, utility companies and others. The U.S. Navy may use your Credit Score and Report to determine the type of Security Clearance you may obtain. Remember, if your credit score looks bad, you look bad.

- **Fraud on your Credit Report.** If you notice suspicious information that does not pertain to you, contact one of the credit reporting agencies immediately:
  - Equifax: [www.equifax.com](http://www.equifax.com), 1-888-766-0008
  - Experian: [www.experian.com](http://www.experian.com), 1-888-397-3742
  - TransUnion: [www.transunion.com](http://www.transunion.com), 1-800-680-7289

Once you contact them, explain with details the situation, and ask that a “fraud alert” be placed in your file. If after the investigation they determine that you were a victim of fraud, the information will be disputed on your Credit Report.

Money Habits

The definition of a habit is an acquired behavior pattern regularly followed until it has become almost involuntary. Therefore, when it comes to finances, you can develop either Good Money Habits or Bad Money Habits. Carrying debt on a credit card, for example, is a Bad Money Habit where you are ‘abusing’ the financial tool by not paying it back. As a student, it is much easier to steer towards the Bad Money Habits. The reason is that you may get complacent when you do not have a significant money worries like paying a mortgage or having dependents (Spouse, children, etc.). Also, by having a limited income, if you do not track your money habits carefully, it is easy to waste money on things that you could otherwise save. Below you will find some of the most common money habits you should acquire or avoid:
• Good Money Habits (Acquire)
  o **Pay yourself first.** A good ‘Rule of Thumb’ is to save at least **10% of your monthly income.** Setting up a monthly automatic transfer on the first of every month to your savings account can be the easiest way to set it and forget it. By following this concept, you will not be spending money first and saving what is left over or nothing at all.
  o **Budgeting.** A budget is an estimation of the revenue and expenses over a specified future period. It will allow you to analyze your spending and realize whether you are overspending on one or multiple expenses (cell phone, shopping, food, entertainment, etc.). Remember, overspending on unnecessary personal expenses will keep you from saving money. One of the easiest ways to budget as a midshipman is to do so on a weekly basis. For example, if you make $100 per month and choose to save $20 each month, you can break up the $80 of spending money into $20 per week. If you happen to not spend all $20 in a week, you can carry the difference over the next week, or better yet save it! You can find a midshipman budget spreadsheet on the Financial Advisor website: [http://intranet.usna.edu/FinancialAdvisor/Guides/budgeting.php](http://intranet.usna.edu/FinancialAdvisor/Guides/budgeting.php).
  o **Live below your means.** Do not spend more than you make. Ensure that your spending does not exceed your budget to avoid borrowing money. This habit will help you avoid a pile of debt that may take years to pay back.
  o **Pay with cash.** The physical connection between the exchange of money and goods/services. This concept is great especially when an individual is trying to avoid debt. In addition, paying with cash can help you budget better as you can physically see the money disappear from your wallet, opposed to swiping your debit/credit cards.
  o **Save for retirement now.** One of the best financial decisions you can make at a young age is save for your retirement. For example, let us pretend there are two midshipmen. MIDN X starts saving $50 per month at age 18, while MIDN Y starts $50 per month at age 28. Both midshipmen invested in the same Mutual Fund with an annual return of 7%. If both withdrawal their funds at age 60, MIDN X would have a total of $142,765 while MIDN Y would only have $68,227. In order for MIDN Y to have the same amount as MIDN X at age 60, his/her starting contribution would have to be $104 per month instead of $50. Remember, the sooner the better as you want compounding interest to do the work for you.

• Bad Money Habits (Avoid):
  o **Living paycheck to paycheck.** An individual who devotes their entire month’s pay to expenses without saving any of it. Most individuals who live ‘paycheck to paycheck’ typically do not have any savings, budget or live below their means.
  o **Maxed out Credit Cards.** It is the credit card balance amount that has reached the line of credit available. To avoid reaching the limit, one must budget the amount each month that can be charged on the credit card. Once you have used the budgeted amount, pay off the credit card balance every month. This way you avoid paying interest each month and carrying outstanding debt. Carrying debt from month to month, specifically **30% or more of your credit card limit,** counts against you on your Credit Report/Score.
  o **Not knowing your Credit Report/Scores.** Being unaware of your Credit Report/Score should be avoided at all times in order for you detect any fraudulent activity. Make it a habit to check this information at least three times per year.
III. USNA Financial Points of Contact

Should you have any financial questions/concerns please reach out to the following people:

For Midshipmen Pay related questions (Section I), contact:

Midshipmen Disbursing Officer
LT Jeremy Hobbs, SC, USN
410-293-3307
Bancroft Hall 4002

For Financial Advice on Personal Finance (Section II), contact:

Midshipmen Financial Advisor
LT Nathaniel Lopez, SC, USN
410-293-7023
Bancroft Hall C209
Make an appointment on the Intranet at:
http://intranet.usna.edu/FinancialAdvisor/
I. Courtesies, Customs, and Ceremonies

Fleet Admiral Chester Nimitz, one of the key figures in the U.S. Navy’s victory at sea in the Pacific during World War II, once said, “A naval ceremony should follow the long established rules for its execution carefully and exactly. Such attention to detail honors those who, long before us, established the ritual, and all those who, past, present, and future, take part in that ceremony.”

There is no question that life in the naval service is a unique experience. Once you have been to sea, flown on naval air missions, or taken part in the many different things that Sailors and Marines the world over are doing every hour of every day, you will know from first-hand experience how different a job in the naval service can be from what your counterparts in civilian life are doing. It is only fitting, therefore, that we celebrate our uniqueness through special ceremonies and demonstrate our differences through special customs that remind us of our very different heritage.

II. Saluting

The Salute

- Salutes are customarily given with the right hand, but there are exceptions. If your right arm is injured in such a way as to prevent you from saluting, or if you are using your right hand for some military purpose, such as a Sailor holding and blowing a boatswain’s pipe, it is considered appropriate for you to salute with your left hand.
- Sailors and Marines must be covered if they are going to salute. Soldiers and Airman may salute uncovered. If you are in an office with several Soldiers or Airman, not saluting when appropriate would seem disrespectful, so you should do as those in the office do. This follows the old (and customary) saying, “When in Rome, do as the Romans do.” If you encounter a senior officer who is not covered, and you are covered, you would still render a salute, even if the senior cannot return the salute.

How to Salute

- Salute from a position of attention if you are standing still.
- If you are walking, salute from an erect position.
- Face the person saluted, or if you are walking, turn your head and eyes toward the person. If possible, look directly into the eyes of those you salute.
- Allow time for the person being saluted to see and return the salute; if both of you are walking, a distance of about six steps is about right.
- Hold the salute until the officer has returned or acknowledged it, then bring your hand smartly to your side.
• In most cases, a salute is accompanied by a verbal greeting. For example, when you meet an officer you know, you should accompany your salute with “Good morning Lieutenant Jones.” If you do not know the officer’s name, “Good morning ma’am,” or Good morning sir” is appropriate.

• If on a double, slow to a walk when saluting.

• If you are carrying something in both hands and cannot render the hand salute, look at the officer as though you were saluting and render a verbal greeting as described below.

• If using a cell phone, pause, drop the phone to your side, stand at attention, and render the salute.

Whom to Salute
• Salute senior officers of all U.S. services and all allied foreign services. Officers in the U.S. Merchant Marine and Public Health Service wear uniforms that closely resemble Navy uniforms, and they too rate a salute. At USNA, all foreign military staff and faculty are officers.

• Salute senior officers who are close enough to be recognized whether they are wearing a uniform or civilian clothes.

• Salute the person standing an Officer of the Deck (OOD) watch no matter what their rank or rate. The same applies to anyone taking a division/detail muster.

• Salute senior officers even if they are uncovered or their hands are occupied. Your salute will be acknowledged by a verbal greeting.

• If you are walking with or standing by a senior officer, do so on his/her left side. If the occasion for a salute arises, salute when the officer salutes, not before. This is the case whether he/she is saluting a junior or a senior officer.

• If you are standing in a group and a senior officer approaches, the first to see the senior should call “Attention,” and all face the officer and salute.

• If you are overtaking a senior officer and it becomes necessary to pass, you should do so to the left, salute when abreast of the officer, and ask, “By your leave, sir/ma’am?” The officer should reply “Very well,” and return the salute.

• If you are at a crowded gathering or in a congested area, you normally salute only when addressing or being addressed by senior officers.

• Because you are in uniform, young children or military retirees may salute you. Return the salute.

• When in doubt, salute. If you salute someone who does not rate a salute, you may cause yourself some slight embarrassment by appearing less informed than you should be. But if you fail to salute someone who does rate one, you appear to be unmilitary, discourteous, and a shirker. No one ever got into trouble for saluting when it was not expected.

When not to Salute
• In formation. The person in charge will salute for you or, in some cases, will give the order for you and others in the formation to salute. You are relieved of any responsibility to salute on your own when in formation.

• When engaged in work and saluting would interfere with what you are doing. If you are part of a work detail, the person in charge of the detail will salute for the entire group.

• In public places where saluting is obviously inappropriate (such as on a bus or while standing in line at a theater). A verbal greeting is appropriate.

• When eating. If you are addressed by a senior officer, you should stop eating and sit at attention until the officer has departed. Courtesy dictates that the senior officer will keep the interruption brief.

• In combat or simulated combat conditions.

III. The Address
Officers
• Officers are always addressed and referred to by their title or rank, such as admiral, captain, or commander.

• By tradition, the commanding officer of any ship or station, no matter what his/her rank, is addressed and referred to as “Captain.”
• An officer in the medical or dental corps is addressed and referred to by rank or as “Doctor.”
• A chaplain may be called “Chaplain” no matter what the rank.

Enlisted Personnel
• A chief petty officer is addressed as “Chief Petty Officer Smith,” or more informally as “Chief Smith” or “Chief.”
• Master and senior chief petty officers are customarily addressed and referred to as “Master Chief Smith,” “Senior Chief Smith,” “Master Chief,” or “Senior Chief.
• Other petty officers are addressed and referred to by their specific rates. For example, you would address GM2 Johnson as “Gunner’s Mate Second Class Johnson,” “Petty Officer Second Class Johnson,” or “Petty Officer Johnson.”
• Nonrated personnel – those in paygrades E-1 through E-3 – are addressed and referred to as “Seaman Johnson” or “Fireman Apprentice Johnson” and can be referred to by their last names only in informal situations.
• Enlisted Marines are addressed using their full rank such as “Staff Sergeant Smith” or “Master Sergeant Jones” – their rank is never shortened to just “Sergeant Smith” if they are an E-6 or above.

IV. Colors

The first official salute of the American flag by a foreign government took place 14 February 1778 when a Navy ship, the sloop-of-war Ranger under the command of Captain John Paul Jones, exchanged salutes with the French ship Robuste, in Quiberon Bay on the Atlantic coast of France.

Showing respect to the American flag is probably not new to you. In school, or perhaps in a scout troop, you may have recited the pledge of allegiance. You have probably been to a sporting event where the national anthem was played and everyone in the stadium stood as a mark of respect. The American flag represents causes us to want to show respect for it.

Many customs and ceremonies are associated with the national ensign. The ceremonies of hoisting (raising) it at 0800 in the morning and lowering it at sunset are called morning colors and evening colors, respectively. These ceremonies take place every day on every Navy and Marine Corps shore station in the world. Ships at sea do not observe either of these formal ceremonies, but ships in port – whether moored to a pier or anchored offshore – do observe both. Aboard ships, the ceremonies have an added factor in that a flag known as the union jack is also hoisted and taken down at the same time as the national ensign. The union jack is always hoisted on a pole called a “jackstaff” at the bow (front end) of the ship, while the national ensign is always hoisted onto a pole called a “flagstaff” at the stern (back end) of the ship.

Morning Colors
• “First call to colors” is sounded precisely at 0755. Most often, this is a special bugle call. An alternative is for the Officer of the Deck (OOD) to pass the word “first call to colors” over the general announcing system (1MC). On ships, a special yellow and green pennant called the PREP (or “preparative”) pennant will be hoisted to the yardarm.
• “Attention” is sounded precisely at 0800. While the colors (flags) are being briskly hoisted, the national anthem is played, “To the colors” is played by bugle, or there is silence. On ships, the PREP pennant will be hauled to the dip (lowered to the halfway point) and remain there until the ceremony is completed.
• During colors, everyone within sight or hearing renders honors. If you are outside, stop doing what it is you are doing when “Attention” is sounded, face the colors or the direction from which you heard “Attention”, salute when the national anthem or “To the colors” starts, and drop the salute when it stops. If there is no national anthem or “To the colors” (e.g., silence), salute at “Attention” and hold it until you hear “Carry on.” If you are in ranks, follow the orders of the person in charge of the formation. If you are not in uniform, stand at attention. If you are driving a vehicle, stop and sit at attention.
• Once “Carry on” has been signaled, resume what you were doing before the color ceremony.
Evening Colors
- Sunset is the time for evening colors in the Navy. The exact time of sunset changes (ranging anywhere from 1700 to 2100) depending on your latitude and the time of year but will be published each day in the Plan of Day (POD) of your ship or station.
- Five minutes before sunset, “First call to colors” is sounded just as in the morning and, if you are aboard a ship, the PREP pennant will again be raised to the yardarm.
- At sunset, the colors ceremony begins when “Attention” is sounded on a bugle or when a whistle is blown. PREP is hauled to the dip just as in the morning and the procedures for standing at attention and saluting are the same as in the morning.
- While the national ensign is being lowered, the bugler (or a recording) will play “Retreat” (instead of “To the Colors,” as is played in the morning). Another difference in the two ceremonies is that as morning colors the national ensign is hauled up smartly (briskly), while at evening colors it hauled down slowly and ceremoniously.
- “Carry on” will signal the end of the ceremony just as in the morning.
- Salutes are rendered in the same manner as for Morning Colors.

Half-Masting the National Ensign
- If the ensign is flying when the word is received that the ensign is to be half-masted, it should be immediately lowered.
- If the ensign is not already flying (for example, word is received during the night), morning colors will be held as normal except that after the ensign is hoisted all the way to the peak (top of the mast or flagstaff), it is then lowered to the half-mast position. In other words, it is not appropriate to merely hoist the colors directly to half-mast; the ensign must first be two-blocked (hoisted as far as it will go), then lowered to half-mast.
- The reverse is true in the evening. Before the national ensign can be brought down for the evening, it must first be ceremoniously two-blocked and then lowered all the way down.
- Aboard ship in port, anytime the national ensign is lowered to half-mast, so is the union jack.

Shifting Colors
- Another custom, far less formal than morning or evening colors, yet unique to the sea services, is what we call shifting colors.
- As already discussed, the national ensign is flown from the flagstaff at the stern and the union jack is flown from the jackstaff at the bow when a Navy ship is in port. But when a ship gets underway (no longer moored to a pier or anchored), the national ensign is flown from the gaff (a short angled pole that is higher up and toward the middle of the ship).
- When the last line is brought on board, or the anchor is lifted clear of the bottom of the harbor (aweigh), a long whistle blast is blown over the ship’s 1MC by the Boatswain’s Mate of the Watch (BMOW) and the national ensign and union jack are taken down from the flagstaff and the jackstaff respectively. This is all done smartly while a different ensign is raised briskly to the gaff.
- When a ship returns from sea, the exact opposite procedure takes place as the first mooring line is passed to the pier or the anchor touches bottom.

Underway
- Ships at sea do not make morning or evening colors, but they do fly an ensign at the gaff from sunrise to sunset.

V. Shipboard Customs

Ships have been plying the waters of the world for many centuries and this long history has resulted in many unique customs. By observing these special customs, you will be forming a special link with Sailors from the past and keeping alive traditions that, in some cases, are thousands of years old.

The Bridge
- When a ship is underway, the area known as the bridge serves as the control point for the vessel. A team of people will always be on watch serving the ship’s special needs. The Officer of the
Deck (OOD) heads that team and, serving as the captain’s direct representative, is responsible for the safe navigation of the vessel and for carrying out the ship’s routine.

- There is a formality associated with the bridge, and many ships require all non-watch personnel to request permission from the OOD to come on the bridge, accompanying their request with a salute. This is more than a mere tradition since it allows the OOD to control access to the bridge, ensuring the watch team is not inhibited in carrying its important duties by having too many people in the way.
- Another custom that serves a useful purpose is the calling out “Captain is on the bridge” to alert the OOD and other watch personnel to the captain’s presence. This is important since it is the OOD’s responsibility to report significant happenings to the captain and since the captain’s authority supersedes that of the OOD when he/she is on the bridge.

The Quarterdeck

- The quarterdeck in many ways replaces the bridge as the control point of the ship when the ship is not underway. The OOD shifts his/her watch from the bridge to the quarterdeck once the ship enters port, and until the ship gets underway again.
- The location of the quarterdeck will vary according to the type of ship. It serves as the point of entry for entry and exiting for the ship. Frequently it is marked off by appropriate lines, deck markings, decorative cartridge cases, or fancy work (nautical decorations made from pieces of line). The quarterdeck is always kept particularly clean and shipshape.
- Watchstanding on the quarterdeck must be in the uniform of the day and present a smart and military appearance at all times. Personnel not on watch should avoid the quarterdeck unless their work requires them to be in that area.
- Larger vessels, such as aircraft carriers, may have two or more entry/exit points, but only one is designated as the quarterdeck.

Boarding and Departing the Ship

- The OOD or the Junior Officer of the Deck (JOOD) will meet all persons leaving or boarding the ship. There are specific procedures to be followed by Navy personnel when boarding or departing.
- Because of security considerations, you will nearly always be expected to show your ID card to the OOD (or his/her representative) whenever you board a naval vessel, whether you are a member of the crew or not.
- If the ship is alongside a pier, you will use a ‘brow’ (a walkway that bridges the gap between the pier and the ship) to come aboard. If the ship is anchored out in the water, you will of course ride in a boat to get to the ship, and to get from the water up to the ship’s main deck you will use an ‘accommodation ladder’ (a kind of stairwell that has been rigged over the side of the ship). The opening in the ship’s rail where you actually board the ship (whether you are using a brow or accommodation ladder) is called the ‘gangway.’
- At the gangway, you should turn and face aft (where the national is flying from the flagstaff), come to attention, and smartly salute if the ensign is flying (after 0800 and before sunset). The OOD will return your salute to the national ensign. On some larger ships, you will not be able to actually see the national ensign but you should salute anyway.
- After you have saluted the national ensign, turn and face the OOD (or his/her representative), salute, and say, “I request permission to come aboard, ma’am (or sir).” The OOD will return your salute and say, “Very well,” or “Permission granted,” and you should proceed. (Note: These salutes take place no matter what the ranks or rates of the individuals involved. If the OOD is a chief petty officer and the boarding individual is a commander, the latter will still salute the CPO, who, as OOD, represents the captain.)
- If you are not in uniform, you should not salute but still face aft at attention to honor the national ensign and then, still at attention, face the OOD and request permission to come aboard.
- If you are not a member of the crew of the ship you are boarding, you should state the reason for your visit when requesting permission to come aboard.
- The procedure for leaving a ship is much the same as boarding, except that the steps are reversed. Step up to the vicinity of the gangway, salute the OOD, and say, “I request permission to leave the
ship, sir (or ma’am).” When the OOD says, “Very well,” or “Permission granted,” and returns your salute, drop your salute and step to the gangway. If the ensign is flying, face aft, salute smartly, and leave.

**Officers’ and CPO Country**
- The area on board ship where officers eat (the wardroom) and sleep (staterooms), as well as the halls (passageways) surrounding these areas, is known as ‘officers’ country.’ Correspondingly, the area where chief petty officers eat and sleep is known as ‘CPO country,’
- You should avoid these areas unless you are on official business. If your duties require you to enter a room in these spaces, you should knock before entering and remove your hat. Only watchstanders wearing a duty belt or sidearm remain covered, unless a meal is progress.
- The enlisted mess deck is treated with the same courtesy as the wardroom or chief’s mess.

**Ship’s Bells**
- For many centuries, Sailors did not have the luxury of a personal timepiece. If watches were to be relieved on time, some means of telling the time had to be devised. A system that used a half-hour sandglass and the ship’s bell was created and used for hundreds of years.
- At the beginning of the watch, the sandglass was turned over to start it running. As soon as it ran out, the watchstanders knew the first half-hour had passed, so they rang the ship’s bell once and immediately turned the sandglass over to start the second half-hour. Everyone on board the ship could hear the bell being rung so they could keep track of the time. When the sand ran out the second time, the watchstanders rang the ship’s bell twice. They continue this until eight bells had been rung (representing the passage of four hours or one complete watch). The watch was then relieved, and the new watch team started the whole cycle over by ringing one bell once the first half-hour had passed, and so on.
- This bell-ringing tradition has been continued on board many Navy ships even though most Sailors always have a clock, watch, computer, or handheld device in sight. Here at USNA, this tradition has been continued with bells sounding from Mahan Hall. One bell signals the start of First Period with additional bells continuing throughout the day in half-hour intervals as previously described.

**VI. USNA Notable Graduates**

The United States Naval Academy is an institution dedicated to producing officers of the highest caliber for the nation. We have been proud to help shape the lives of countless outstanding individuals. Below are just a few of the many USNA graduates who have emerged as leaders in both the military and civilian world.

**Chester W. Nimitz**
*Class of 1905*
Fleet Admiral/Chief of Naval Operations

**Profile**

Born in Fredericksburg, Texas, Nimitz graduated from the U.S. Naval Academy in 1905. He spent almost two decades in submarines, service punctuated by instruction in diesel engines, study at the Naval War College, and tours as executive officer of an oiler and a battleship. Nimitz then commanded heavy cruiser USS Augusta, flagship of the U.S. Pacific Fleet.

In 1939, he was assigned as Chief of the Bureau of Navigation. Following the Japanese attack on Pearl Harbor on 7 December 1941, the Navy named Nimitz Commander in Chief, U.S. Pacific Fleet, and soon afterward Commander in Chief, Pacific Ocean Areas. In recognition of his superior leadership of naval forces during the victorious three-year Pacific campaign, in December 1944 Congress promoted him to fleet admiral.
As Chief of Naval Operations at the dawn of the Cold War, Nimitz directed the forward deployment of naval forces to the Mediterranean and the Far East, worked to adapt the naval services to the joint requirements of the National Security Act of 1947, and promoted adoption of jet aircraft and other advanced technologies. In recognition of his accomplishments, the Navy named USS Nimitz (CVN-68), the first ship in a new class of nuclear-powered aircraft carriers, in his honor.

Alan B. Shepard, Jr.
Class of 1945
NASA Astronaut/1st American in space

Profile
Alan B. Shepard was born November 18, 1923, in East Derry, New Hampshire and died on July 21, 1998. He attended primary and secondary schools in East Derry and Derry, New Hampshire; received a Bachelor of Science degree from the United States Naval Academy in 1944, an Honorary Master of Arts degree from Dartmouth College in 1962, and Honorary Doctorate of Science from Miami University (Oxford, Ohio) in 1971, and an Honorary Doctorate of Humanities from Franklin Pierce College in 1972. Graduated Naval Test Pilot School in 1951; Naval War College, Newport, Rhode Island in 1957.

He was awarded the congressional Medal of Honor (Space), two NASA Distinguished Service Medals, the NASA Exceptional Service Medal, the Navy Astronaut Wings, the Navy Distinguished Service Medal, and the Navy Distinguished Flying Cross. He was a recipient of the Langley Medal (highest award of the Smithsonian Institution) on May 5, 1964, the Lambert Trophy, the Kinchloe Trophy, the Cabot Award, the Collier Trophy, the City of New York Gold Medal (1971), and the achievement Award for 1971. Shepard was appointed by the President in July 1971 as a delegate to the 26th United Nations General Assembly and served through the entire assembly that lasted from September to December 1971.

Rear Admiral Shepard was one of the Mercury astronauts named by NASA in April 1959, and he holds the distinction of being the first American to journey into space. On May 5, 1961, in the Freedom 7 spacecraft, he was launched by a Redstone vehicle on a ballistic trajectory suborbital flight—a flight that carried him to an altitude of 116 statute miles and to a landing point 302 statute miles down the Atlantic Missile Range.

James Earl "Jimmy" Carter
Class of 1947
39th President of the United States

Profile
James Earl (Jimmy) Carter, Jr., who in 1976 became the fifth consecutive President with prior Navy service, was born in Plains, Georgia on 1 October 1924. Graduating from Plains High School in 1941, he attended Georgia Southwestern College in Americus, Georgia. After a year there, Carter transferred to Georgia Institute of Technology to study mathematics for a year in order to qualify for the U.S. Naval Academy. In 1943, Carter received an appointment to the academy and became a member of the Class of 1947. After completing the accelerated wartime program, he graduated on 5 June 1946 with distinction and obtained his commission as ensign. After serving in positions such as radar officer, CIC officer, Training and Education Officer, he attended the U.S. Navy Submarine School, Submarine Base, New London, Connecticut from 14 June to 17 December 1948. Carter was honorably discharged on 9 October 1953 at Headquarters, Third Naval District in New York City. On 7 December 1961, he transferred to the retired reserve with the rank of Lieutenant at his own request.
In 1962 he won election to the Georgia Senate, became Georgia’s 76th governor on January 12, 1971 and, on December 12, 1974, he announced his candidacy for president of the United States. He won his party’s nomination on the first ballot at the 1976 Democratic National Convention, and was elected president on November 2, 1976. Jimmy Carter served as president from January 20, 1977 to January 20, 1981. In 1982, he became University Distinguished Professor at Emory University in Atlanta, Georgia. On December 10, 2002, the Norwegian Nobel Committee awarded the Nobel Peace Prize for 2002 to Mr. Carter “for his decades of untiring effort to find peaceful solutions to international conflicts, to advance democracy and human rights, and to promote economic and social development.” In 2010, he published his 25th book, White House Diary.

James B. Stockdale
Class of 1947
Prisoner of War/Awarded the Congressional Medal of Honor

Profile
Admiral Stockdale was born on December 23, 1923 in Abingon, Illinois. After graduating from the Naval Academy in 1946, he attended flight training in Pensacola, FL and in 1954 was accepted to the Navy Test Pilot School where he served as an instructor for a brief time. Stockdale’s flying career took him west, and in 1962, he earned a Master’s Degree in International Relations from Stanford University.

On September 9, 1965 while returning from a mission, his A-4 Skyhawk was hit by anti-aircraft fire. Stockdale ejected, breaking a bone in his back and badly dislocating his knee. Stockdale wound up in Hoa Lo Prison, the infamous “Hanoi Hilton,” where he spent the next seven years. Despite being kept in solitary confinement for four years, in leg irons for two years, physically tortured more than 15 times, denied medical care and malnourished, Stockdale organized a system of communication and developed a cohesive set of rules governing prisoner behavior.

The spring of 1969, he was told that he was to be taken ‘downtown’ and paraded in front of foreign journalists. Stockdale slashed his scalp with a razor and beat himself in the face with a wooden stool knowing that his captors would not display a prisoner who was disfigured. Later, after discovering that some prisoners had died during torture, he slashed his wrists to demonstrate to his captors that he preferred death to submission. This act so convinced the Vietnamese of his determination to die rather than to cooperate that the Communists ceased the torture of American prisoners and gradually improved their treatment of POWs. He was released from prison in 1973. He was awarded the Congressional Medal of Honor by President Gerald Ford in 1976. He was one of the most highly decorated officers in the history of the Navy, wearing twenty-six personal combat decorations, including two Distinguished Flying Crosses, three Distinguished Service Medals, two Purple Hearts, and four Silver Star medals in addition to the Medal of Honor. He was the only three star Admiral in the history of the Navy to wear both aviator wings and the Medal of Honor.

After serving as the President of the Naval War College, Stockdale retired from the Navy in 1978. He published a number of books and articles and was awarded eleven honorary doctoral degrees. In 1992 he agreed to the request from H. Ross Perot to stand in as the vice presidential candidate of the Reform Party. Upon his retirement in 1979, the Secretary of the Navy established the Vice Admiral Stockdale Award for the Inspirational Leadership presented annually in both the Pacific and Atlantic fleet. Admiral Stockdale was a member of the Navy’s Carrier Hall of Fame and The National Aviation Hall of Fame, and he was an Honorary Fellow in the Society of Experimental Test Pilots.
H. Ross Perot  
*Class of 1953*  
Entrepreneur/Presidential Candidate

**Profile**

H. Ross Perot was born in 1930 in Texarkana, Texas. In 1957, he went to work for IBM as a salesman. He then founded Electronic Data Systems (EDS) in 1962, which he sold to General Motors in 1984. In 1979, he funded an operation during the Iran hostage crisis that resulted in the rescue of two of EDS employees. Concerned over the budget crisis, he ran for president as an independent with Vice Adm. James B. Stockdale in 1992. They won a fifth of the popular vote and finished third in the election. Following his defeat, he formed the Reform Party and ran as their presidential candidate in 1996, where he also came in third.

John McCain  
*Class of 1958*  
Prisoner of War/United States Senator

**Profile**

John Sidney McCain, III was born in Panama Canal Zone, August 29, 1936. He attended school in Alexandria, Va., and graduated from the United States Naval Academy in 1958. In 1973, he graduated from the National War College, Washington, D.C.

He was a pilot in the United States Navy from 1958 until 1981. From 1967 to 1973, he was a prisoner of war in Vietnam. He received numerous awards, including the Silver Star, Legion of Merit, Purple Heart, and Distinguished Flying Cross.


Roger Staubach  
*Class of 1965*  
Heisman Trophy Winner/Professional Football Player

**Profile**

As a midshipman, Roger Staubach was named recipient of college football’s top honor, The Heisman Trophy. Staubach graduated from the Naval Academy in 1965 and went on to serve four years of active duty service in the Navy, with one year of overseas duty in Vietnam. Staubach played 11 years of professional football with the Dallas Cowboys and led the Cowboys to two Super Bowl victories. He was elected into the Hall of Fame in 1985, his first year of eligibility.

Outside of sports, in 1977 Staubach founded the Staubach Company; a commercial real estate firm that later merged with Jones Lang LaSalle Incorporated in 2008. He was CEO of Staubach Company for a number of years and following the merger became Executive Chairman, Americas.
Roger Staubach was on the Board of Directors of the United Way of America and the Board of Advisors of the Children’s Scholarship Fund. He played an active part in the American Cancer Society Annual Children’s Luncheon, and other civic, charitable, and professional organizations. Honors bestowed on Roger include Office & Industrial Properties 1998 Executive of the Year, Commercial Property News Corporate Services Executive of the year both in 1999 & 2000, and was the NCAA 2000 ‘Teddy’ Roosevelt Award Winner.

Wendy Lawrence  
*Class of 1981*  
Astronaut  

**Profile**  
Wendy Lawrence was born July 2, 1959, in Jacksonville, Florida. She graduated from Fort Hunt High School, Alexandria, Virginia, in 1977 and received a Bachelor of Science degree in ocean engineering from U.S. Naval Academy in 1981. She also received a Master of Science degree in ocean engineering from Massachusetts Institute of Technology (MIT) and the Woods Hole Oceanographic Institution (WHOI) in 1988. She was awarded the Defense Superior Service Medal, the Defense Meritorious Service Medal, the NASA Space Flight Medal, the Navy Commendation Medal, and the Navy Achievement Medal. She was a recipient of the National Navy League’s Captain Winifred Collins Award for inspirational leadership (1986).

Lawrence has more than 1,500 hours flight time in six different types of helicopters and has made more than 800 shipboard landings. While stationed at Helicopter Combat Support Squadron SIX (HC-6), she was one of the first two female helicopter pilots to make a long deployment to the Indian Ocean as part of a carrier battle group. In October 1990, Lawrence reported to the U.S. Naval Academy where she served as a physics instructor and the novice women’s crew coach.

Selected by NASA in March 1992, Lawrence reported to the Johnson Space Center in August 1992. She completed one year of training and is qualified for flight assignment as a mission specialist. A veteran of four space flights, Lawrence has logged over 1,225 hours in space. Lawrence retired from NASA in June 2006.

Michelle Howard  
*Class of 1982*  
First female four-star in the U.S. Navy  

**Profile**  
Admiral Howard graduated from the United States Naval Academy in 1982 and from the Army’s Command and General Staff College in 1998, with a Masters in Military Arts and Sciences.

Admiral Howard served on several ships to include USS Lexington (AVT 16) where she received the secretary of the Navy/Navy League Captain Winifred Collins award in May 1987. This award is given to one woman officer a year for outstanding leadership.

She took command of USS Rushmore (LSD 47) on March 12, 1999, becoming the first African American woman to command a ship in the U.S. Navy. She has been in several sea and shore assignments such as the 38th Vice Chief of Naval Operations; another first for women. She is currently the Commander, Allied Joint Force Command Naples; Commander, U.S. Naval Forces Europe; and Commander U.S. Naval Forces Africa.
David Robinson
Class of 1987
Professional Basketball Player
Profile
Recruited by Annapolis to play for the Academy’s basketball team, David Robinson went from being a 6’4” freshman who averaged just 7.6 points per game to a dominating 7’1” College Player of the Year senior.

Selected by the San Antonio Spurs with the number one pick in the 1987 National Basketball Association (NBA) draft, the man known as ‘The Admiral’ put off his rookie season until the 1989-90 season due to his commitments to the Navy. This decision clearly had no adverse effect upon him, as he would go on to be named ‘Rookie of the Year.’

He was the first male basketball player to play on three U.S. basketball teams in the Olympic Games. In 2009, he was inducted into the NBA Hall of Fame along with Michael Jordan and John Stockton.

In 1991, he visited the 5th grade class at Gates Elementary School in Texas. He challenged the 94 students of the class to finish high school, promising each of them a $2,000 scholarship if they did so. In 1998 when 50 of those students graduated, he presented each of them with an $8,000 scholarship. In 1997, he donated $5 million dollars to found the Carver Academy, which he continued to donate to in the following years. Due to his commitment to the community, the NBA renamed their Community Assist Award to be the David Robinson Plaque in 2003.

Erik Kristensen
Class of 1995
SEAL
Profile
Erik Kristensen graduated with honors from the U.S. Naval Academy in 1995. He served first as a Surface Warfare Officer onboard USS Chandler (DDG-996) and as an Officer-in-Charge (OIC) of a Rigid Hull Inflatable Boat (RHIB) Detachment at Naval Special Warfare Boat Unit TWELVE (SBU-12).

Kristensen subsequently taught at the Naval Academy and attended graduate school prior to transferring to Basic Underwater Demolition/SEAL (BUD/S). His first assignment as a SEAL was OIC of a Platoon at SEAL Team EIGHT.

In March 2005, LCDR Kristensen deployed to Afghanistan as a Task Unit Commander for SEAL Team TEN to support the Global War on Terrorism. On June 28, 2005, he led a daring mission to rescue a four-man SEAL reconnaissance squad engaged in a fierce firefight with overwhelming Taliban forces in rugged 10,000-foot mountains. Kristensen, seven other SEALs, and eight Army ‘Nightstalkers’ died when their MH-47D Chinook helicopter was shot down by a rocket-propelled grenade.

Eleven SEALs died that day. It was the biggest single loss of life for Naval Special Warfare since World War II. These SEALs embodied the Navy’s Core Values of Honor, Courage, and Commitment, and took care of their teammates to the last. Erik Kristensen and those who perished with him are remembered with the greatest respect and gratitude by his fellow SEALs, the Naval Academy, the Navy, and our nation.

Sources:
1. The Bluejacket’s Manual
I. Mission

*The mission of the Navy is to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas.*

II. Ethos

*We are the United States Navy, our Nation’s seapower* – ready guardians of peace, victorious in war.

*We are professional Sailors and civilians* – a diverse and agile force exemplifying the highest standards of service to our Nation, at home and abroad, at sea and ashore.

Integrity is the foundation of our conduct; respect for others is fundamental to our character; decisive leadership is crucial to our success.

*We are a team, disciplined and well prepared, committed to mission accomplishment.* We do not waver in our dedication and accountability to our Shipmates and families.

*We are patriots, forged by the Navy’s core values of Honor, Courage, and Commitment.* In times of war and peace, our actions reflect our proud heritage and tradition.

*We defend our Nation and prevail in the face of adversity with strength, determination, and dignity.*

*We are the United States Navy.*

III. The Chief of Naval Operation’s Vision

CNO Richardson has provided his guidance for the Navy with the publication of “A Design for Maintaining Maritime Superiority.” This document outlines his vision for the Navy. The mission statement is:

The United States Navy will be ready to conduct prompt and sustained combat incident to operations at sea. Our Navy will protect America from attack and preserve America’s strategic influence in key regions of the world. U.S. naval forces and operations – from the sea floor to space, from deep water to the littorals, and in the information domain – will deter aggression and enable peaceful resolution of crises on terms of acceptable to the United States and our allies and partners. If deterrence fails, the Navy will conduct decisive combat operations to defeat any enemy.

Core Attributes

*Integrity.* Our behaviors as individuals and as an organization align with our values as a profession. We *actively* strengthen each other’s resolve to act consistently with our values. As individuals, as teams, and as a Navy, our conduct must always be upright and honorable in both public and when nobody is looking.

*Accountability.* We are a mission-focused force. We achieve and maintain high standards. Our actions support our strategy. We clearly define the problem we are trying to solve and the proposed outcomes. In execution, we honestly assess our progress and adjust as required – we are our own toughest critic.

*Initiative.* On their own, everybody strives to be the best they can be – we give 100% when on the job. Our leaders take ownership and act to the limit of their authorities. We foster a questioning attitude and look at new ideas with an open mind. Our junior teammate may have the best idea; we must be open to capturing that idea.

*Toughness.* We can take a hit and keep going, tapping all sources of strength and resilience: rigorous training for operations and combat, the fighting spirit of our people, and the steadfast support of our families. WE DON’T GIVE UP THE SHIP!
Four Lines of Effort

1. Strengthen Naval Power At And From Sea
2. Achieve High Velocity Learning At Every Level
3. Strengthen Our Navy Team For The Future
4. Expand And Strengthen Our Network Of Partners

IV. National Military Structure

POTUS
The President of the United States serves as the Commander in Chief (CINC) of all U.S. military forces. The President is responsible to the citizens of the United States for maintaining a military that performs our nation’s security needs.

SecDef
The Secretary of Defense is the principal defense policy adviser to the President and is responsible for the formulation and execution of general defense policy. Subordinate to the Secretary of Defense are the individual service secretaries, including the Secretary of the Navy.

JCS
The Joint Chiefs of Staff advise the CINC. There are seven four-star officers on the Joint Chiefs of Staff:

1. Chairman of the Joint Chiefs of Staff
   Gen Joseph Dunford, USMC
2. Vice-Chairman of the Joint Chiefs of Staff
   Gen Paul Selva, USAF
3. Commandant of the Marine Corps
   Gen Robert Neller, USMC
4. Chief of Naval Operations
   ADM John Richardson, USN
5. Chief of Staff of the Army
   Gen Mark Milley, USA
6. Chief of Staff of the Air Force
   Gen David Goldfein, USAF
7. Chief of the National Guard Bureau
   Gen Frank Grass, ARNG

The Chairman is the principal military adviser to the President, Secretary of Defense, and the National Security Council (NSC); however, all JCS members are military advisers by law. Since the National Security Act of 1947, the Joint Chiefs of Staff have served as planners and advisers, although they have no executive authority to command combatant forces.

NSC
The National Security Act of 1947 also established the National Security Council to consider national security issues that require Presidential decision. The National Security Council consists of four statutory members:

1. The President
2. The Vice President
3. The Secretary of State
4. The Secretary of Defense

The Chairman of the Joint Chiefs of Staff (CJCS) and the Director of National Intelligence serve as statutory advisers to the NSC.

V. Department of the Navy Leadership

SECNAV
The Secretary of the Navy has authority over both the Navy and Marine Corps. He is responsible for conducting all the affairs of the Department of the Navy, including recruiting, organizing, supplying, equipping, training, mobilizing, and demobilizing. The Secretary also oversees the construction, outfitting, and repair of naval ships, equipment, and facilities.

CNO
The Chief of Naval Operations (CNO) is the senior military officer in the Navy. The CNO is a four-star admiral and is responsible to the Secretary of the Navy for the command, utilization of resources and
operating efficiency of the operating forces of the Navy and of the Navy shore activities assigned by the Secretary. The CNO is responsible for manning, training, and equipping the naval force.

A member of the Joint Chiefs of Staff, the CNO is the principal naval advisor to the President and to the Secretary of the Navy on the conduct of war, and is the principal advisor and naval executive to the Secretary on the conduct of naval activities by the Department of the Navy. Assistants are the Vice Chief of Naval Operations (VCNO), the Deputy Chiefs of Naval Operations (DCNOs) and a number of other ranking officers. These officers and their staffs are collectively known as the Office of the Chief of Naval Operations (OpNav).

CMC

The Commandant of the Marine Corps (CMC) is the senior military officer in the Marine Corps. The Commandant is a four-star general and is responsible to the Secretary of the Navy for the command, utilization of resources, and operating efficiency of the operating forces of the Marine Corps.

A member of the Joint Chiefs of Staff, the CMC is the principal Marine advisor to the President and to the Secretary of the Navy on the conduct of war, and is the principal advisor and Marine executive to the Secretary on the conduct of USMC activities.

VI. Chains of Command

Administrative Chain of Command

The administrative chain of command is tasked with manning, training, and equipping forces and is responsible for personnel management, supply, services, maintenance, certification, and other matters not directly related to the operational chain of command. The Navy administrative chain of command is:

1. President of the United States  President Barack Obama
2. Secretary of Defense  The Honorable Ashton Carter
3. Secretary of the Navy  The Honorable Ray Mabus
4. Chief of Naval Operations  Admiral John Richardson
5. Fleet Commanders
   a. U.S. Fleet Forces Command (dual hatted as the Commander U.S. Atlantic Fleet)
   b. Commander U.S. Pacific Fleet
6. Type Commanders (TYCOM) – The TYCOM controls units during primary and intermediate training cycles before the units move under the control of a Fleet Commander.
   a. Ships: Commander Naval Surface Forces Atlantic and Pacific (COMNAVSURFLANT and COMNAVSURFPAC)
   b. Air: Commander Naval Air Forces Atlantic and Pacific (COMNAVAIRLANT and COMNAVAIRPAC). Aircraft carriers, aircraft squadrons, and air stations are under the administrative control of the appropriate Commander Naval Air Force.
c. Submarines: Commander Submarine Forces Atlantic and Pacific (COMSUBLANT and COMSUBPAC)
d. Navy Expeditionary Command (NECC)
e. Naval Network Warfare Command (NETWARCOM)

7. Group Commanders – Responsible to TYCOMs for administrative control of similar types of fleet elements (e.g., carrier, cruiser-destroyer, fighter aircraft, etc.) in homeport areas.
8. Squadron Commanders – Responsible to Group Commanders for administrative control of a squadron of similar ship/submarine types. This does not refer to an aviation squadron.
9. Unit Commanders – Individual ship, submarine, or aviation squadron Commanding Officers.

Operational Chain of Command

The operational chain of command is tasked with using the forces provided by all four services to carry out the orders of the National Command Authority (NCA). The NCA consists only of the POTUS and the SecDef or their duly deputized alternates or successors. The Navy operational chain of command is:

1. NCA
2. Unified Combatant Commander (CCDR) – Operational commanders by geographic area of responsibility (AOR). (i.e., COMUSPACOM)
3. Subordinate Component Commander – Responsible to Unified Commanders for the employment of forces/capabilities in the respective AOR. (i.e., COMUSPACFLT)
4. Numbered Fleet Commander – Responsible for operational naval forces supporting the Component Commanders. (e.g., 3rd, 4th, 5th, 6th, 7th, 10th, and Fleet Forces Command which incorporated 2nd Fleet in 2011)
5. Task Force Commander – Subordinate to the Numbered Fleet Commander and responsible for the planning and execution of operations to achieve military objectives. (i.e., CTF-XX where the first digit would indicate the Numbered Fleet and the second digit would indicate the specific Task Force)
6. Task Group Commander – Subordinate to the Task Force Commander. A Carrier Strike Group (CSG) or Expeditionary Strike Group (ESG) Commander. (i.e., CTG-XX.X where the last digit would indicate the Task Group)
7. Task Unit Commander – Functional Warfare Commanders generally within the CSG/ESG. (i.e., CTU-XX.X.X where the last digit would indicate the Task Unit)
8. Task Element Commander – An individual platform or group of platforms (ships, aircraft, etc.) with a special purpose such as a Surface Action Group (SAG). (CTE-XX.X.X.X where the last digit would indicate the Task Element)

Command and Control

Command and control is the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. Command and control ties together all the operational functions and tasks and applies to all levels of war and echelons of command across the range of military operations. C2 is the means by which an operational commander synchronizes and integrates force activities in order to achieve unity of command. Unity of effort over complex operations is made possible through decentralized execution of centralized, overarching plans. Unity of command is strengthened through consideration of the following:

- Clearly defined authorities and roles
- Logical, standardized information management practices
- Explicit and implicit communication
- Timely decision making
- Recognized coordination mechanisms
- Disciplined battle rhythm
- Responsive, dependable, and interoperable support systems
- Shared situational awareness
- Mutual trust
Command and control of naval forces reflects our operational environment, traditions, and culture. Despite the changes in today’s environment, naval forces have retained unique characteristics in the capabilities we provide, as well as the way we function, compared to the other Services/components. Unlike Army and Air Force organizations, most naval forces do not undergo a lengthy period of transition from garrison to deployed and operational status. Naval forces are operational as soon as they “take in all lines.” Being essentially self-deploying, naval forces are able to operate in support of strategic objectives without affecting another nation’s sovereignty and do not necessarily require host-nation permission for their presence. As such, naval forces provide persistent military capabilities that are immediately available to the Component Commander. **Naval tactical commanders are expected to take initiative using the operational-level commander’s guidance, which defines what needs to be done but not how to do it.**

**Our C2 philosophy is derived from the characteristics and complexity of the maritime domain.** Even in an era of nearly instantaneous communications and increasingly complex relationships among the forces of other Services and nations, having the subordinate commander execute operations in accordance with a thorough understanding of the commander’s intent is a key tenet of the naval forces’ C2 philosophy. Our leaders are trained, educated, groomed, and held accountable for these exceptional authorities and responsibilities.

**VII. Unified Combatant Commands**

Unified Combatant Commands (CCMDs) are composed of forces from two or more services, have broad and continuing missions, and are normally organized on a geographical basis. There are currently nine unified commands; six are geographic (Geographic Combatant Commands – GCC) and three are functional. They are listed below along with the headquarters (HQ) locations.

**Geographic:**

1. U.S. European Command (USEUCOM) – Patch Barracks in Stuttgart, Germany
2. U.S. Pacific Command (USPACOM) – Camp H. M. Smith in Honolulu, HI
3. U.S. Southern Command (US SOUTHCOM) – Miami, FL
4. U.S. Central Command (USCENTCOM) – MacDill AFB in Tampa, FL
5. U.S. Africa Command (USAFRICOM) – Kelley Barracks in Stuttgart, Germany
6. U.S. Northern Command (US NORTHCOM) – Peterson AFB in Colorado Springs, CO

**Functional:**

7. U.S. Special Operations Command (US SOCOM) – MacDill AFB in Tampa, FL
8. U.S. Transportation Command (USTRANSCOM) – Scott AFB in St. Clair County, IL
9. U.S. Strategic Command (US STRATCOM) – Offutt AFB in Omaha, NE
VIII. Numbered Fleets

As previously stated, Combatant Commanders (CCDRs) have subordinate Component Commanders responsible for employment of their forces in the respective AOR. Below the Component Commanders are Numbered Fleet Commanders. The graph below depicts alignment of those Fleet Commanders with their respective area of operation (AO), headquarter (HQ) location, and Combatant Command (CCMD).

<table>
<thead>
<tr>
<th>Fleet</th>
<th>Area of Operation</th>
<th>Headquarters</th>
<th>CCMD</th>
</tr>
</thead>
<tbody>
<tr>
<td>THIRD</td>
<td>Eastern and Central Pacific</td>
<td>San Diego, California</td>
<td>PACCOM</td>
</tr>
<tr>
<td>FOURTH</td>
<td>Caribbean Ocean, surrounding waters of Central and South America</td>
<td>Mayport, Florida</td>
<td>SOUTHCOM</td>
</tr>
<tr>
<td>FIFTH</td>
<td>Middle East (Red Sea, Arabian Sea, Persian Gulf)</td>
<td>Manama, Bahrain</td>
<td>CENTCOM</td>
</tr>
<tr>
<td>SIXTH</td>
<td>Mediterranean Sea</td>
<td>Naples, Italy</td>
<td>EUCOM</td>
</tr>
<tr>
<td>SEVENTH</td>
<td>Western Pacific and Indian Ocean</td>
<td>Yokosuka, Japan</td>
<td>PACCOM</td>
</tr>
<tr>
<td>TENTH</td>
<td>Cyber Warfare</td>
<td>Fort Meade, Maryland</td>
<td>STRATCOM</td>
</tr>
<tr>
<td>FFC</td>
<td>Eastern Atlantic</td>
<td>Norfolk, VA</td>
<td>NORTHCOM</td>
</tr>
</tbody>
</table>

Sources:
2. Naval Doctrine Publication 1 (NDP-1)
3. Joint Doctrine Publication 1 (JP-1)
I. Operational Mission Areas

Navy ships, staffs, and reserve components are designed and/or organized to perform one or more mission areas. Mission areas define how the Navy executes naval warfare. Navy mission areas are continuously evolving as new weapons, sensors, and capabilities are introduced into the maritime domain. Listed below are the Navy’s operational mission areas.

1. **AMPHIBIOUS WARFARE (AMW)**. Amphibious Warfare involves military operations launched from the sea by an amphibious force (AF), embarked in ships or craft with the primary purpose of introducing a landing force (LF) ashore to accomplish the assigned mission. An AF is an amphibious task force (ATF) and an LF together with other forces that are trained, organized, and equipped for amphibious operations.

2. **ANTISUBMARINE WARFARE (ASW)**. Operations conducted with the intention of denying the enemy the effective use of submarines.

3. **AIR WARFARE (AW)**. The detection, tracking, destruction, or neutralization of enemy air platforms and airborne weapons, whether launched by the enemy from air, surface, subsurface, or land platforms.

4. **BALLISTIC MISSILE DEFENSE (BMD)**. All active and passive measures designed to detect, identify, track, and defeat attacking ballistic missiles (and entities), in both strategic and theater tactical roles, during any portion of their flight trajectory (boost, post-boost, midcourse, or terminal) or to nullify or reduce the effectiveness of such attack.

5. **COMMAND CONTROL COMMUNICATIONS (CCC)**. Providing communications and related facilities for coordination and control of external forces, and control of own unit’s capabilities.

6. **EXPEDITIONARY WARFARE (EXW)**. A military operation conducted by an armed force to accomplish a specific objective in a foreign country. Expeditionary Operations encompassing the entire range of military operations, from foreign humanitarian assistance to forcible entry. The defining characteristic of expeditionary operations is the projection of force into a foreign setting. Includes Naval Special Warfare, Mine Warfare, Amphibious Warfare, Navy Expeditionary Combat, and Sea Basing.

7. **INFORMATION OPERATIONS (IO)**. The integrated employment of the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with specified supporting and related capabilities, to influence, disrupt, corrupt or usurp adversarial human and automated decision making while protecting our own.

8. **INTELLIGENCE OPERATIONS (INT)**. The variety of intelligence and counterintelligence tasks that are carried out by various intelligence organizations and activities within the intelligence process. Intelligence operations include planning and direction, collection, processing and exploitation, analysis and production, dissemination and integration, and evaluation and feedback.

9. **MINE WARFARE (MIW)**. The strategic, operational, and tactical use of mines and mine countermeasures. Mine warfare is divided into two basic subdivisions: the laying of mines to degrade the enemy’s capabilities to wage land, air, and maritime warfare; and the countering of enemy-laid mines to permit friendly maneuver or use of selected land or sea areas.

10. **MOBILITY (MOB)**. A quality or capability of military forces that permits them to move from place to place while retaining the ability to fulfill their primary mission.

11. **STRIKE WARFARE (STW)**. Naval operations to destroy or neutralize enemy targets ashore, including attacks against strategic or tactical targets, such as manufacturing facilities and operating bases, from which the enemy is capable of conducting or supporting air, surface, or subsurface operations against friendly forces.

12. **SURFACE WARFARE (SUW)**. That portion of maritime warfare in which operations are conducted to destroy or neutralize enemy naval surface forces and merchant vessels.
II. Capabilities of the U.S. Navy

The Carrier Strike Group (CSG) and the Expeditionary Strike Group (ESG) are the two largest operational units within the U.S. Navy. The CSG is a principal element of U.S. power projection capability. It is a flexible naval force that can operate in confined waters or in the open ocean, during day and night, and in all weather conditions. It continues to be centerpiece of our naval force. Although tailorable, a typical CSG consists of:

- One Aircraft Carrier (CVN)
- One Guided Missile Cruiser (CG)
- Two Guided Missile Destroyers (DDG)
- One Attack Submarine (SSN)
- One Combined Ammunition, Oiler, and Supply Ship
- One Carrier Air Wing (approximately 70 fixed and rotary wing aircraft)
  - F/A-18C/E/F Hornets and Super Hornets
  - EA-18G Growlers
  - E-2C/D Hawkeyes
  - C-2 Greyhounds
  - MH-60R “Romeo” Seahawks
  - MH-60S “Sierra” Knighthawks

Within the CSG, the principal role of the carrier and its air wing is to provide the primary offensive firepower while the other units provide defense and support. However, these roles are not exclusive. Other units in the CSG undertake offensive operations (i.e., launching cruise missiles), and the air wing contributes to its defense (i.e., combat air patrols and airborne anti-submarine missions). Thus, command and control of the CSG is exercised by mission (i.e., ASW, AW, etc.) through the Composite Warfare Commander (CWC) concept.

The ESG centers on the flexibility of amphibious ships, an embarked Marine Expeditionary Unit (MEU), and surface and submarine combatants. The total ESG provides operational freedom and expanded warfare capabilities on land and at sea. Although tailorable, a typical ESG consists of:

- One Amphibious Assault Ship (LHA or LHD)
- One Amphibious Transport Dock (LPD) Ship
- One Dock Landing Ship (LSD)
- One Marine Expeditionary Unit (MEU)
- AV-8B Harrier IIs
- F-35 Lightning IIs
- MV-22 Ospreys (V/STOL)
- AH-1W Super Cobra helicopters
- UH-1 Huey helicopters
- MH-60S “Sierra” helicopters
- KC-130J Super Hercules
- Surface combatants and submarines

An ESG combines an Amphibious Readiness Group (ARG) with the additional combat power of surface combatants and submarines. Amphibious landing ships transport troops, vehicles, and supplies wherever they are needed and provide great flexibility to commanders planning operations. However, amphibious ships are not designed for fighting hostile naval forces, especially highly maneuverable patrol craft found in coastal environments. In order to counter those threats and provide Naval Surface Fire Surface (NSFS) in support of amphibious operations, the Navy transforms ARGs into ESGs by assigning dedicated surface and submarine combatants—cruisers, destroyers, frigates, and submarines—to support the amphibious ships.

An ESG is a scalable, adaptable force, capable of planning and executing rapid strike and combat operations while operating in a limited non-permissive (i.e., low threat) environment. ESGs combine a highly mobile group of platforms with a lean command and authority structure. This rapid response is
enabled by the capability to rapidly coordinate, deploy, and move to locations where they are needed. In addition, ESGs are designed to be self-sustaining, as well as capable of autonomous action based on being comprised of a diverse set of capabilities. A wide range of missions can be supported, from amphibious assault to disaster relief, based on the composition of integrated Navy and Marine Corps forces.

III. Maritime Strategy

*A Cooperative Strategy for 21st Century Seapower (CS-21)* was presented by the Chief of Naval Operations and the Commandants of the U.S. Marine Corps and U.S. Coast Guard at the International Seapower Symposium in Newport, R.I. on Oct 17, 2007. Signed for the first time by the service chiefs of all three Sea Services, the strategy draws the Navy, Marine Corps, and Coast Guard even closer together. In March 2015, the Secretary of the Navy updated this strategy to, *A Cooperative Strategy for 21st Century Seapower: Forward, Engaged, Ready. (CS-21R)*

This maritime strategy reaffirms two foundational principles. First, U.S. forward naval presence is essential to accomplishing the following naval missions derived from national guidance: *defend the homeland, deter conflict, respond to crises, defeat aggression, protect the maritime commons, strengthen partnerships, and provide humanitarian assistance and disaster response.* Our self-sustaining naval forces, operating in the global commons, ensure the protection of the homeland far from our shores, while providing the President with decision space and options to deny an adversary’s objectives, preserve freedom of action, and assure access for follow-on forces.

Second, naval forces are stronger when we operate jointly and together with allies and partners. Merging our individual capabilities and capacity produces a combined naval effect that is greater than the sum of its parts. By working together in formal and informal networks, we can address the threats to our mutual maritime security interests. Maximizing the robust capacity of this global network of navies’ concept, we are all better postured to face new and emerging challenges.

CS-21R provides four key focus areas that the maritime services must understand:
1. The Global Security Environment
2. Forward Presence and Partnership
3. Seapower in Support of National Security

To successfully implement CS-21R, the Sea Services maintain the five essential functions in a combined-arms approach of U.S. seapower:
1. All Domain Access
2. Deterrence
3. Sea Control
4. Power Projection
5. Maritime Security

In January 2016, the CNO released “A Design for Maintaining Maritime Superiority” outlining initiatives to achieve CS-21R. It has four lines of effort:
- STRENGTHEN NAVAL POWER AT AND FROM SEA
- ACHIEVE HIGH VELOCITY LEARNING AT EVERY LEVEL
- STRENGTHEN OUR NAVY TEAM FOR THE FUTURE
- EXPAND AND STRENGTHEN OUR NETWORK OF PARTNERS

Sources:
6. Composite Warfare Doctrine: NWP 3-56
WEEK 6: NAVAL AIR WARFARE

I. History

During the twentieth century, few military organizations played a more crucial role than Naval Aviation. During maritime conflicts, aircraft carriers replaced battleships as the decisive weapon, projecting their powerful air wings over vast expanses of water, striking with surprise at enemy fleets and land bases, then disappearing with equal swiftness. In times of peace, the carrier and its battle group provided American political leaders a flexible and potent way to respond to regional crises wherever and whenever American vital interests were threatened. “Where are the carriers?” has been the first question asked by American presidents at the start of every national security crisis since the end of World War II.

The Navy’s interest in airplanes as a naval weapon dates back to 1898 when several naval officers became members of an inter-service board tasked to observe and investigate the military potential of the new flying machine. In 1908 and 1909, naval officer observers were present at the public demonstrations staged by the Wright brothers.

In 1910, LT Theodore G. Ellison became the first naval officer selected for flight training. Ellyson underwent instruction with Glenn Curtiss, the producer of the first practical hydroplane and early aircraft developer. It was a Curtiss pilot by the name of Eugene Ely who made the first shipboard takeoff from the USS Birmingham in 1910. Ely would later become the first pilot to successfully land an aircraft on the deck of a ship. Just one year later, having successfully completed training, LT Ellyson demonstrated the ability to launch a plane utilizing a newly devised compressed air catapult.

The first naval air station was located in Annapolis at Greenbury Point in 1911. The first aircraft carrier, USS Langley, was commissioned in 1922 by converting an old collier to a flat top ship.

Naval aircraft saw action in WWI, but it was not until WWII that naval aviation gained prominence. While naval aviation saw action in both European and Pacific theaters, it was the performance at the battle of Midway that solidified their position of importance. Having destroyed all four Japanese carriers, naval aviators turned the war in the Pacific from defensive to offensive. From that point onward, the center of the fleet became the aircraft carrier instead of the battleship.

Naval aviation has continued to grow in distinction and popularity over the past few decades. From operations in Desert Storm, Iraqi Freedom, and Enduring Freedom to humanitarian assistance at home and abroad, naval aircraft and aircraft carriers have assumed prominent roles and responsibilities.

At the start of hostilities in Afghanistan, the aircraft carriers in the North Arabian Sea provided the only viable option for tactical air support. In the first two years of sustained combat operations for Operation ENDURING FREEDOM (OEF), 72% of strike sorties were flown by aircraft based on six different carriers. Hornets, Prowlers, and Hawkeyes provided close air support at distances of 600 to 750 nautical miles from their sea base. Indicative of the dynamic employment of carrier aircraft, 80% of targets engaged were assigned to aircrews after launch and 93% of munitions were satellite-aided or laser-guided. In a single deployment, Carrier Air Wing (CVW-8) attached to USS Theodore Roosevelt (CVN-71) flew 3,000 sorties supporting troops-in-contact (TIC) 500 times.

In 2003, six of twelve aircraft carriers were surged for Operation IRAQI FREEDOM, flying half of all fighter sorties in the U.S. Central Command area of responsibility (AOR). Carriers were on station in the Mediterranean Sea as well as the Persian Gulf. More than 700 Navy and Marine Corps aircraft provided critical combat capability with each carrier flight deck active on average 16 hours a day to generate 120-130 sorties during the first month of the war. In a single deployment, CVW-14 aboard the USS Abraham Lincoln (CVN-72) dropped 1.865 million pounds of ordnance.

Throughout campaigns in Iraq and Afghanistan, EP-3Es operating from land bases in the Middle East orbited overland providing imminent threat warning to coalition strike packages and conducted essential intelligence, surveillance, and reconnaissance (ISR) for U.S. and coalition forces.

Naval aviation continues to provide unique capabilities for humanitarian relief operations. CVW-2 assigned to USS Abraham Lincoln (CVN-72) arrived on-station off the coast of Indonesia just five days after the Dec. 26, 2004 tsunami devastated the region. The Abraham Lincoln Carrier Strike Group (ALSG) spearheaded the emergency relief effort known as Operation UNIFIED ASSISTANCE. By month’s end, Navy helicopters had flown 1,527 missions, delivering 4.8 million pounds of supplies, and transporting 2,929 people.
Likewise, sea-based aviation assets remain a valuable tool in complex contingencies such as the NATO operation in support of Libya’s liberation in 2011 during Operations ODYSSEY DAWN and UNIFIED PROTECTOR. Air operations were led by EA-18G Growlers whose radar jamming pods, High-Speed Anti-Radiation Missiles, and APG-79 phased-array radar devastated the Qadhafi regime’s air defense and communications networks, enabling AV-8B Harrier IIs of the 26th MEU to attack ground targets in Libya. Simultaneously, P-3C Orions attacked surface ships with AGM-65F Maverick missiles and an MV-22 conducted combat search and rescue to recover the aircrew of a downed USAF F-15E.

Most recently, naval aviation has been a key player in the fight against ISIL/ISIS in Iraq and Syria by launching air strikes from aircraft carriers and forward deployed bases.

Naval aviation has also been at the cutting edge of aerospace expeditions, such as the first successful crossing of the Atlantic by an aircraft, exploration of the Arctic and Antarctic, and numerous “journeys of discovery” into outer space. The common link for those who participate in this exciting history is their training in Pensacola, Florida. Since 1914, it is there that young student naval aviators and naval flight officers have learned and mastered the unique demands of flying naval aircraft.

II. Roles and Responsibilities

Naval Aviation personnel fall into many categories. Naval Aviators and Naval Flight Officers (NFO) operate the aircraft in today’s fleet. Naval Aircrewmen support flight operations and operate mission equipment in flight. On the ground, maintenance and medical personnel support the mission by keeping both the aircraft and aircrews airworthy. Below is a brief description of some of the major roles within Naval Aviation:

- **Naval Aviator.** Unrestricted Line Officer qualified for duty involving flying as a pilot. As a qualified aircraft commander (AC), a Naval Aviator retains overall responsibility for the safe conduct of flight operations and physical control of aircraft, regardless of rank.

- **Naval Flight Officer (NFO).** Unrestricted Line Officer qualified for duty involving flying. Responsible for operating systems onboard the aircraft to include navigation, communication, and weapon systems. NFOs serve in different positions depending on the aircraft Type/Model.

  - Weapon Systems Officer (WSO) – F/A-18
  - Electronic Warfare Officer (EWO) – EA-18
  - Airborne Communications Officer (ACO), Combat Systems Officer (CSO) – E-6B
  - Radar Officer (RO), Air Control Officer (ACO), Combat Information Center Officer (CICO) – E-2C/D
  - Navigator/Communicator (NAV/COM), Tactical Coordinator (TACCO) – P-3C/P-8A
  - Navigator (NAV), Electronic Warfare Officer/Signals Evaluator (EWO/SEVAL) – EP-3

- **Naval Aircrewman.** Enlisted personnel in a permanent flight status. Naval Aircrewmen perform in-flight duties in accordance with various aircrew positions and are responsible to the Aircraft/Mission Commander for the operation, maintenance, and training associated with applicable aircraft systems. Depending on the type of aircraft and mission they perform, Naval Aircrewmen are divided into five distinct categories (applicable aircraft in parentheses):

  1. **Aircrewman Mechanical (AWF).** Includes flight engineers, crew chiefs, and load masters. Proficient with all in-flight emergency requirements and knowledgeable with all aircraft flight systems (P-3C, EP-3, E-6B, C-2).
  2. **Aircrewman Operator (AWO).** Operates tactical mission systems to detect, classify, track, and attack enemy submarines (P-3C, P-8A, UAS).
3. **Aircrewman Tactical Helicopter (AWR).** Operates tactical mission systems to detect, classify, and attack enemy submarines (MH-60R, UAS).

4. **Aircrewman Helicopter (AWS).** Serves as the utility aircrewman operating a wide range of equipment, from mine hunting sensors to close in combat weapons systems. Primary rescue swimmer during SAR missions (MH-60S, MH-53, UAS).

5. **Aircrewman Avionics (AWV).** In flight technician/trouble shooter. Maintains and troubleshoots all avionics equipment while in flight. Operates communication systems and electronic warfare equipment (P-3C, EP-3, E-6B, UAS).

**Flight Surgeon.** Medical representative for an aviation command. The flight surgeon is a board-certified medical doctor and promotes aviation safety to decreases the potential for aircraft accidents through the implementation of aviation medicine programs, flight physicals for aircrew personnel, and other routine medical tasks. The flight surgeon is responsible to the CO for the squadron’s medical readiness and routinely flies with the squadron to observe in-flight stressors and crew coordination.

**Professional Aviation Maintenance Officer (PAMO).** Established in 2009, the PAMO community is comprised of aerospace maintenance duty officers, aviation maintenance limited duty officers, and aviation maintenance chief warrant officers. They have significant experience and display a high level of knowledge in all aspects of aviation warfare support. In addition to serving a minimum of 24 months in an aviation maintenance activity and completing one operational deployment, PAMOs are required to complete a personnel qualification standard (PQS) and successfully pass an oral board. Once qualified, PAMOs serve as leaders within an aviation squadron’s maintenance department, supporting aviation missions and the squadron’s warfighting capabilities.

### III. Operations

The primary function of naval aviation is to closely coordinate with other naval forces in maintaining command of the seas while also establishing dominance in the airspace surrounding vital interests. Naval Aviation supports the following operations:

1. ANTI-AIR WARFARE (AAW)
2. ANTI-SURFACE WARFARE (ASU)
3. ANTI-SUBMARINE WARFARE (ASW)
4. CLOSE AIR SUPPORT (CAS)
5. COMBAT SEARCH AND RESCUE (CSAR)
6. COMMAND, CONTROL, COMMUNICATION, COMPUTERS, COMBAT SYSTEMS, AND INTELLIGENCE (C5I)
7. LOGISTICS SUPPORT OPERATIONS (LOG)
8. INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)
9. MINE WARFARE (MIW)
10. STRIKE WARFARE (STW)

The numerous naval aviation operations are carried out by multiple aviation platforms. In general, there are two categories of aircraft: **Fixed Wing** and **Rotary Wing.** Within these categories, aircraft are developed with specific missions in mind. Fixed wing naval aviation assets can be further classified into one of two groups: **Carrier Aviation** or **Maritime Aviation.**
IV. Organization

Naval aircraft are grouped together in squadrons, or military units composed of a number of similar aircraft. Each squadron is composed of officers and enlisted tasked with planning, flying, and maintaining all of their aircraft in support of the mission at hand. Every squadron is designated with a two or three-letter abbreviation describing the missions they accomplish.

<table>
<thead>
<tr>
<th>Squadron Type Decoder</th>
<th>1st Letter</th>
<th>Meaning</th>
<th>2nd Letter</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Fixed Wing</td>
<td>Q</td>
<td>Electronic or Reconnaissance</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Rotary Wing</td>
<td>R</td>
<td>Logistics</td>
<td></td>
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<tr>
<td>W</td>
<td>Warning</td>
<td>P</td>
<td>Patrol</td>
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<tr>
<td>A</td>
<td>Attack</td>
<td>F</td>
<td>Fighter</td>
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</table>

Squadron Designations

<table>
<thead>
<tr>
<th>Squadron Type</th>
<th>Meaning</th>
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</thead>
<tbody>
<tr>
<td>VAW</td>
<td>Airborne Early Warning</td>
</tr>
<tr>
<td>VP</td>
<td>Maritime Patrol</td>
</tr>
<tr>
<td>VFA</td>
<td>Fighter / Attack</td>
</tr>
<tr>
<td>VAQ</td>
<td>Electronic Attack</td>
</tr>
<tr>
<td>VQ</td>
<td>Fleet Air Reconnaissance</td>
</tr>
<tr>
<td>VR/VRC</td>
<td>Fleet Logistics Support (Carrier)</td>
</tr>
<tr>
<td>HSM</td>
<td>Helicopter Maritime Strike</td>
</tr>
<tr>
<td>HSC</td>
<td>Helicopter Sea Combat</td>
</tr>
<tr>
<td>HM</td>
<td>Helicopter Mine Countermeasures</td>
</tr>
</tbody>
</table>

Individual squadrons are often grouped together with other squadrons and surface units to accomplish their mission. This is commonly done in three different ways:

**Type Wing**

A Type Wing is part of the administrative chain of command (within the TYCOM) and it oversees the non-deployed training of aviation squadrons. Each community has its own Type Wing that assists in providing training, logistic support, and materials for each squadron. Examples include STRKFITWING (Strike Fighter Wing) and ACCLOGWING (Airborne Command Control and Logistics Wing). Type Wings are land based, located at major bases, and are usually not deployable.

**Carrier Air Wing**

A Carrier Air Wing (CVW) is composed of squadrons from different Type Wings and are embarked onboard an aircraft carrier. Until 1963, Carrier Air Wings were known as Carrier Air Groups (CAG); thus, the commander of each air wing came to be known as, and is still called, the CAG. The CAG holds the rank of Captain and reports directly to the Carrier Strike Group (CSG) Commander.

A typical modern CVW is composed of the following squadrons, putting the wing at approximately 70 aircraft:

- 4 VFA Squadrons (F/A-18C/D Hornet and F/A-18E/F Super Hornet)
- 1 VAQ Squadron (EA-18G Growler)
- 1 VAW Squadron (E-2C/D Hawkeye)
- 1 VRC Detachment (C-2 Greyhound)
- 1 HSC Squadron (MH-60S Knighthawk)
- 1 HSM Squadron (MH-60R Seahawk)
**Detachments**

Often times, helicopter, logistics, and patrol squadrons do not deploy as a whole squadron. When this is the case, the deploying aircraft are called a detachment. For example, VRC detachments are assigned to a CVW; HSC or HSM detachments each may be assigned to amphibious ships or small combatant ships.

**Carrier Flight Deck Jerseys**

For easy and rapid identification of personnel on an aircraft carrier flight deck, the following color-coded jerseys are worn:

<table>
<thead>
<tr>
<th>Color</th>
<th>Personnel &amp; Nickname</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purple</td>
<td>Aviation Fuels [Nickname: ‘Grapes’]</td>
</tr>
</tbody>
</table>
| Blue | Plane Handlers  
Aircraft elevator Operators  
Tractor Drivers  
Messengers and Phone Talkers |
| Green | Catapult and arresting gear crews  
Air wing maintenance personnel  
Cargo-handling personnel  
Ground Support Equipment (GSE) troubleshooters  
Hook runners  
Photographer’s Mates  
Helicopter landing signal enlisted personnel (LSE) |
| Yellow | Aircraft handling officers  
Catapult and Arresting Gear Officers  
Plane directors |
| Red | Ordnancemen  
Crash and Salvage Crews  
Explosive Ordnance Disposal (EOD)  
[Nickname: ‘Ordies’] |
| Brown | Air wing plane captains  
Air wing line leading petty officers |
V. Safety

Like all warfare communities, Naval Aviation poses unique and significant safety considerations that all personnel must be aware of. Hazards associated with moving aircraft, spinning propellers, operating jet engines, loud noises, and ordinance are common to flight decks, and part of everyday life aboard aviation-capable ships or shore based naval air stations. The following information is meant to provide a brief overview of aviation safety and methods used to mitigate the hazards.

**Cranial.** The cranial impact helmet provides impact protection to the head and includes goggles (eye protection) and sound attenuators (hearing protection). It is required to be worn by personnel whose duties required them to work on the flight deck/line.

**Mk 1 Inflatable Life Preserver.** The Mk 1 life preserver is required to be worn by all personnel who work on the flight deck. The life preserver includes a distress light, sea dye marker, and a whistle to allow the wearer to be found quickly in both day and night conditions. Auto-inflators are only used for personnel who will not be in an aircraft.
**Foreign Object Debris (FOD).** FOD is any object, live or not, located in an inappropriate location in the airport/flight deck environment that has the capacity to damage aircraft and/or injure personnel. FOD can include missing/lost tools, loose nuts and bolts, or any material not organic to the aircraft or its associated components. When such debris causes damage to an aircraft or injures personnel, it is considered “Foreign Object Damage,” retaining the original abbreviation (FOD). To mitigate this hazard, Air Department personnel will conduct a ‘FOD walkdown’ (seen at right), 1 to 2 hours prior to the day’s first launch. The purpose of this walkdown is to physically search for and retrieve any potential FOD.

**Fouled Deck/Foul Line.** In order to land aircraft safely aboard a ship, the landing area must be clear of anything that might jeopardize or impede the landing. A deck is either ‘clear’ for landing, or considered ‘foul.’ If a deck is foul, something, or someone, is present in the landing area that would make the landing of an aircraft unsafe. A flight deck is also considered foul any time unauthorized personnel are in or around aircraft parked in the safe-parking area aft of the island. In order to define the proper placement of personnel and equipment on a flight deck, ‘foul lines’ are established which define the landing area. Identified by an alternating red and white striped line that runs the length of the flight deck (see below), the foul line defines the area behind which it is safe to park aircraft, place equipment, or stand. A deck cannot be considered “clear” until any potential hazards are placed behind the foul line.

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**Jet Blast, Prop/Rotor Wash, and Noise.** Naval aircraft typically must operate in confined quarters aboard a ship, often in close proximity to personnel. Hazards associated with jet blast, or propeller/rotor wash are therefore common. When standing or moving around operating aircraft, it is important to be cognizant of these hazards, and pay close attention to directions given by flight crews or other authorities. Operating propellers and rotors are nearly invisible, but extremely dangerous. Rotor tips cover a wide area and often dip close to the deck when a helo lands. An aircraft making a turn while taxiing can put you in harm’s way very quickly, and engine noise from one aircraft that you are watching can drown out noise from other aircraft that you are not aware of. Exhaust from jet engines creates hot temperatures and strong forces that can injure or kill personnel several hundred feet back. Intakes of engines also pose a hazard by creating a vacuum several feet in front of the engine itself. In general, any place within 100 feet of a jet engine should be considered dangerous.

To help mitigate these hazards, passengers must be led to and from a helicopter or aircraft by a member of the flight, handling, or transfer crew. Loose items must be stowed and/or secured, and all safety equipment and clothing must be properly worn. If provided, helmets must be on and buckled, with goggles down over the eyes; flight deck jerseys must be worn with sleeves rolled down; life vests must be on and fastened; and safety shoes shall be worn. When operating in or around aircraft, do not move without first looking in all directions and keep your head on a swivel, paying close attention to all aircraft around you. Finally, given that the noise level on an active flight deck can exceed 145 dB, hearing protection must always be worn during flight operations. Hearing protection can consist of either disposable, in-ear plugs (‘foamies’) or headset-type noise attenuators, such as those found on the cranial. During prolonged [104 dB(A)] or particularly extreme peak exposure (165 dB) to loud noise, both types shall be used simultaneously to provide ‘double protection.’

**Sources:**

2. NAVPERS 15839I – Part A
3. NAVPERS 18068F – Navy Enlisted Classifications
I. Aircraft Designations

All Navy aircraft, like all U.S. military aircraft, are designated with a scheme of letters and numbers that identify each aircraft’s particular type, model, and series (T/M/S). Prefix letter(s), placed before the hyphen, identify an aircraft’s primary mission(s). The number(s) following the hyphen define the particular model number. The letters following the model number indicate the series of that model (in successive alphabetic increments). The following prefixes (mission designators) are common to U.S. Navy aircraft:

<table>
<thead>
<tr>
<th>Aircraft Type Decoder</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Attack</td>
</tr>
<tr>
<td>C</td>
<td>Cargo/Transport</td>
</tr>
<tr>
<td>E</td>
<td>Electronic</td>
</tr>
<tr>
<td>F</td>
<td>Fighter</td>
</tr>
<tr>
<td>H</td>
<td>Helicopter</td>
</tr>
<tr>
<td>K</td>
<td>Tanker</td>
</tr>
<tr>
<td>M</td>
<td>Mine-Countermeasures &amp; Multi-Mission</td>
</tr>
<tr>
<td>P</td>
<td>Patrol</td>
</tr>
<tr>
<td>Q</td>
<td>Unmanned</td>
</tr>
<tr>
<td>R</td>
<td>Reconnaissance</td>
</tr>
<tr>
<td>S</td>
<td>Antisubmarine</td>
</tr>
<tr>
<td>T</td>
<td>Trainer</td>
</tr>
<tr>
<td>U</td>
<td>Utility</td>
</tr>
<tr>
<td>V</td>
<td>VTOL/STOL</td>
</tr>
</tbody>
</table>

II. Fixed Wing

F/A-18C Hornet and F/A-18E/F Super Hornet

<table>
<thead>
<tr>
<th>F/A-18C Hornet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role: Fighter/Attack</td>
</tr>
<tr>
<td>Carrier-based all-weather fighter and attack aircraft. All F/A-18s can be configured quickly to perform either fighter or attack roles or both, through selected use of external equipment to accomplish specific missions. This ‘force multiplier’ capability gives the operational commander more flexibility in employing tactical aircraft in a rapidly changing battle scenario. The fighter missions are primarily fighter escort and fleet air defense; while the attack missions are force projection, interdiction, and close and deep air support.</td>
</tr>
<tr>
<td>Distinguishing Features:</td>
</tr>
<tr>
<td>Twin V-oriented vertical stabilizers</td>
</tr>
<tr>
<td>Oval shaped air intakes</td>
</tr>
<tr>
<td>Single seat cockpit</td>
</tr>
<tr>
<td>Crew: 1 Pilot</td>
</tr>
<tr>
<td>Responsibilities: Responsible for aviating, navigating, communicating, and tactical employment.</td>
</tr>
</tbody>
</table>
F/A-18E/F Super Hornet

<table>
<thead>
<tr>
<th>Role: Fighter/Attack</th>
<th>The F/A-18E/F Super Hornet is replacing the F/A-18C Hornet and has the same capabilities. However, the Super Hornet has a greater range, higher service ceiling, larger payload, increased reliability, and an improved electronics suite. The Super Hornet also serves as the carrier air wing’s only air refueling asset.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguishing Features:</td>
<td>Twin V-oriented vertical stabilizers Rectangle shaped air intakes 35% larger fuselage and wing surface compared to the Hornet Single seat (E model) or Two seat (F model) cockpit</td>
</tr>
<tr>
<td>Crew:</td>
<td>E: 1 Pilot F: 1 Pilot/1 NFO as a Weapons System Officer (WSO)</td>
</tr>
<tr>
<td>Responsibilities:</td>
<td>E: Pilot is responsible for aviation, navigation, communication, and tactical employment that includes air-to-air and air-to-ground missions. F: The crew is optimized through sharing the responsibilities above which makes them particularly suited for high task load missions such as close air support and forward air control.</td>
</tr>
</tbody>
</table>

EA-18G Growler

| Role: Electronic Attack | Carrier based and expeditionary (ground based) all-weather electronic attack aircraft. A modified version of the F/A-18F, the EA-18G has replaced the Navy’s EA-6B Prowler. The EA-18G Growler integrates the latest electronic attack technology, including the ALQ-218 receiver, ALQ-99 jamming pods, communication countermeasures, and satellite communications. Along with the electronic attack suite, the Growler also features the same APG-79 Active Electronically Scanned Array (AESA) radar found in the Super Hornet. |
| Distinguishing Features: | Twin V-oriented vertical stabilizers Rectangle shaped air intakes 35% larger fuselage and wing surface area compared to the Hornet Two seat cockpit Jamming pods mounted on the wing tips |
| Crew: | E: 1 Pilot/1 NFO as Electronic Warfare Officer (EWO) |
| Responsibilities: | The crew is optimized by sharing the responsibilities of aviation, navigation, communication, and tactical employment that includes electronic attack, electronic surveillance, and high-speed anti-radiation missiles (HARM). |
**E-2D Hawkeye**

<table>
<thead>
<tr>
<th>Role: Airborne Early Warning</th>
<th>Carrier based all-weather tactical battle management, airborne early warning, and command and control aircraft. The E-2D uses computerized radar, Identification Friend or Foe (IFF), and electronic surveillance sensors to provide early warning, threat analysis against potentially hostile air and surface targets. Additional missions include surface surveillance coordination, air interdiction, offensive and defensive counter air control, close air support coordination, time critical strike coordination, search and rescue airborne coordination, and communications relay.</th>
</tr>
</thead>
</table>
| Distinguishing Features: | High wing  
Twin turboprop engines  
Large rotating radar dome on the spine of aircraft |
| Crew: | 2 Pilots / 3 NFOs |
| Responsibilities: | Pilots: Aviation, navigation, and communication.  
NFOs: Mission Commander, Sensor Operator, Airborne Command & Control |

**C-2A Greyhound**

<table>
<thead>
<tr>
<th>Role: Fleet Logistics Support</th>
<th>Carrier Onboard Delivery (COD). Provides long-range logistics support to Carrier Strike Groups. The C-2A can deliver a combined payload of 10,000 pounds over a distance of 1,000+ nm. The interior arrangement of the cabin can readily accommodate cargo, passengers, and litter patients. The large aft cargo ramp/door and a powered winch allow straight-in rear cargo loading and unloading.</th>
</tr>
</thead>
</table>
| Distinguishing Features: | High wing  
Twin turboprop engines  
Rear loading ramp |
| Crew: | 2 Pilots / 2 Enlisted Aircrew |
| Responsibilities: | Pilot: Aviation  
Co-Pilot: Navigation and communication  
Aircrew: Loadmasters for cargo and passengers |
### P-3C Orion

**Role:** Maritime Patrol  
**Description:** Land-based maritime patrol aircraft designed for anti-submarine warfare and capable of conducting intelligence/surveillance/reconnaissance (ISR) over water and land. The P-3C has advanced submarine detection sensors such as directional frequency and ranging (DIFAR) sonobuoys and magnetic anomaly detection (MAD) equipment. The P-3C can carry a mixed payload of weapons internally and on wing pylons to include Stand-off Land Attack Missile (SLAM), Harpoon, Maverick, and unguided munitions.

| Distinguishing Features | 4 large turboprop engines  
<table>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crew</td>
<td>3 Pilots / 2 NFOs / 4-6 Enlisted Aircrew</td>
</tr>
</tbody>
</table>
| Responsibilities        | Pilots: Aviation, navigation, and communication.  
|                         | NFOs: Tactical Coordinator (TACCO); Either the senior Pilot or NFO can serve as the Mission Commander.  
|                         | Navigator / Communications Officer (NAVCOM)  
|                         | Aircrew: Sensor Operators (optical / acoustic / non-acoustic) |  

### P-8A Poseidon

**Role:** Multi-mission Maritime Aircraft (MMA)  
**Description:** The P-8A is currently being phased in to the fleet to replace the aging P-3C aircraft. It is a modified Boeing 737-800ERX, bringing together a highly reliable airframe and high-bypass turbofan jet engine with a fully connected, state-of-the-art open architecture mission system. This combination, coupled with next-generation sensors, dramatically improves the Navy’s anti-submarine warfare (ASW), and anti-surface warfare (ASuW) capabilities.

| Distinguishing Features | Twin turbofan engines with flat lower nacelles  
|-------------------------|-----------------------------------------------|
|                        | Raked wingtips  
| Crew                    | 3 Pilots/2 NFOs/3-6 Enlisted Aircrew  
| Responsibilities        | Pilots: Aviation, navigation, and communication.  
|                         | NFOs: Tactical Coordinator (TACCO) that typically serves as the Mission Commander; Navigator/Communications Officer (NAVCOM)  
|                         | Aircrew: Sensor Operators (optical/acoustic/non-acoustic) |
**E-6B Mercury**

**Role:** Dual-mission aircraft. Fulfills TACAMO (Take Charge and Move Out) mission by linking the National Command Authority (NCA) with the nation’s nuclear forces (Bombers, ICBMs, SSBNs) by relaying Emergency Action Messages. Also serves as an Airborne Command Post (ABNCP) with the capability to launch U.S. land-based ICBMs via the Airborne Launch Control System (ALCS).

**Distinguishing Features:** Boeing 707 airframe with 4 large high-bypass turbofan engines.

**Crew:** 3 Pilots, 2 NFOs, 6-9 Enlisted Aircrew

**Responsibilities:**
- **Pilots:** Aviate, navigate, and communicate. May act as Mission Commander.
- **NFOs:** Airborne Communications Officer (ACO) and Combat Systems Officer (CSO). Responsible for Communications Central and release authority for all message traffic. May act as Mission Commander.
- **Aircrew:** Operation and maintenance of mission systems.

**EP-3E Aries II (Aerial Reconnaissance Integrated Electronics System)**

**Role:** Land-based multi-intelligence reconnaissance aircraft. Provides fleet and theater commanders worldwide with near real-time tactical SIGINT and full motion video intelligence. With sensitive receivers and high-gain dish antennas, the EP-3E exploits a wide range of electronic emissions from deep within targeted territory to provide battle space situational awareness and direct threat warning.

**Distinguishing Features:** The EP-3E is based on the P-3 platform with a ‘canoe’ on top and bottom that houses antennas, an ‘M&M’ radar dome under the chin, and a large number of antennas under wings and along the fuselage.

**Crew:** 2 Pilots, 3 NFOs, 1 Enlisted Flight Engineer, and 18 Enlisted Aircrew

**Responsibilities:**
- **Pilots:** Aviation, navigation, and communication.
- **NFO:** Senior Electronic Warfare Tactical Evaluator (SEVAL) fuses collected intelligence with off-board data and disseminates information via voice and datalink; Tactical Evaluator (EVAL) supervises collection of intelligence; Navigator.
- **Aircrew:** Aircrews and cryptologists perform roles as sensor operators, flight engineers, and in-flight technicians.
III. Rotary Wing

MH-60R ‘Romeo’ Seahawk

<table>
<thead>
<tr>
<th>Role: Maritime Strike</th>
<th>The primary missions of the Romeo are anti-submarine and anti-surface warfare. Other missions include search and rescue, vertical replenishment, counter-narcotics operations, and command and control operations. The Romeo has updated radar and sonar systems, a glass-cockpit configuration, and adapts the ‘dipping’ sonar found on older Seahawk variants.</th>
</tr>
</thead>
</table>
| Distinguishing Features: | Rear-wheel is further forward, closer to the middle of the aircraft  
Radar dome under nose  
Door on starboard side only  
Low pylon mounts  
When equipped with a FLIR, the turret faces up |
| Crew: | 2 Pilots/1-2 Enlisted Aircrew |
| Responsibilities: | Pilot: Operate the aircraft  
Co-pilot: Airborne Tactical Officer (ATO) supervises the tactical situation/directs the pilot and sensor operators  
Aircrew: Sensor operators for the radar and sonar |

MH-60S ‘Sierra’ Knighthawk

| Role: Sea Combat | The MH-60S ‘Sierra’ is a jack of all trade helicopters. Primary mission are SAR and logistics. Missions also include:  
- HA/DR (Humanitarian Assistance / Disaster Relief)  
- SOF (Special Operations Forces support: via insertions and extractions, sniper coverage, and or ISR overwatch)  
- CSAR (Combat Search and Rescue)  
- MEDEVAC and air ambulance  
- ATPF and ASuW (Anti-Surface Warfare: via optional HELLFIRE missiles; 2.75” rockets; 20mm cannon; 50cal &/or 7.62mm guns.)  
- NEO (Non-combatant Evacuation Operations)  
- VERTREP (Vertical replenishment) |
| Distinguishing Features: | The tail wheel is in the very back of the aircraft  
Large cargo doors are on both sides of the cabin  
Gunner’s window are behind the cockpit  
When equipped with a FLIR the turret faces down |
Crew: 2 Pilots/2 Enlisted Aircrew

Responsibilities:
- Pilot: Operates the aircraft
- Co-pilot: Navigation/tactical mission control
- Aircrew: Crew chief, aerial gunner/rescue swimmer

MH-53E Sea Dragon

| Role: Mine Countermeasures | The primary mission of the MH-53E is Airborne Mine Countermeasures (AMCM). The secondary missions are vertical shipboard delivery and assault support. It is capable of towing a variety of mine hunting/sweeping countermeasures systems, including the Mk 105 magnetic minesweeping sled, the AQS-14A side-scan sonar, and the Mk 103 mechanical minesweeping system. When performing the assault support mission, the MH-53E can be fitted with the GAU-21 .50-cal. machine gun ramp-mounted weapon system. |
| Distinguishing Features: | Large size (99 feet long) |
| Crew: | 2 Pilots/1-2 Enlisted Aircrew |
| Responsibilities: | Pilot: Operate the aircraft |
| | Co-Pilot: Navigation/tactical mission control |
| | Aircrew: Sensor operator, loadmaster, and aerial gunner. |

IV. The Future of Naval Aviation

Aircraft Carrier
The Navy’s newest aircraft carrier will take Naval Aviation into its second century, incorporating an array of integrated technological improvements and advancements that will enhance the ship’s role as the centerpiece of the 21st century carrier strike group. USS Gerald R. Ford (CVN 78), the lead ship of the class, represents the largest, most powerful, and transformational warship ever built. CVN 78 is expected to be commissioned in 2016, the numerical replacement for the venerable USS Enterprise (CVN 65), which was deactivated in December 2012 after more than 50 years of service. The Ford-class embodies significant design and technology changes, improved integrated warfighting capabilities originally planned for later ships, and lessons learned from 100 years of aircraft carrier operations. GERALD R. FORD is also the first aircraft carrier designed with all-electric utilities that eliminate steam service lines and other distributed systems from the ship, improve corrosion-control efforts, and substantially reduce manning and maintenance requirements throughout its 50-year service life. The Electromagnetic Aircraft Launch System (EMALS) replaces the manpower intensive and aging steam catapult through the use of an electrically-generated moving magnetic field that propels aircraft to launch speed. EMALS expands the launch envelope, allowing launch of both heavier strike fighters and potentially lighter future unmanned aircraft. The system enables the launching and landing of aircraft with less available wind (useful when operating in restricted water space) and it permits a high degree of computer control, monitoring, and automation. The projected capability of EMALS—working in concert with all elements in the redesigned flight deck—to launch more than 160 sorties per day is a significant increase in launch capacity (25 percent) compared to Nimitz-class carriers. The ability to launch more than 270 sorties per day is projected during short periods of high-tempo operations.
The Advanced Arresting Gear (AAG) is a highly reliable system consisting of energy absorbers, power-conditioning equipment, and digital controls designed to replace the existing MK-7 arresting gear in Nimitz-class carriers. EMALS and AAG improve the launch and recovery envelope of the traditional steam catapults and arresting wires, and are expected to produce less stress on airframes, save energy, and result in potentially reduced equipment and aircraft maintenance costs. EMALS will be capable of launching all conventional and short-takeoff fixed-wing carrier aircraft currently projected for the Navy inventory through 2030, including the F-35C Lightning II. Additionally, EMALS and AAG are designed to facilitate integration of unmanned systems, with a goal of launching all future aircraft projected in the inventory through 2050.

The increase in sortie generation rates is also enabled by a combination of the redesigned flight deck, which includes more deck space, a smaller island superstructure set further aft on the ship, and a NASCAR-inspired ‘pit stop’ concept that reduces the time required to refuel, conduct maintenance, and launch aircraft. Electromagnetic field-driven weapon elevators, a relocated ‘bomb farm,’ and an updated shipboard ordnance arrangement, improve the flow of weapons from magazines to aircraft, further contributing to increased sortie generation. New capabilities have been integrated into the smaller island, which is positioned 140 feet further aft and three feet further outboard to enhance launch and recovery. The island incorporates the advanced Dual Band Radar integrated warfare system that provides full surveillance, weapon targeting, and air traffic control for the carrier and the strike group. Ford’s superior command-and-control and ‘plug and play’ capabilities will enable a joint task force commander to efficiently coordinate forces far out at sea.
**Strike Fighter.** The F-35C Lightning II is the replacement for the aging F/A-18A/C. Variants of the F-35 will be used by the Air Force (A-Variant), Marine Corps (B-Variant with V/STOL capability), and Navy (C-Variant with carrier capability), as well as a number of international partners. The Marine Corps is the first service to stand-up an operational squadron.

**Unmanned Systems.** A number of unmanned aerial vehicles (UAVs) have been under testing and development for use by the Navy. The Broad Area Maritime Surveillance (BAMS) program began to employ roughly 40 UAVs beginning in in order to complement the P-8A Poseidon in the maritime patrol mission and are currently executing surveillance missions similar to the P-3C Orion. The MQ-4C Triton, a maritime derivative of Northrop Grumman’s RQ-4 Global Hawk, was chosen to fill this role. With extended range and endurance and lacking the limitations of a human onboard, the BAMS will extend the reach of the current VP community.

The Northrop Grumman MQ-8 Fire Scout has already deployed as a test platform with a number of surface vessels to investigate the feasibility of unmanned rotorcraft operations. The Fire Scout is designed to provide reconnaissance, situational awareness, and precision targeting support for ground, air, and sea forces.

The Northrop Grumman X-47B is a demonstration Unmanned Combat Air Vehicle (UCAV). In May of 2013, an X-47B was successfully launched from an aircraft carrier, with a successful arrested landing conducted in July of that year. The lessons learned from the UCAV demonstrator will be integrated into its follow-on program, the Unmanned Carrier-Launched Airborne Surveillance, and Strike system (UCLASS) which the Navy plans to field by 2020.

**Sources:**
2. [http://www.navsource.org/archives/02/027806.jpg](http://www.navsource.org/archives/02/027806.jpg)


10. Ships and Aircraft of the U.S. Fleet
WEEK 8: SURFACE WARFARE

I. Mission

To provide combat ready ships to the fleet; and to supply those ships and supporting commands with the leadership, manpower, equipment, training, and material needed to achieve operational excellence and conduct prompt, sustained combat operations at sea to ensure victory.

The surface fleet is able to conduct a myriad of operations in both peace and wartime environments:

1. Anti-Air Warfare (AAW)
2. Anti-Surface Warfare (ASUW)
3. Anti-Submarine Warfare (ASW)
4. Ballistic Missile Defense (BMD)
5. Strike Warfare (STW)
6. Maritime Interdiction Operations (MIO)
7. Naval Surface Fire Support (NSFS)
8. Undersea Warfare (USW)
9. Electronic Warfare (EW)
10. Expeditionary Warfare (EXW)
11. Amphibious Warfare (AMW)
12. Mine Warfare (MIW)
13. Mobility (MOB)

II. Capabilities

With nearly 160 warships and 110 Military Sealift Command ships, the Navy’s surface fleet is a dynamic force enhanced by advancements in technology and strategy. Ship classes are no longer built around a single mission area; they are built to specialize in one warfare area but must be able to operate in several additional roles. Modern surface ships possess many unique capabilities listed below.

- **Stealth** – Ship classes such as the ARLEIGH BURKE class destroyers, SAN ANTONIO class amphibious transporters, and Littoral Combat Ship (LCS) employ an angled superstructure, radar absorbent and reflective material (PCMS), and reduced emissions to significantly reduce the radar cross section of the ship, making it much more difficult to acquire on radar.
- **Endurance** – Three primary sources of propulsion employed by the Navy are steam, gas turbine, and diesel. Range and speed vary based on platform; on average, a gas turbine ship has an endurance of 6000nm at 20 knots. These ranges are almost unlimited based on the Navy’s unique ability to refuel at sea. Of note, Nuclear power is utilized to produce steam propulsion on Aircraft Carriers providing unlimited endurance.
- **Firepower** – Includes gun mounts, land attack cruise missiles, surface to air missiles, self-defense weapons, and surface-to-surface missiles.
- **Mobility** – Because over two thirds of the world’s surface is ocean and eighty percent of the world’s population lives within 100 nautical miles of the coast, naval forces are a potent deterrent to potential adversaries. Naval forces can arrive quickly and remain indefinitely in the waters around the world. This presence reminds potential adversaries of the U.S. military’s capability and resolve to enforce international law.
- **Communication** – The surface fleet utilizes several means of communication in order to provide and employ classified and unclassified voice, messaging, data and video information from every available source in order to effectively execute the mission. The two primary means used to provide ships, submarines, aircraft, and ground forces necessary information for joint missions are data transmission, via LINK 4A, LINK 11, and LINK 16, Cooperative Engagement Capability (CEC) and voice transmission, via Satellite COMMS, High Frequency, Ultra High Frequency, Very High Frequency, Super High Frequency, and Extremely High Frequency systems.
III. Surface Platforms/Equipment

**CVN-68 Nimitz Class Nuclear Powered Aircraft Carrier**

| Visual Identification | Largest ship in the U.S. Navy (more than 1000 feet long – 3 football fields)  
|                        | Small superstructure approximately 2/3s of the distance from bow to stern |
| Mission                | With their embarked air wing, aircraft carriers are the centerpiece of America’s naval forces.  
|                        | On any given day, aircraft carriers exercise the Navy’s core capabilities of power projection,  
|                        | forward presence, humanitarian assistance, deterrence, sea control, and maritime security. |
| Weapons                | Multiple NATO Sea Sparrow, Phalanx CIWS, and Rolling Airframe Missiles (RAM) |
| Aircraft               | 1 Carrier Air Wing (approximately 70 aircraft) |
| Crew Size              | Ship’s Company: 3,350; Air Wing: 2,480 |

**CG-47 TICONDEROGA Class Cruiser**

| Visual Identification | Hurricane bow, split superstructure with two SPY array facing forward and two aft. Two masts, with the shorter forward and taller aft. Two sets of exhaust stacks, one aft of each mast. 5in/54 cal gun forward and aft. |
| Mission               | Modern U.S. Navy guided missile cruisers perform primarily in a Battle Force role. These ships are multi-mission Air Warfare (AW), Undersea Warfare (USW), Strike Warfare, and Surface Warfare (SUW) surface combatants capable of supporting carrier strike groups and amphibious forces or operating independently and as flagships of surface action groups (SAG). Some Aegis Cruisers have been outfitted with a Ballistic Missile Defense (BMD) capability. |
| Weapons               | 2 x 5in/54 cal dual purpose guns (1 fwd, 1 aft)  
|                        | CG-51 and up, 2 x VLS (61 cells fwd, 61 cells aft)  
|                        | 2 x 20mm Phalanx CIWS (port and stbd)  
|                        | 2 x Surface Vessel Torpedo Tube launchers (3 tubes per launcher)  
|                        | 2 x quadruple Harpoon canisters |
| Aircraft              | 2 MH-60 Helicopters |
| Mission Specific Capabilities | SPY-1B Air Search Radar, Aegis combat system, Towed Array Sonar |
| Crew Size             | 30 officers, 300 enlisted |
**DDG-51 ARLEIGH BURKE Class Guided Missile Destroyer**

| Visual Identification | Open bow, single 5in/54 cal or 5in/62 cal dual-purpose gun fwd, split superstructure, four SPY array faces on superstructure, swept mast, two separate sets of stacks (1 fwd, 1 aft). Flight deck aft. DDG-79 and newer (Flight IIA) also have helo hangars. |
| Mission | DDG 51 warships provide multi-mission offensive and defensive capabilities. Destroyers can operate independently or as part of carrier strike groups, surface action groups, amphibious ready groups, and underway replenishment groups. Guided missile destroyers are multi-mission Anti-Air Warfare (AAW), Anti-Submarine Warfare (ASW), and Anti-Surface Warfare (ASUW) surface combatants. |
| Weapons | 1 x 5in/54 cal or 5in/62 cal dual purpose gun 2 x VLS (29 cells fwd, 61 cells aft for DDG-78 and below, 32 cells fwd, 64 cells aft for DDG-79 and following) 2 x 20mm Phalanx CIWS (fwd and aft) 2 x Surface Vessel Torpedo Tube launchers (3 tubes per launcher) 2 x quadruple Harpoon canisters (DDG-78 and older) Evolved Sea Sparrow Missile (DDG-79 and newer) |
| Aircraft | 2 MH-60 (Flight IIA) |
| Mission Specific Capabilities | SPY-1D Air Search Radar, Aegis combat system, Towed Array Sonar |
| Crew Size | Varies based on Modernization: 28 officers, 254 enlisted |
**LCS LITTORAL COMBAT SHIP**

<table>
<thead>
<tr>
<th>Visual Identification</th>
<th>Dual designed for max speed and shallow draft. FREEDOM (odd numbers) – Mono-hull INDEPENDENCE (even numbers) – Tri-hull</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>The LCS class consists of two variants, the FREEDOM variant and INDEPENDENCE variant - designed and built by two industry teams, respectively led by Lockheed Martin and General Dynamics. These seaframes will be outfitted with reconfigurable payloads, called Mission Packages, which can be changed out quickly. Mission packages are supported by special detachments that will deploy manned and unmanned vehicles and sensors in support of mine, undersea and surface warfare missions.</td>
</tr>
<tr>
<td>Weapons</td>
<td>57mm Gun Rolling Airframe Missiles (RAM) 2 x 20mm Phalanx CIWS (fwd and aft)</td>
</tr>
<tr>
<td>Mission Specific Capabilities</td>
<td>Dependent on Mission Package</td>
</tr>
<tr>
<td>Crew Size</td>
<td>50-85 mission dependent</td>
</tr>
</tbody>
</table>

**MCM-1 AVENGER Class Mine Counter Measure Ship**

<table>
<thead>
<tr>
<th>Visual Identification</th>
<th>Small singledeck house, crowded decks, wooden hull.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>Avenger class ships are designed as mine sweepers/hunter-killers capable of finding, classifying and destroying moored and bottom mines.</td>
</tr>
<tr>
<td>Weapons</td>
<td>.50 Caliber guns</td>
</tr>
<tr>
<td>Mission Specific Capabilities</td>
<td>Mine hunting specific systems</td>
</tr>
<tr>
<td>Crew Size</td>
<td>8 Officers, 75 Enlisted</td>
</tr>
</tbody>
</table>
PC-1 Cyclone Class Patrol Coastal Ships

<table>
<thead>
<tr>
<th>Visual Identification</th>
<th>Stealthy design, short vessel with one open mast, a single 25mm gun on the bow, and one Rigid Hull Inflatable Boat (RHIB) platform in the rear.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>The primary mission of these ships is coastal patrol and interdiction surveillance, an important aspect of littoral operations outlined in the Navy’s maritime strategy. Ten of the 13 PCs are forward deployed to Manama, Bahrain in support of 5th Fleet operational tasking.</td>
</tr>
<tr>
<td>Weapons</td>
<td>Two 25mm machine guns; five .50 caliber machine guns; two 40mm automatic grenade launchers; two M-240 machine guns; 1 Griffin missile launcher</td>
</tr>
<tr>
<td>Crew Size</td>
<td>4 Officers, 24 Enlisted</td>
</tr>
</tbody>
</table>

IV. Amphibious Platforms

LSD-41 WHIDBEY ISLAND Class Dock Landing Ship

<table>
<thead>
<tr>
<th>Visual Identification</th>
<th>Solid block superstructure. Boat/Aircraft crane starboard side</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>These ships transport and launch amphibious craft and vehicles with Marines in amphibious assault operations. WHIDBEY ISLAND, commissioned in 1985, was the first of this class of versatile and durable Dock Landing Ships. Their ability to ballast down and flood a well deck makes possible the loading at sea of amphibious warfare craft and their cargo. LSD 41 was designed specifically to operate Landing Craft Air Cushioned (LCAC). It has the largest capacity for these landing craft (four) of any U.S. Navy amphibious platform. The first variant of this class began with LSD 49 (HARPERS FERRY), which expanded cargo capacity, improved facilities for embarked troops, and offered greater operating range.</td>
</tr>
<tr>
<td>Lift capability</td>
<td>4 Landing Craft Air Cushion (LCACs) or 3 LCU or 64 AAV.</td>
</tr>
<tr>
<td>Weapons</td>
<td>2 x 25mm machine guns</td>
</tr>
<tr>
<td></td>
<td>2 x 20mm CIWS mounts</td>
</tr>
<tr>
<td></td>
<td>2 x RAM launchers</td>
</tr>
<tr>
<td></td>
<td>6 x .50 caliber machine guns</td>
</tr>
</tbody>
</table>
LPD-17 SAN ANTONIO Class Amphibious Transport Dock

<table>
<thead>
<tr>
<th>Visual Identification</th>
<th>Two enclosed masts, single exhaust stack. Helo hangar on flight deck. Angled hull and superstructure to reduce radar cross-section (RCS).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>LPDs are used to transport and land Marines, their equipment, and supplies by embarked air cushion (LCAC) or conventional landing craft, augmented by helicopters or vertical take-off and landing aircraft (MV-22). These ships support amphibious operations, special operations, or expeditionary warfare missions and can serve as secondary aviation platforms for amphibious ready groups. The SAN ANTONIO class offers many improvements over previous LPDs, including the ability to interface with other surface combatants via the Cooperative Engagement Capability (CEC), Link-11, and Link-16.</td>
</tr>
<tr>
<td>Lift capability</td>
<td>2 LCAC or 1 LCU; 18 AAVs in the well deck and 2 CH-53E Sea Stallions or 2 MV-22 Ospreys or 6 UH-1N/Y Hueys or 6 AH-1W/Z Super Cobras on the flight deck.</td>
</tr>
</tbody>
</table>
| Weapons               | 2 x 30mm guns  
|                       | 2 x RAM launchers  
|                       | 10 x .50 caliber machine guns |
| Crew                  | 28 officers, 340 enlisted. Embarked Marines: 800 |
LHD-1 WASP, LHA-1 TARAWA, LHA-6 AMERICA

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Missions</td>
<td>The largest of all amphibious warfare ships; resembles a small aircraft carrier; capable of Vertical/Short Take-Off and Landing (V/STOL), Short Take-Off Vertical Landing (STOVL), Vertical Take-Off and Landing (VTOL) tilt-rotor and Rotary Wing (RW) aircraft operations; contains a well deck to support use of Landing Craft, Air Cushion (LCAC) and other watercraft (with exception of the first two AMERICA class ships, LHA 6 and LHA 7, which have no well deck).</td>
</tr>
<tr>
<td>Lift capability</td>
<td>WASP and TARAWA: Capable of carrying 3 Landing Craft Air Cushion (LCACs); 4 CH-53E Sea Stallions; 3 UH-1N/Y Hueys, 4 AH-1W/Z Super Cobras; MH-60S helicopters; 12 MV-22 Ospreys; 6 AV-8B Harriers or F-35B Lightning IIs. AMERICA: 4 CH-53E Sea Stallions, 8 AH-1W/Z Super Cobras, 4 MH-60S Knighthawks, 12 MV-22B Ospreys, and 10 AV-8B Harriers or F-35B Lightning IIs.</td>
</tr>
<tr>
<td>Crew</td>
<td>1,108 crew (104 officers) + 1,894 embarked troops</td>
</tr>
</tbody>
</table>

LANDING CRAFT, UTILITY, AND MECHANIZED – LCU & LCM

| Visual Identification | Long flat open top; near the appearance of a barge  
LCU: Control compartment on the starboard side  
LCM: Control compartment on the stern  |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>Landing craft are capable of transporting cargo, tracked and/or wheeled vehicles, and troops from amphibious assault ships to beachheads or piers. LCUs have both bow and stern ramps for onload/offload, have the ability to operate at sea for up to 10 days, and are capable of carrying one M1 tank or 350-400 troops. LCMs have a bow ramp for onload/offload and are capable of carrying light vehicles and troops.</td>
</tr>
</tbody>
</table>
| Lift capability       | LCU: 125 tons  
LCM: 58-65 tons  |
| Crew                  | LCU: 14  
LCM: 5 |
LANDING CRAFT AIR CUSHION (LCAC)

<table>
<thead>
<tr>
<th>Visual Identification</th>
<th>Large black skirt. Two large propellers aft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>The LCAC is a high-speed, over the beach, amphibious landing craft. LCAC’s air-cushion capability allows it to proceed inland to discharge cargo on dry, trafficable beaches, thus reducing buildups of troops, equipment, and other material in the surf zone. The landing craft is capable of carrying one M1 tank or four Light Armored Vehicles or three Amphibious Assault Vehicles. LCAC is unrestricted by tides, beach gradients, and surf conditions, allowing it to access more than 70 percent of the world’s beach areas. LCACs are carried by LHAs, LHDs, LPDs, and LSDs.</td>
</tr>
<tr>
<td>Lift capability</td>
<td>60-75 tons</td>
</tr>
<tr>
<td>Crew</td>
<td>5</td>
</tr>
</tbody>
</table>

V. Current Projects

**ZUMWALT Class Destroyer (DDG 1000)** provides a broad range of capabilities that are vital both to fighting and winning major combat operations. DDG 1000 incorporates the use of optimal manning through human systems integration, improved quality of life, low operations and support costs, multi-spectral signature reduction, balanced war fighting design, survivability, and adaptability.

Each ship features a battery of two Advanced Gun Systems (AGS) firing Long-Range Land Attack Projectiles (LRLAP) that reach up to 63 nautical miles, providing a 3-fold improvement in naval surface fires coverage. DDG 1000 will employ active and passive sensors and a Dual-Band Radar (DBR) suite capable of conducting area air surveillance, including over-land, throughout the extremely difficult and cluttered sea-land interface. DDG 1000 will have a significantly reduced radar cross-section reduction as compared to current destroyers and a much greater operating area in shallow water regions against mines. ZUMWALT features increased stealth through a composite superstructure, integrated multi-function mast, and reduced acoustic signature.

Construction began on the first DDG 1000 class in February 2009 and three are currently budgeted and planned for. DDG 1000 has been delivered to the Navy and is to be commissioned in fall of 2016.

**GERALD R. FORD class aircraft carriers (CVN-78 and up)** will feature numerous improvements, including an electromagnetic catapult, reduced radar cross-section, an advanced radar, a new nuclear reactor designed for greater power generation, and automated systems designed to optimize manning. The USS GERALD R. FORD is expected to be commissioned by 2016.

Sources:
WEEK 9: UNDERSEA WARFARE

I. Mission

As stated by the CNO’s Submarine Warfare Division, the U.S. Submarine Force has several goals: (1) to maintain its role as the world’s preeminent Submarine Force; (2) to aggressively incorporate new and innovative technologies to maintain dominance throughout the maritime battlespace; (3) to promote the multiple capabilities of submarines and develop tactics to support national objectives through battlespace preparation, sea control, supporting the land battle and strategic deterrence, and; (4) to fill the role of the Joint Commanders’ stealthy, full spectrum expeditionary platform.

II. Ethos

The U.S. Submarine force has a long heritage of sacrifice and valor. It is a rare occurrence that there are survivors when a submarine is mortally wounded or undergoes a self-inflicted disaster. Every year on or around 10 April, the community comes together for the Submarine Birthday Ball to remember those who have lost their lives to the depths of the unforgiving ocean, and to recognize the year’s achievements in the community. April 10th marks the sinking of the USS Thresher during Sea Trials in 1963. Although there is no official cause of the sinking, it is believed to have been a series of events. A hypothesis was derived from the sound data of the sinking, as well as an incredibly detailed inspection of other submarines in the class that poor work controls could have been the initial cause of the eventual loss of 129 sailors and shipyard personnel and a multi-billion dollar asset. The Submarine Force has, and always will, pride itself on its procedural compliance, intellectual capacity, and training and certification programs. It operates on its own, with no outside support; undetected and typically in hostile waters. It works as one team to accomplish missions vital to National Security, and every member of the crew is vital to its proper functioning, and if need-be, survival and war-fighting ability.

III. History

American Revolution

The first military submarine was the American-built Turtle (1775). Designed and built by the patriot David Bushnell, the hand-powered, egg-shaped device accommodated a single man. It is thought to be the first submarine capable of independent underwater operation, and the first to use a screw for propulsion. During the American Revolutionary War, Turtle attempted to sink a British warship, HMS Eagle (the flagship of British blockaders), moored in New York harbor. However, Turtle’s attack failed.

David Bushnell’s Turtle

Civil War

During the American Civil War, Confederate forces revived the submarine concept. On February 18, 1864, the Confederate States Submersible, the CSS Hunley, performed the first successful military submarine mission when she sank the USS Housatonic, off Charleston Harbor. Hunley performed her submerged attack using a spar torpedo (an explosive charge mounted on a long pole sticking out of her bow). Though her attack was successful, Hunley sank following the engagement and her entire eight-man crew perished.
World War I

Submarines first made a significant military impact in World War I. German submarines (U-boats) were central to the German naval strategy. A torpedo fired from a German U-boat sank the ocean liner RMS Lusitania (May 7, 1915), which directly precipitated entry of the U.S. into WWI because American leaders would not tolerate the threat of unrestricted submarine warfare against civilian shipping traffic. The fleet of American diesel submarines was used primarily for coastal defense. However, after 1917, some American boats drew assignments to European waters. These boats conducted offensive, open-sea operations from the Azores and Bantry Bay in Ireland, supporting the Allied effort to maintain open sea-lanes along the European coast and in the approaches to the British Isles.

World War II

World War II produced significant improvements in the design and operation of submarines worldwide. Sidestepping the requirements of the Treaty of Versailles, Germany built a large submarine fleet prior to the war. Their ‘wolfpack’ tactics proved devastating to Allied military and civilian ships in the European theater. The U.S. submarine fleet employed the Gato, Balao, and Tench classes to score the most complete victory of any force in any theater of the war, operating in every naval theater. In spite of a hesitant beginning due to the attack on Pearl Harbor and difficulties with defective torpedoes, the submarine force destroyed 1,314 enemy ships for 5.3 million tons (including 8 aircraft carriers and more than 200 warships). This translated into 55% of all enemy ships sunk. Out of 16,000 submariners, the force lost 375 officers and 3,131 enlisted men in fifty-two submarines, the highest casualty rate of any U.S. service branch in WWII.

Cold War

The Cold War redefined the mission of submarines. Against the rising threat of nuclear war with the Soviet Union, several critical design improvements transformed the U.S. submarine fleet. These improvements included: (1) The tear-dropped hull shape. First developed for conventional diesel-electric submarines, the tear-dropped hull allowed much greater submerged operating speeds and higher propulsion efficiency. (2) Nuclear powered propulsion. Due in large part to the efforts of ADM Hyman Rickover (USNA ’22), the ‘Father of the Nuclear Navy,’ the Naval Nuclear Power Program was born. On January 17, 1955, Commanding Officer Eugene Wilkinson spoke the famous words “underway on nuclear power” to launch the first nuclear powered submarine, USS Nautilus (SSN-571), on her maiden voyage. Within
three years, *Nautilus* sailed to the North Pole and shattered virtually every submarine distance, speed, and endurance record. Nuclear power continues to afford U.S. submarines nearly unlimited operational endurance because they can remain submerged nearly indefinitely—limited only by their capacity to store food.

![USS Nautilus](image)

**USS Nautilus**

During the 1960s, strategic planners divided the submarine force into two distinct components, ballistic missile (SSBN) submarines, and fast attack (SSN) submarines. For SSBNs, the United States and the Soviet Union both developed submarine launched nuclear weapons. These weapons began as surface-launched cruise missiles, but soon improved to underwater-launched ballistic missiles. American SSBNs continue to uphold the nuclear deterrence role, forming the most survivable element of the U.S.’s nuclear triad (the other two elements being land-based ballistic missiles and airdropped nuclear ordinance). SSNs assumed the role of protecting SSBNs to ensure successful execution of the nuclear deterrence mission. Equally important, SSNs assumed the offensive role of detecting and monitoring any foreign ballistic missile submarines. Through the height of Cold War, brave SSN crews tracked, photographed (underwater), and collected acoustic data on Soviet submarines. The crews rewrote the playbook on submarine tactics and conducted highly specialized and sensitive missions for national security. Submarine development and operation during the Cold War formed the majority of the bedrock of the submarine force today.

With the collapse of the Soviet Union in 1991, the Cold War ended. Responding to the Soviet nuclear threat had been costly, in terms of both fiscal expenditure and operational pace. However, despite the heavy demands of the Cold War, the U.S. has only lost two nuclear powered submarines. In contrast, the Soviets lost nine submarines during the Cold War.

**IV. Platforms**

**Fast Attack Submarines (SSN)**

Fast Attack submarines are designed to: (1) seek and destroy enemy submarines and surface ships; (2) conduct precision strike with Tomahawk cruise missiles; (3) project power ashore by delivering and supporting Special Operation Forces; (4) carry out Intelligence, Surveillance, and Reconnaissance (ISR) missions; (5) support Carrier Strike Groups; and (6) engage in mine warfare. There are three classes of SSNs now in service. West Coast SSNs are home-ported in Pearl Harbor, HI, San Diego, CA, Bremerton, WA, and Guam while East Coast SSNs are home-ported in Groton, CT, and Norfolk, VA. The three classes of SSNs are:

**Los Angeles class (SSN 688 -- SSN 773)**

These vessels are being decommissioned at a rate of two per year, and are being replaced by the new Virginia class submarines. Due to the increased capabilities of the Virginia class submarines, as of 2012, Los Angeles class submarines are no longer used for special operations missions.
**SSN-688 and 688I Los Angeles class Attack Submarines**

| Visual Identification | Flight I and II have fairwater planes otherwise referred to as sailplanes, and flight III have bow planes. Flight II and III have 12 Vertical Launch Tubes in the bow. The sails of all Los Angeles Class submarines are unfaired at the leading edge. |
| Mission | ASW/ASUW/Sea Denial/ISR/Strike/Offensive Mining |
| Weapons | MK 48 ADCAP Torpedoes – 4 Torpedo Tubes UGM-109 Tomahawk Cruise Missiles |
| Specific Capabilities | Can fire Tomahawks from (12) VLS tubes or torpedo tubes Outfitted with special mast to conduct ISR |
| Crew Size | 14 Officers, 120 Enlisted |

**Los Angeles Class Fast Attack Submarine [Left to Right – 688 (I/II), and 688I (III)]**

**Seawolf class (SSN 21 -- SSN 23)**

Commissioned on July 19, 1997, USS *Seawolf* (SSN 21) represents the first in a class of boats that are exceptionally quiet, fast, well-armed, and equipped with advanced sensors. The third ship of the class, USS *Jimmy Carter* (SSN 23), has a 100-foot hull extension called the “Multi-mission Platform.” This hull section provides for additional payload to accommodate advanced technology used to carry out classified research and development, and for enhanced war fighting capabilities.

**SSN-21 Seawolf Class Attack Submarine**

| Visual Identification | Broader beam than Los Angeles Class submarines and slightly shorter (Except USS Jimmy Carter (SSN-23). Seawolf Class submarines have sails that are faired into the hull at the leading edge and are fitted with bow planes. |
| Mission | ASW/ASUW/Sea Denial/ISR/Strike/Special Ops |
| Weapons | MK 48 ADCAP Torpedoes – 8 Torpedo Tubes UGM-109 Tomahawk Cruise Missiles (can hold 50 weapons in torpedo room) |
| Specific Capabilities | Can fire Tomahawks only from torpedo tubes. |
| Crew Size | 14 Officers; 126 Enlisted |
Virginia class (SSN 774 -- SSN 784)

The Navy is now building the next-generation SSN, the Virginia (SSN 774) class. Twelve of the planned thirty are already in service. The Virginia class has several innovations that significantly enhance their capabilities with an emphasis on littoral operations. These include: (1) a fly-by-wire ship control system that provides improved shallow-water ship handling; (2) enhanced special operation forces support systems; (3) a reconfigurable torpedo room, which can house either torpedoes and Tomahawk cruise missiles, or a large number of Special Operation Forces (SOF) and all their equipment for prolonged deployments; (4) a large lock-in/lock-out chamber for divers; (5) traditional periscopes have been supplanted by two Photonics Masts that house color, high-resolution black and white, and infrared digital cameras atop telescoping arms; and (6) through the extensive use of modular construction, open architecture, and commercial off-the-shelf components, the Virginia class is designed to remain state-of-the-practice for its entire operational life through the rapid introduction of new systems and payloads.

The advantages of an SSN over a conventionally (diesel-electric; SSK) powered submarine are (1) longer range, (2) significantly longer endurance since fuel is not a limiting factor, (3) higher speeds, and (4) capable of sustained submerged operations since it does not have to run a diesel engine at periscope depth or on the surface to recharge batteries. However, there are a few modern diesel submarines labeled as air independent propulsion (AIP) that produce or carry air for combustion in their diesel generators, thus minimizing advantage (4) above.

<table>
<thead>
<tr>
<th>Visual Identification</th>
<th>Larger than Los Angeles class, smaller than Seawolf class. Tapered front of sail. All have bow planes.</th>
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<tbody>
<tr>
<td>Mission</td>
<td>ASW/ASUW/Sea Denial/ISR/Strike/Offensive Mining/Special Ops</td>
</tr>
<tr>
<td>Weapons</td>
<td>MK 48 ADCAP Torpedoes -- 4 Torpedo Tubes UGM-109 Tomahawk Cruise Missiles</td>
</tr>
<tr>
<td>Specific Capabilities</td>
<td>Can fire Tomahawks from VLS tubes or torpedo tubes. Contains modules that can be replaced based on the specific mission requirements.</td>
</tr>
<tr>
<td>Crew Size</td>
<td>14 Officers; 120 Enlisted</td>
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Ballistic Missile Submarines (SSBN)

Since the 1960s, strategic deterrence has been the SSBN’s primary mission, providing the United States with its most survivable and enduring nuclear strike capability. There is only one type of SSBN in service, the Ohio class submarine.

‘Boomers,’ as SSBNs are often called, serve as a virtually undetectable launch platform for intercontinental ballistic missiles. They are designed specifically for stealth and the precision delivery of nuclear warheads. Ohio class SSBNs have the capability to carry up to 24 submarine-launched ballistic missiles (SLBMs), each having multiple independently targeted warheads. The exact number of missiles carried by each boat varies in a classified manner, at or below a maximum set by various strategic arms limitation treaties.

The Ohio class is the largest type of submarine ever constructed for the U.S. Navy, and is second only to the Russian Typhoon-class in mass and size. West Coast Boomers are home-ported in Bangor, WA, and East Coast Boomers are home-ported in King’s Bay, GA.

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<th>SSBN-726 Ohio Class Ballistic Missile Submarine</th>
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Ohio Class Ballistic Missile Submarine

Guided Missile Submarines (SSGN)

The first four of the Ohio-class SSBNs were converted into guided missile submarines (SSGN). Ohio class SSGNs provide the Navy with a combination of precision strike and Special Operation mission capability within a stealthy, clandestine platform. Armed with tactical Tomahawk Land Attack Missiles and equipped with superior communications capabilities, each SSGN is capable of directly supporting dozens of Special Operation Forces (SOF).
The SSGN conversion includes the installation of vertical launching systems (VLS) in a configuration dubbed ‘multiple all-up-round canister’ (MAC). On each SSGN, 22 of the 24 missile tubes hold seven Tomahawk cruise missiles, for a total capacity of 154 TLAMs. If the maximum number of TLAMs were loaded, one Ohio class SSGN would carry an entire Carrier Strike Group’s equivalent of cruise missiles. The two remaining missile tubes act as lockout chambers to be used by Special Forces personnel. An SSGN can berth a team of 66 SOF personnel for up to 90 days. The MAC tubes can also be used to carry and launch Unmanned Aerial Vehicles (UAVs) or Unmanned Underwater Vehicles (UUVs), giving the ship remotely controlled ‘eyes & ears,’ allowing the ship to act as a forward-deployed command & control center. SSGNs can also carry the Dry Deck Shelter/SEAL Delivery Vehicle (DDS/SDV), in support of SOF.

Like SSBNs, SSGNs also use two crews, which alternate to increase the platform’s operational tempo. West Coast SSGNs are home-ported in Bangor, WA. East Coast SSGNs are home-ported in King’s Bay, GA.

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<th>SSGN-726 Ohio Class Guided Missile Submarine</th>
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<td>Capabilities</td>
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**Future Projects**

Due to the end of the service life of the OHIO Class SSBNs coming to fruition in the late 2020s, the Navy is developing and funding a replacement submarine, designated as the OHIO Replacement Program (ORP). The Navy will begin buying long lead-time materials in 2019, construction in 2021 in order to support the first patrol by 2031.
V. Combat Systems

Weapons

Mk-48 and Mk-48/ADCAP (ADVanced CAPability) Torpedoes

The Mk-48 is the principal heavyweight Anti-Submarine and Anti-Surface ship torpedo in the U.S. inventory. It is an acoustic-homing torpedo, having its own onboard SONAR to seek and destroy enemy contacts. SSBNs carry the original Mk-48 torpedo, but all SSNs carry the Mk-48 ADCAP. The ADCAP modification includes improvements in speed and accuracy, more sophisticated SONAR, all digital guidance and control systems, and increased range. A single Mk-48 is capable of sinking most of the world’s warships. The torpedo is designed to detonate underneath a ship, creating a steam void below the ship that breaks the ship’s keel. The lack of water under the keel first cracks the hull, then the surge of upward gases from the steam void pushes the crack further splitting the ship. Finally, as the void collapses, the hull slams back into its original configuration only to collapse in on itself. After detonation, most ships have mere moments until it is sunk. Typically, Sonar Operators passively collect data that is fed into Fire Control. The Fire Control operators resolve a solution to the contact, and determine the intended track to fire the torpedo. If operationally feasible, the side opposite the contact shoots the torpedo after contact data is fed into the onboard computing system. The Mk-48 follows a pre-programmed search routine and uses an active seeker head to hunt and destroy its target, and can be controlled by a guidance wire from the submarine. The ADCAP is so capable that the target may not even be aware that a torpedo is honing in on it until it is too late. By that time, the launch submarine is well outside of a responsive counter-launch distance and is silently listening for the pending explosion and hull destruction.

Tomahawk Cruise Missile

The Tomahawk Land Attack Missile (TLAM) is an all-weather, long range, subsonic cruise missile used for land attack warfare. U.S. submarines can launch the Tomahawk cruise missile either from a standard 21” diameter torpedo tube, or from a Vertical Launch System (VLS, used by the Type II and III Los Angeles class, Virginia class, and SSGN submarines). The most common Tomahawk cruise missile is a conventional 1,000-lb, unitary warhead. However, some are configured to release combined effects bomblets (anti-airfield).

Submarine-Launched Ballistic Missile (SLBM)

Trident II (D5) missiles are deployed in Ohio-class SSBN submarines, each carrying up to 24 missiles. The Trident II (D5) is a three-stage, solid-propellant ballistic missile with a range of more than 4,000 nautical miles. The missile’s range is increased by the aerospike, a telescoping, outward extension that reduces frontal drag by about 50 percent. Trident II is launched by the pressure of expanding gas within the launch tube. The missile rises from the submarine in that pocket of air and is ejected out of the water. When the missile attains sufficient distance from the submarine, the first stage motor ignites, the aerospike extends, and the boost stage begins. Each missile carries multiple nuclear warheads, housed in multiple independent re-entry vehicles (MIRVs), which launch from the missile and are independently targeted.
Sensors
Sonar

Unless it is using its periscope, a submerged submarine has no optical window to the outside world. To locate contacts, to locate the ocean floor, and for targeting purposes, a submarine uses SONAR (SOund NAvigation and Ranging). SONAR is similar to RADAR, but it relies on acoustic signals rather than electromagnetic signals. SONAR can function in two modes: active (used less frequently) and passive (constantly employed). In active SONAR, the submarine emits a pulse of sound. The pulse travels through the water, reflects off the target, and returns to the submarine. Onboard computers interpret the reflected pulse to determine the bearing and range to a contact. Passive SONAR involves listening to sounds -- like the noise generated by a merchant’s engines, or the noise of another submarine’s screw chopping through the water. SONAR is also used for navigational purposes. By identifying known features on the ocean floor, a submarine can keep track of its location.

There are many variants of SONAR hardware and software. The most advanced SONAR suite in the U.S. submarine force is called Acoustic Rapid Commercial-Off-The-Shelf Insertion (ARCI, spoken ‘AR-key’). The ARCI program is a phased effort to provide the submarine force with a common SONAR suite, more capable and flexible than earlier designs. ARCI’s open-system architecture (OSA) exploits commercial processing developments and employs complex algorithms that could not previously be accommodated. Commercial-Off-The-Shelf (COTS) based processors and OSA allow onboard computing power to grow at nearly the same rate as commercial industry. This facilitates regular updates to both software and hardware with minimal impact on submarine scheduling.

Periscopes and Photonics Masts

Since the dawn of submarining, periscopes were used to see outside the submarine for safety and targeting other vessels while the submarine was at periscope depth. Periscope depth is the depth at which the periscope is exposed while the hull of the submarine remains below the water line. With the introduction of the Virginia Class platform and the conversion of four SSBNs to SSGNs, the submarine force has begun to transition from traditional periscopes to photonics masts. These instruments utilize cameras to transmit images or video to the submarine instead of using mirrors and lenses, like a periscope. Photonics masts provide significant advantages in sensor flexibility, as well as in efficient use of the limited space in submarines. Current uses of periscopes and photonics masts include, but are not limited to communications, radar, detection of other ships and aircraft, ranging, infrared, and low level light detection.

Fire Control

This computer system takes raw data from various sources including multiple SONAR systems, the periscopes, radio, torpedoes still connected by wire, and manual inputs. The fusion of this information is managed by the control-room watch team, which builds the tactical picture and communicates with the submarine’s weapons. Fire Control implements algorithms to help determine the most likely range, course, and speed of each contact from all of the raw inputs.

When it becomes necessary to shoot a torpedo, Fire Control is used to program the torpedo with the appropriate pre-set parameters for the environment and the contact. It tells the weapon where to look for the target and how to get there. At the time of fire, Fire Control sends the electrical signals to the torpedo tube to launch the weapon. After shooting, Fire Control continues to update the torpedo with refined targeting solutions via the torpedo’s guidance wire. Fire Control is also used to plan cruise missile strikes and it downloads the flight plan and targeting information to Tomahawk cruise missiles prior to launch.
Sources:

6. Sonar: http://books.google.com/books?id=bCEDAAAAMBAJ&pg=PA84&dq=popular+science+July+1946&hl=en&ei=hc3oTO6dCYvonQfQq5iaDQ&sa=X&oi=book_result&ct=book-thumbnail&resnum=10&ved=0CE4Q6wEwCTgU#v=onepage&q&f=true
WEEK 10: NAVAL SPECIAL WARFARE

I. Ethos

In times of war or uncertainty, there is a special breed of warrior ready to answer our Nation’s call. A common man with uncommon desire to succeed. Forged by adversity, he stands alongside America’s finest special operations forces to serve his country, the American people, and protect their way of life. I am that man.

My Trident is a symbol of honor and heritage. Bestowed upon me by the heroes that have gone before, it embodies the trust of those I have sworn to protect. By wearing the Trident, I accept the responsibility of my chosen profession and way of life. It is a privilege that I must earn every day. My loyalty to Country and Team is beyond reproach. I humbly serve as a guardian to my fellow Americans always ready to defend those who are unable to defend themselves. I do not advertise the nature of my work, nor seek recognition for my actions. I voluntarily accept the inherent hazards of my profession, placing the welfare and security of others before my own. I serve with honor on and off the battlefield. The ability to control my emotions and my actions, regardless of circumstance, sets me apart from other men. Uncompromising integrity is my standard. My character and honor are steadfast. My word is my bond.

We expect to lead and be led. In the absence of orders, I will take charge, lead my teammates, and accomplish the mission. I lead by example in all situations. I will never quit. I persevere and thrive on adversity. My Nation expects me to be physically harder and mentally stronger than my enemies. If knocked down, I will get back up, every time. I will draw on every remaining ounce of strength to protect my teammates and to accomplish our mission. I am never out of the fight.

We demand discipline. We expect innovation. The lives of my teammates and the success of our mission depend on me - my technical skill, tactical proficiency, and attention to detail. My training is never complete. We train for war and fight to win. I stand ready to bring the full spectrum of combat power to bear in order to achieve my mission and the goals established by my country. The execution of my duties will be swift and violent when required yet guided by the very principles that I serve to defend. Brave men have fought and died building the proud tradition and feared reputation that I am bound to uphold. In the worst of conditions, the legacy of my teammates steadies my resolve and silently guides my every deed. I will not fail.

II. History

Today’s naval special warfare personnel can trace their origins back to the amphibious scouts and raiders, Naval Combat Demolition Units, Office of Strategic Services Maritime Unit, and Underwater Demolition Teams of World War II. While none of those early organizations have survived to the present, their pioneering efforts are mirrored in the missions and professionalism of NSW today.

Naval Combat Demolition Units (NCDUs)

In June 1943, Lieutenant Commander Draper L. Kauffman, ‘the father of naval combat demolition’ established the Naval Combat Demolition Unit (NCDU) Training School in Fort Pierce, FL to train personnel specifically for European operations in WWII. The NCDUs, composed of six-man teams, were formed with volunteers acquired from the Navy Construction Battalion (Seabee).

By April 1944, 34 NCDUs were deployed to England in preparation for Operation OVERLORD, the Allied invasion of France on the beaches of Normandy. The NCDUs were utilized to destroy an array of
barriers and underwater obstacles. The NCDUs suffered 31 dead and 60 wounded, a casualty rate of 52 percent. The majority of the NCDUs were then transferred to the Pacific Theater of operations and eventually absorbed into the UDTs.

**Underwater Demolition Teams (UDTs)**

The Underwater Demolition Teams were founded in November 1943 in response to the challenges faced by the U.S. Marine Corps in the amphibious landing on Tarawa. It was clear that the Navy needed a unit that could provide hydrographic reconnaissance and underwater demolition of obstacles prior to an amphibious landing. UDT-1 and UDT-2 were subsequently established, and saw action across the Pacific Theater to include the invasions of Saipan, Guam, Peleliu, Iwo Jima, and Okinawa. With a formal training program established in Maui, Hawaii, the UDTs would perform mine clearing and demolition raids during the Korean War and canal clearance operations in the Vietnam War.

**SEAL Teams**

Beginning in 1961, the CNO stressed the need for a naval unit with unconventional warfare capabilities. President John F. Kennedy recognized the importance of such a unit and in 1962 established SEAL Teams ONE and TWO, with personnel transferred from the UDTs. These Teams were first tested in the initial stages of the Vietnam War as advisors to the Vietnamese in the conduct of clandestine maritime operations. Once U.S. troop involvement increased, the SEAL Teams began conducting reconnaissance and direct action missions. During the war, LTJG Joseph Kerry, LT Thomas Norris, and PO Michael Thornton all received Medals of Honor for their actions in combat.

To ensure that special operations forces maintained a high state of readiness and to correct deficiencies accentuated by the failed attempt to rescue American hostages in Iran in April 1980, a comprehensive program of Special Operations Forces (SOF) revitalization began in 1981. Established in 1987, the United States Special Operation Command (USSOCOM) provided the funding and organizational relationships necessary to field a professional U.S. special operations capability.

In 1989, SEALs participated in Operation JUST CAUSE, the invasion of Panama to topple the Noriega dictatorship. NSW forces secured the Atlantic and Pacific entrances to the Panama Canal and conducted numerous reconnaissance and direct action search and seizure missions.

From August 1990 thru March 1991, SEALs participated in Operation DESERT SHIELD and Operation DESERT STORM. They conducted beach and land border reconnaissance, combat search and rescue (CSAR), and mine countermeasure missions. SEALs also conducted a maritime deception mission, a feint that successfully drew Iraq forces away from the point of the U.S. assault into Kuwait.

In the recent conflicts of Afghanistan (Operation ENDURING FREEDOM) and Iraq (Operation IRAQI FREEDOM), the SEAL teams have conducted numerous Counterinsurgency and Counterterrorism operations to include Direct Action, Surveillance and Reconnaissance, Foreign Internal Defense and personal security detachment operations for civilian government leaders. Starting in 2009, the NSW force began conducting village stability operations to provide persistent presence within local population and support to the Afghan Local Police program. LT Michael Murphy and SO2 Michael Monsoor received Medals of Honor posthumously in Operation ENDURING FREEDOM and Operation IRAQI FREEDOM respectively.

### III. Organization

Commander, Naval Special Warfare Command (NAVSPACWARCOM), a two-star rear admiral headquartered in Coronado, CA, exercises operational and administrative control of all active and reserve NSW forces stationed in the United States. The NAVSPACWARCOM mission is to man, train, equip, deploy, and sustain NSW forces for operations and activities abroad in support of combatant commanders and U.S. national interests. NAVSPACWARCOM is an echelon II command under the combatant command of USSOCOM.

Deployable NSW forces are assigned to one of the six NSW Groups. NSWGs 1 and 2 command the eight active duty SEAL teams. Naval Special Warfare Group ONE, based in Coronado, CA, with SEAL Teams ONE, THREE, FIVE, and SEVEN as its subordinate commands. Naval Special Warfare Group TWO, based in Little Creek, VA, with SEAL Teams TWO, FOUR, EIGHT, and TEN as its subordinate commands.
Naval Special Warfare Group THREE, based in Pearl Harbor, HI, is responsible for NSW forces conducting undersea special operations worldwide. Subordinate commands include SEAL Delivery Vehicle Team ONE (SDVT-1), Training Detachment THREE (TRADET-3), and Logistics Support Unit THREE (LOGSU-3).

Naval Special Warfare Group FOUR, based in Little Creek, VA, organizes personnel to deploy combat-ready forces and maritime mobility systems with craft capabilities and capacities in accordance with USSOCOM priorities. Subordinate commands include Special Boat Teams TWELVE, TWENTY, and TWENTY TWO.

Naval Special Warfare Group TEN, based in Little Creek, VA, is responsible for intelligence, surveillance, reconnaissance, and preparation of the environment capabilities, with NSW Support Activity ONE and TWO, and the Mission Support Center as its subordinate commands.

Naval Special Warfare Group ELEVEN is responsible for NSW Reserve Components and personnel in support of NSW and joint special operations.

Naval Special Warfare Units provide support and forward deployed bases around the globe. NSW Unit-1 is located in Guam. NSW Unit-2 is located in Germany. NSW Unit-3 is located in Bahrain.

SEAL Teams

SEAL Teams are comprised of three Troops with two to three platoons each (seven platoons/Team), a Command and Control Element, and a mobile support element that is deployable overseas for extended periods. The SEAL Officers first leadership assignment is Assistant Officer in Charge (LTJG/LT) of a platoon, and then progress to Platoon Commander (LT) and Troop Commander (LCDR), which are major career milestones.

A standard Troop can be task-organized for operational purposes into four squads/fire teams, each with 4-5 personnel. Troop core skills consist of Sniper, Breacher, Communicator, Maritime/Engineering, Close Air Support, Corpsman, Point-man/Navigator, Primary Driver/Navigator (Rural/Urban/Protective Security), Heavy Weapons Operator, Sensitive Site Exploitation, Air Operations Master, Lead Climber, Lead Diver/Navigation, Interrogator, Explosive Ordnance Disposal, Technical Surveillance, and Advanced Special Operations. The size of each SEAL Team with three troops and support staff is approximately 300 personnel.

The SEAL elements are trained to infiltrate their objective areas by fixed and rotary winged aircraft, Navy surface ships and submarines, vehicles, underwater, or on foot. Their ability to conduct clandestine, high-risk missions and provide real-time intelligence offers decision makers excellent situational awareness and provides multiple options to conduct warfare. NSW is a relatively small force consisting of approximately 9,250 personnel, 2,700 SEALs, 700 Special Warfare Combatant Craft-Crewmen (SWCC), 750 reservists, 4,000 Combat Support (CS) and Combat Service Support (CSS) personnel, and more than 1,100 civilians. NSW constitutes 11 percent of USOOF and less than 2 percent of the Navy’s forces.

Special Warfare Combatant Craft-Crewman

SWCC are specially selected and trained enlisted personnel who operate NSW combatant craft and other craft in maritime, coastal, and riverine environment. SWCC operators must complete the 7-week SWCC basic crewman training, which emphasizes physical conditioning, water competency, seamanship, navigation, boat tactics, teamwork, and mental toughness. The course includes a 51-hour navigation, boat tactics, and swimming evolution with little sleep and constant exposure to the elements. Completion of basic SWCC training requires proficiency in coxswain skills, over-the-horizon navigation, small-craft tactics, weapons, communications, maritime insertion and extraction, and coastal patrol and interdiction.

On completion of SWCC Basic Crewman Training, students advance to Crewman Qualification Training (CQT).

CQT is a 21-week course covering weapons, seamanship, first aid, navigation, communications, waterborne patrolling, marksmanship, engineering, small-unit tactics, close-quarters combat, combative, SERE Level C, language training, and an introduction to NSW mission planning. Graduates of CQT are designated as Special Warfare Boat Operators (SB), authorized to wear the SWCC insignia, and assigned to a Special Boat Team.
IV. Missions and Capabilities

Missions

- **Direct Action** – Short-duration strikes and other small-scale offensive actions taken to seize, destroy, capture, or recover in denied areas. Direct Action involves ambush, combat swimmer ship attacks, combat search and rescue; close quarters combat (CQC), and visit board search and seizure (VBSS).
  
  Example: Operation NEPTUNE SPEAR (Osama bin Laden raid)

- **Special Reconnaissance** – Acquiring information concerning the capabilities, intentions, and activities of an enemy. Special Reconnaissance involves counter-sniper operations, hydrographic reconnaissance, and listening and observation posts.
  
  Example: Prior to an amphibious assault by Marines during the Second World War, Under Water Demolition Teams (UDTs) would conduct hydrographic reconnaissance and destroy beach obstacles.

- **Unconventional Warfare** – Operations conducted by, through, and with surrogate forces that are organized, trained, equipped, supported, and directed by external forces. Unconventional Warfare involves training foreign guerrilla forces or other clandestine operations.
  
  Example: Operation ENDURING FREEDOM Village Stability Operations (VSO) in which teams have been dispersed in remote, austere, and hostile areas of Afghanistan to enable local security and re-establish or re-empower traditional local governance mechanisms that represent the population and that promote critical local development to improve the quality of life within village communities and districts.

- **Counterterrorism** – Counter Terrorism involves the prevention, deterrence, and response to terrorism.
  
  Example: In April 2009, the Maersk Alabama was hijacked by Somali pirates, holding the ship’s captain hostage. Navy SEALs killed the armed pirates and rescued the captain.

- **Foreign Internal Defense** – NSW offers training and other assistance to foreign governments and their militaries to enable the foreign government to provide for its country’s national security. Foreign Internal Defense involves training the security forces of other nations in areas such as internal peacekeeping/law enforcement, border defense, counter-drug operations, and military strategy. These operations are continuously ongoing around the world.
  
  Example: SEALs served as advisors and instructors for the South Vietnamese Army.

- **Counterinsurgency** – Counterinsurgency (COIN) is defined as “those military, paramilitary, political, economic, psychological, and civic actions taken by a government to defeat an insurgency.” A key aspect of COIN is the development of host nation security forces. NSW COIN operations are based on the ability to teach combat skills, regional expertise, language skills, and the ability to work among indigenous populations.

- **Operational Preparation of the Environment** – OPE covers actions to alter or shape the operations environment to create conditions favorable to the success of military operations. There are three key components: orientation activities (OA) aimed at providing area familiarization and developing plans, information, and operational infrastructure that enable future operations; target development; and preliminary engagement of the target to influence the objective prior to operations.

- **Security Force Assistance** – Security force assistance is defined as activities that contribute to uniformed action by the U.S. Government to support the development of the capacity and capability of foreign security forces and their supporting institutions.

- **Information Operations** – NSW forces do not conduct IO as a primary core activity but coordinate with naval and other forces. IO support to NSW operations consists primarily of coordinated operation security, military deception, electronic warfare, computer network operations, and military information support operations that affect enemy perceptions of friendly forces while protecting U.S. information.
Seabasing

Given the freedom of navigation laws for surface ships and the stealth of submarines, seabased NSW forces are able to operate throughout the oceans and along the littorals of the world with few restrictions - lower profile and less intrusive presence, no reliance on host nation support, no diplomatic clearance, minimal political risk, and often without detection - to enable persistent, unobtrusive, mobile SOF presence in remote littoral areas where land bases are not available.

Seabasing support can be provided by conventional naval forces (carrier strike group, expeditionary strike group, surface strike group, missile defense surface action group, or submarines) as well as Military Sealift ships and commercial vessels.

Limitations

- **Conservation of Forces** – SEAL and SWCC operators require extensive investment in selection, training, and equipment; provide unique capabilities; and are relatively few in number. They cannot be replaced quickly nor expanded rapidly.

- **Sustained Engagement** – NSW forces can deliver a high volume of weapons fire relative to their size and are designed to strike when and where least expected, employing stealth to gain surprise or use other techniques to engage the enemy with a tactical advantage. However, their small size constrains their effectiveness as a static defense force.

- **Timing** – SEALs are a rapid-response force and can normally respond more quickly than other forces. However, preparation and rehearsal time varies with each situation. Some operations require assembly of a significant support package (submarine, ships, aircraft, etc.)

- **Support** – Support requirements may include basing, medical support, detainee operations, IO, fire support, ship, submarine, aircraft, or other attachments. Support considerations include Transit to target area, air support, fire support, medical, quick reaction force, and target security.

V. Naval Special Warfare Craft

<table>
<thead>
<tr>
<th>Mark VIII SEAL Delivery Vehicle (SDV)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mission</strong></td>
</tr>
<tr>
<td><strong>Payload</strong></td>
</tr>
<tr>
<td><strong>Speed</strong></td>
</tr>
<tr>
<td><strong>Range</strong></td>
</tr>
<tr>
<td><strong>Crew</strong></td>
</tr>
</tbody>
</table>
**Mark V Special Operations Craft**

<table>
<thead>
<tr>
<th>Mission</th>
<th>Used to carry SEALs into and out of operations where the threat to these forces is considered to be low to medium. They also support limited coastal patrol and interruption of enemy activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>500+ NM</td>
</tr>
<tr>
<td>Speed</td>
<td>50 knot (max), 35 knots (cruise)</td>
</tr>
<tr>
<td>Payload</td>
<td>5 crew, 16 troops, 4 zodiacs, multiple heavy weapon mounts</td>
</tr>
</tbody>
</table>

**11 Meter NSW RIB (Rigid-Hull Inflatable Boat)**

<table>
<thead>
<tr>
<th>Mission</th>
<th>High speed, high buoyancy extreme weather craft used to carry Special Operations Forces (SOF), primarily SEALs, into and out of maritime operations. They also support coastal patrol and interdiction of enemy activities. Fully interoperable with MK V SOC Combat Boat.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>200+ NM</td>
</tr>
<tr>
<td>Speed</td>
<td>45+ Knots</td>
</tr>
<tr>
<td>Payload</td>
<td>5 + 8 troops, 2 zodiacs, 2 heavy weapon mounts</td>
</tr>
</tbody>
</table>
Mine-Resistant Ambush Protected Vehicle (MRAP)

<table>
<thead>
<tr>
<th>Mission</th>
<th>Ground mobility vehicle used to carry SEALs in a variety of terrain. The vehicle is designed to protect the crew from explosive events.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>420 miles</td>
</tr>
<tr>
<td>Speed</td>
<td>60+ mph</td>
</tr>
<tr>
<td>Payload</td>
<td>Varies significantly depending on the configuration</td>
</tr>
</tbody>
</table>

Rotary Wing and Tilt Rotor Aircraft

<table>
<thead>
<tr>
<th>Mission</th>
<th>Rotary-wing support can be provided by many sources from various services and agencies. These include dedicated support (DS) SOF aircraft and general support (GS) conventional aircraft. They can provide precision overland and overwater insertion and extraction, ISR, and/or fire support. Rotary-wing aircraft are also used by SEAL snipers as overwatch platforms for fire support and to assist in guiding tactical movement of ground forces during assaults.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payload</td>
<td>Varies significantly on the type of aircraft, configuration, and environmental conditions</td>
</tr>
<tr>
<td>Speed</td>
<td>RW ~110-170 knots/TR ~250 knots</td>
</tr>
<tr>
<td>Range</td>
<td>Varies significantly on fuel tank configuration and ability to conduct in-flight refueling</td>
</tr>
</tbody>
</table>
VI. Future Capabilities

Naval Special Warfare continues to execute some of the most dynamic missions for the DOD. Future officers will work in diverse environments from Helmand Province in Afghanistan to the Horn of Africa, and need to be culturally attuned to a variety of regions. The focus of NSW and USSOCOM is persistent engagement with our partners and allies around the world. The Commander, USSOCOM, wants a special operator that can work in a joint and interagency environment, act as a diplomat for our country, and continue to represent the best quality warrior in the military.

Sources:
1. NAVY WARFARE PUBLICATION (NWP 3-05) NAVAL SPECIAL WARFARE
I. Mission

The mission of Navy EOD is: *To provide the Fleet with the capability to detect, identify, render safe, recover, evaluate, and dispose of explosive and/or hazardous ordnance items that have been fired, dropped, launched, projected, or placed in such a manner as to constitute an increased danger to operations, installations, personnel, or material.*

Navy EOD has the ability to render safe the following types of Unexploded Ordnance (UXO):
- Ground Ordnance (projectiles, rockets, grenades, landmines)
- Air Ordnance (bombs, missiles, aircraft explosive hazards, and dispensed munitions)
- Improvised Explosive Devices (IEDs)
- Weapons of Mass Destruction (WMDs) (chemical, biological, and nuclear weapons)
- Underwater Ordnance (mines, torpedoes, and depth charges)

II. History and Overview

The Explosive Ordnance Disposal (EOD) community was officially organized as a warfare community in July of 1978 as the Special Operations Community, but the core missions and skills of EOD teams were employed and practiced far before the community’s birth. A need for ordnance disposal skills was recognized during WWII, as German and Japanese military operations left behind large quantities of dud-fired ordnance. Mine Disposal School was founded in May 1941. Bomb Disposal School was founded in January 1942 by (then) LT Draper Kauffman; based, in large part, on the British Bomb Disposal model. The first two Navy EOD commands were established in 1953.

Today, all four services have EOD Technicians, all of whom are trained at the Naval School Explosive Ordnance Disposal (NAVSCOLEOD) at Eglin Air Force Base, Florida. Navy EOD is organized somewhat differently than the other services in that EOD is its own warfare community in the Navy; in the other services, it is a component of larger communities. Additionally, Navy EOD Technicians must go through rigorous training that enables them to operate in more environments. Navy EOD exists today as the only special operations capable (Land, Sea, Air) Explosive Ordnance Disposal Technicians. Navy EOD is comprised of 425 officers and 1174 enlisted personnel.

The Navy EOD community is primarily focused around the core competencies of EOD: Underwater Mine Countermeasures (UMCM), Combat Expeditionary Support (CES), Special Operations Forces (SOF) support, Anti-Terrorism/Force Protection (AT/FP), and Navy Dive and Salvage Support Operations. Navy EOD units can deploy as a shipboard detachment with a Carrier or Expeditionary Strike Group, or as a land-based asset assigned to an Army or Marine Corps unit. Additionally, Navy EOD units are special operations capable, specifically and uniquely tasked with support to Naval Special Warfare (NSW) and Army Special Forces (SF).

III. Mission Areas

There is a common misperception that Navy EOD’s operational environment includes only underwater operations. This perception is far from the truth; diving is only one mission area in which Navy EOD Technicians have expertise. Today, most Navy EOD deployments are land based with ground combat units performing offensive operations. The mission areas of Navy EOD are:
- **Mine Countermeasures (MCM).** MCM is made up of three components: EOD personnel (UMCM), surface ships (SMCM), and air units (AMCM). EOD personnel are specifically tasked with detecting and diving on armed underwater ordnance and conducting Render Safe Procedures (RSPs). Additionally, EOD personnel render safe dud-fired mines, torpedoes, and depth charges, and conduct searches for and RSPs on limpet mines. If our enemies laid mines covertly, Navy EOD personnel are the only assets in the Department of Defense that can render the mines safe, recover them, and provide attribution to a specific nation or group.

- **Special Operations Forces (SOF) Support.** Navy EOD Technicians lend their expertise to SOF units to ensure they achieve mission success. The skills learned in the EOD training pipeline lend themselves to participation in these types of operations. Navy EOD Technicians will participate in advanced training with the SOF unit they are assigned to in order to support the entire spectrum of operations with which that unit may be tasked. Today, approximately 30% of Navy EOD’s deployments are in support of SOF missions.

- **Anti-Terrorism/Force Protection (AT/FP)/U.S. Secret Service Support.** AT/FP is a natural extension of the counter IED skills EOD Technicians learn. Many EOD Officers assigned to afloat staffs serve as, or work in close conjunction with, the AT/FP Officer. EOD Technicians regularly perform U.S. Secret Service support in order to mitigate and eliminate explosive hazards, which allows for travel all over the planet. Additionally, EOD Shore Detachments work in conjunction with local, state, and federal bomb disposal agencies to combat terrorist threats.

- **Expeditionary Diving and Salvage.** Expertise in diving is a vital skill needed for the disposal of underwater ordnance. All Navy EOD Technicians are Navy Divers and are trained in open-circuit SCUBA and the Mk-16 Mod 1, a computerized mixed-gas rebreather with low magnetic properties that allows EOD Technicians to operate on ordnance at up to 300 feet beneath the surface.

Though they fall under EOD command, some Navy Divers are not EOD qualified, but instead get advanced training as Second Class Divers, First Class Divers, Diving Medical Technicians, and Master Divers, specializing in surface supplied diving, open/closed circuit SCUBA, and diving medicine. These Divers may be assigned to a Mobile Diving & Salvage Unit, to an EOD Mobile Unit, or another EOD command.

### IV. Organization

The Type Commander (TYCOM) for Navy EOD is the Commander, Naval Expeditionary Combat Command (NECC). Under NECC, Navy EOD forces are divided into two Groups: EODGRU ONE in San Diego, CA and EODGRU TWO in Norfolk, VA. Each group contains EOD Mobile Units (EODMU) that are comprised of companies and platoons, and a reserve Mobile Unit that is referred to as an EOD Operational Support Unit (EODOSU). Each EOD platoon consists of one officer and six to eight enlisted EOD Technicians. Each Group also contains an EOD Training & Evaluation Unit (EODTEU) and a Mobile Diving & Salvage Unit (MDSU).

<table>
<thead>
<tr>
<th>WEST COAST</th>
<th>EAST COAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMEODGRU ONE (Coronado, CA)</td>
<td>COMEODGRU TWO (Little Creek, VA)</td>
</tr>
<tr>
<td>EODTEU-1 (Point Loma, CA)</td>
<td>EODTEU-2 (Pt. Story, VA)</td>
</tr>
<tr>
<td>EODMU-1 (Coronado, CA)</td>
<td>EODMU-2 (Little Creek, VA)</td>
</tr>
<tr>
<td>EODMU-3 (Coronado, CA)</td>
<td>EODMU-6 (Little Creek, VA)</td>
</tr>
<tr>
<td>EODMU-5 (Guam)</td>
<td>EODMU-8 (Rota, Spain)</td>
</tr>
<tr>
<td>EODOSU-7 (San Diego, CA)</td>
<td>EODOSU-10 (Little Creek, VA)</td>
</tr>
<tr>
<td>EODMU-11 (San Diego, CA)</td>
<td>EODMU-12 (Little Creek, VA)</td>
</tr>
<tr>
<td>MDSU-1 (Pearl Harbor, HI)</td>
<td>MDSU-2 (Little Creek, VA)</td>
</tr>
</tbody>
</table>

Each EODMU has multiple Shore Detachments attached to it. These provide a fixed regional response capability usually in close proximity to a DoD installation. Shore Detachment locations are Newport, RI; Earle, NJ; Dahlgren, VA; Yorktown, VA; Norfolk, VA; King’s Bay, GA; Mayport, FL; Panama City, FL;
When the Special Operations community was realigned as the EOD Community beginning in 2007, the Personnel Qualification Standards (PQS) (not to be confused with the training pipeline) for enlisted and officer EOD Technicians became different, much as it is throughout the rest of the Navy. Enlisted EOD Technicians retain the ‘old’ qualification path. Basic EOD Technicians complete two years of PQS, demonstrate proficiency, and complete a board to earn their Senior EOD Technician qualification. Successful completion of an additional three years of PQS, demonstrated proficiency, training, and scenario-based boards will result in qualification as a Master EOD Technician.

The warfare qualification process is now different for officers. Like their enlisted counterparts, EOD officers graduate NAVSCOLEOD as Basic EOD Technicians. However, EOD officers no longer complete Senior and Master EOD qualifications. Instead, new EOD officers must complete a three-year program of PQS, demonstrated EOD proficiency, demonstrated leadership, and complete a scenario-based oral and performance based qualification board while leading an EOD platoon. Successful completion of these requirements leads to qualification as an EOD Officer. The EOD Officer Qualification badge looks exactly the same as the Master EOD Technician’s, except it is gold rather than silver/pewter.

Navy Divers

Not all Sailors who are part of the Navy EOD Community are EOD Technicians. The Navy Diving community is a subset of the EOD Community. Since all Navy EOD Technicians begin their training pipeline as Navy Divers, there is a tight bond of common expertise between EOD Technicians and Navy Divers. The term ‘Navy Diver’ is not a monolith. ‘Navy Diver’ refers to a Sailor who has successfully completed one of several COIs offered at NDSTC (of which the EOD Diver COI is just one). Navy Divers who are not Navy EOD Technicians can earn the following designations:

VI. Tools and Equipment

The following list is by no means all-inclusive of the equipment Navy EOD Technicians and Divers use. Rather, these are examples of some of the most commonly used pieces of equipment.
**Foster-Miller TALON Bomb Robot**

- **Weight:** 115-156lbs
- **Payload capacity:** 100lbs
- **Arm lift:** 10lbs at full extension, 20lbs total lift
- **Cameras:** 3 IR-illuminated
- **Controlled from briefcase-sized Operational Control Unit (OCU)**

**iRobot EOD Packbot Bomb Robot**

- **Weight:** 68lbs
- **Payload capacity:** 46lbs
- **Arm lift:** 10lbs at full extension, 30lbs total lift
- **Cameras:** 4: 2 color, 1 drive, 1 surveillance
- **Controlled from briefcase-sized Operational Control Unit (OCU)**

**MK-16 Mod 1 Underwater Breathing Apparatus (UBA)**

The Mk-16 SCUBA re-breather produces no bubbles; exhaled CO2 is ‘recycled’ with low acoustic and magnetic properties. It is electronically driven, the UBA uses 3 oxygen sensors which monitor the partial pressure of oxygen in the Diver’s breathing loop and automatically adds O2 if the ppO2 is not within pre-established parameters. The Diver monitors rig performance through a primary and secondary electronics display. Divers utilizing the UBA are capable of diving to 300 Feet of Sea Water (FSW). The MK-16 can use two diluent gases: N2O2 for dives 150 FSW or shallower, or HeO2 for deeper dives.

**Percussion Actuated Non-electric (PAN) Disruptor**

Device used to render safe IEDs remotely without detonating them. The benefit of such a tool is that it allows Render Safe Procedures (RSPs) to be conducted while the EOD Technician is a safe distance from the IED.
**MED-ENG EOD IX Bomb Suit**

This suit provides extensive blast and fragmentation protection. It comes in multiple layers: trousers, groin protector, torso, and helmet. The IX Bomb suit also incorporates a fan and full body cooling system. The entire suit weighs over 85lbs. LTJG Danny Glenn (USNA 2010) is in the Guinness Book of World Records for fastest mile in the bomb suit at 8 minutes and 30 seconds.

**MK-21 Surface Supplied UBA**

Fulfills the Navy’s hardhat, surface supplied diving requirements for deep-sea diving & salvage. The rig is comprised of a Kirby-Morgan Superlite 17 helmet, an umbilical containing a gas hose, communications wire, and a pneumofathometer to determine depth. Unlike older surface supplied rigs, the diver is not enclosed in a full suit; instead, he/she wears only the helmet with the attached umbilical. For normal dives, max depth is 190 FSW on air, 300 FSW if the Diver is breathing HeO2.

**Sources:**

WEEK 12: RESTRICTED LINE, STAFF CORPS, & LIMITED DUTY OFFICERS AND CHIEF WARRANT OFFICERS

I. Differences between Unrestricted Line, Restricted Line, and Staff Corps Officers

Unrestricted Line (URL) Officers serve in all warfare communities in the United States Navy and are eligible for command opportunities both at sea and ashore. These are the primary officer communities in the Navy. The United States Naval Academy is committed to graduating Unrestricted Line Officers, but each year exceptions are made that allow midshipmen to be assigned Restricted Line and Staff Corps.

Restricted Line (RL) Officers provide highly specialized, technical services that directly support the missions of the United States Naval Service. Restricted Line officers are not generally eligible for command at sea; however, they may command auxiliary vessels and various shore activities. Restricted Line officers wear rank insignia identical to those of Unrestricted Line officers.

Staff Corps (SC) Officers provide various highly specialized services necessary to naval installations, units, service members, and their families. Staff Corps officers may command auxiliary vessels and various shore activities, and may attain command within their own corps. Unlike Line Officers, Staff Corps officers wear their rank on the right collar, and their corps insignia device on the left collar. The corps insignia replaces the star worn by line officers on sleeves and shoulder boards.

II. Restricted Line Communities

Engineering Duty Officer. EDOs apply technical expertise, practical engineering judgment, and business acumen to the research, development, design, acquisition, construction, life cycle maintenance modernization, and disposal of ships and submarines and their associated warfare support systems.

Aerospace Engineering Duty Officer. AEDOs provide professional management and technical direction in the entire air weapon system acquisition process from design to production and later product improvements of naval aircraft, spacecraft, and weapons. AEDOs test and evaluate new aircraft, weapons systems, and weapons in various stages of development.

Aerospace Maintenance Duty Officer. In addition to working in fleet maintenance organizations throughout the fleet, AMDOs are very much involved in all aspects of material acquisition and support as top-level Program Managers in NAVAIR and as Commanding Officers of the Naval Aviation Depots. Also, AMDOs are involved in all aspects of material acquisition and support as top-level Program Managers in NAVAIR and as COs of the Naval Aviation Depots.

Information Warfare Community. IWC is comprised of four communities: Information Professional (IP), Cryptologic Warfare (CW), Intelligence (INTEL), and Meteorology and Oceanography (METOC). USNA midshipmen who are physically qualified cannot be assigned directly to Information Warfare Community (IWC) communities; however, they can be selected as a SWO Option in any of the four: SWO (IP), SWO (IW), SWO (INTEL), and SWO (METOC). They are required to qualify as a Surface Warfare Officer, be within six months of promotion to O-3, and have completed specified career milestones prior to re-designation and transfer to their IWC Community. IWC is discussed in depth in Week 15 of this Pro-Book.

Public Affairs Officers. The Public Affairs (PAO) community is responsible for ‘Telling the Navy Story.’ Navy Public Affairs comprise three functional areas:

1. Media Operations: PAOs work with media outlets to communicate with the American public.
2. Internal Communications: PAOs produce publications, briefings, and video news programs to communicate with Sailors, their families, reservists, retirees, and civilian employees.
3. Community relations: PAOs reach out to the American public through ‘hands-on’ programs like public tours, Congressional and VIP visits and embarks, speaking engagements, open houses, and special events. PAOs serve at sea, ashore, and in joint assignments, and are always deployed where Navy news is being made. All PAOs join the community through lateral transfer. Today there are about 190 officers in this community, the smallest in the Restricted Line.
Human Resources

The Human Resources Community (120X) is charged with “delivering Human Resources expertise to define, recruit, develop, assign, and retain a highly-skilled workforce for the Navy Total Force mission.” Its core competencies include Workforce Requirements; Training and Education Development; Personnel Management; and Recruiting.

III. Staff Corps Communities

There are five Navy Staff Corps communities: Medical, Supply, Civil Engineer, Judge Advocate General, and Chaplain.

- **Medical Community.** All officers in the Medical, Medical Service, Dental, and Nurse Corps are licensed medical professionals and are organized under the Bureau of Medicine and Surgery.
  - **Medical Corps.** The Medical Corps consists of commissioned doctors who are responsible for maintaining the general health of personnel in the naval service. These doctors provide medical services, and administer hospitals, sick bays, and other medical facilities in the Navy. For squadrons of small ships, a medical officer may serve the entire squadron. Large ships usually have their own medical officer.
  - **Medical Service Corps.** This is the most highly diversified Corps within the Medical Community. Officers in this corps are specialists in clinical, scientific, and administrative health care fields. The Medical Service Corps now has approximately 2,600 officers. Health care scientists and clinical care specialists make up about 60 percent of the total Corps, serving in 22 different specialties including aerospace physiology, psychology, physical therapy, optometry, biochemistry, and radiation health, while health care administrators comprise the remaining 40 percent.
  - **Dental Corps.** Commissioned dentists provide dental services on shore and onboard large ships. Dental Corps officers are responsible for surgery, orthodontics, preventing and controlling dental disease, and supervising dental hygiene.
  - **Nurse Corp.** As professional registered nurses, Nurse Corps officers use nursing expertise to accomplish the health services mission. Today, there are approximately 5,200 active duty and reserve Nurse Corps officers. They care for many patients whose illnesses and injuries are no different from those found in civilian facilities. They also care for those with battle injuries or conditions resulting from fleet operations, chemical/biological warfare, or parasite-infested environments.

- **Supply Corps.** Supply Corps Officers handle the supply phases of the naval logistics. The broad responsibilities of the Supply Corps are closely related to those of many executive positions in private industry. The 2,900 Supply Officers are the business managers of the Navy and they are responsible for the supply support of the ships of the active fleet, operational units, and hundreds of naval shore installations. The most important responsibility of the Supply Corps is the worldwide, integrated Navy Supply System, which gets the Fleet what it needs, where and when it needs it.
  - The Supply Corps of the United States Navy traces its beginnings to February 23, 1795 when the nation’s first Purveyor of Public Supplies, Tench Francis, Jr., was appointed by President George Washington. The Supply Corps is one of the oldest staff corps in the U.S. Navy. The official motto of the Supply Corps is ‘Ready for Sea’ - reflecting the Supply Corps’ longstanding role in sustaining warfighting.
  - Supply Corps areas of responsibility are supply chain management, logistics, combat support, readiness, quality-of-life, contracting and fiscal issues.
  - Supply Corps officers are proficient in a variety of disciplines such as supply management and expeditionary logistics, inventory control, disbursement, financial management, contracting, information systems, operations analysis, material and operational logistics, fuels management, food service and physical distribution.
  - Supply Corps Purpose: To optimize the Naval Support Network to meet the Operational Readiness and Quality-of-Life Requirements of our Maritime Forces.
  - Supply Corps Mission: To deliver sustained global logistics and Quality-of-Life Support to the Navy and Joint Warfighter.
• **Civil Engineer Corps.** The U.S. Navy Civil Engineer Corps (CEC) was established in 1867 to build and maintain the naval shore establishment. Its officers are the Navy’s uniformed professional engineers and architects responsible for executing and managing the planning, design, construction, operation, and maintenance of the Navy’s shore infrastructure. CEC Officers work in one of three areas: construction contract management, public works, or the Seabees. The Seabees consist of highly skilled personnel, schooled in both construction and defensive combat. Seabees are responsible for a wide variety of military construction and humanitarian efforts in times of peace or war:
  - Constructing and repairing aircraft runways and parking aprons
  - Constructing munitions storage areas and large scale camp sites
  - Erecting bridges and constructing roads
  - Renovating schools, medical clinics, and municipal facilities
  - Repairing piers and wharves, underwater and above
  - Constructing border outposts, expeditionary camps, community outreach centers, and medical clinics

• **Judge Advocate General Corps.** The JAG corps was established in 1967 and is composed of lawyers who provide legal services to commands, service members, and their families. The Judge Advocate General directs an organization of more than 730 judge advocates in addition to other enlisted and civilian personnel, and provides legal and policy advice to the Secretary of the Navy in all legal matters.

• **Chaplain Corps.** The Chaplain Corps is the Staff Corps established within the Department of the Navy to provide for and manage the delivery of religious ministry by religious ministry professionals within the Department of the Navy and, as authorized, beyond, e.g. to the USCG.
  - Chaplains are Religious Ministry Professionals endorsed by Religious Organizations accredited with the Department of Defense, to serve in the military. Each chaplain is true to his/her religious tradition, there is no ‘generic’ religion or worship service, while at the same time respecting the beliefs of others and cooperating with chaplains of other religious traditions. Navy chaplains serve with the Navy, Marine Corps, Coast Guard, and Merchant Marines on ship and shore, in CONUS and OCONUS. The four core capabilities of a Navy chaplain are as follows:
    - To PROVIDE religious services, teaching, pastoral counseling, and ministry according to his/her faith tradition.
    - To FACILITATE the free exercise of worship and the provision of religious needs for those of other faith traditions.
    - To CARE for all, including those of the same faith tradition, other faith traditions, or no faith tradition at all. CARE entails treating all with dignity and respect.
    - To ADVISE the Command and leaders at all levels on issues of morale, morals, ethics, spiritual well-being, and emerging religious requirements.
  - Unique to the chaplain is that ONLY the chaplain has Absolute Confidentiality. The chaplain cannot reveal what has been communicated to her/him by Sailor, Marine, or authorized civilian without the permission of the person who communicated the information.
IV. The Limited Duty Officer and Chief Warrant Officer Programs

Limited duty officer and chief warrant officer are two separate programs that provide the Navy with officer technical managers. Both programs provide the opportunity for outstanding senior enlisted personnel to compete for a commission without the need for a college degree. Combined, these two communities make up more than eleven percent of the officer corps.

- **Limited Duty Officers (LDOs).** As officer technical managers of the Line or Staff Corps, LDOs progressively advance within broad technical fields related to their former enlisted ratings. They fill leadership and management positions at the ensign through captain level that require technical background and skills not attainable through normal development within other officer designators. LDOs serve as, but are not limited to serving as, division officers, department heads, OICs, XO, and COs, ashore or afloat. *LDOs wear identical rank structure to that of Unrestricted Line officers.*

- **Navy Band Officers.** Officers in the Navy Band are Limited Duty Officers who started their careers by enlisting in the Navy Band. Enlisted personnel must be at least an E-6 in order to apply. Upon commissioning, they are assigned to one of fourteen bands, and will rotate every two to three years. Senior billets are those with the Navy Band, Washington, and the U.S. Naval Academy Band.

- **Chief Warrant Officers (CWOs).** Although intended primarily as technical specialists, CWOs may also serve as division officers, department heads, OICs, XO, and CO, ashore or afloat. Like Staff Corps officers, CWOs wear special insignia above the rank devices on their shoulder boards and sleeves to indicate their field of expertise. The ranks of CWO start at CWO2 and end at CWO5.

### Chief Warrant Officer Rank Structure of the United States Navy

<table>
<thead>
<tr>
<th>Rank</th>
<th>CWO5</th>
<th>CWO4</th>
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<th>CWO2</th>
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**Sources:**
I. Overview

The Information Warfare Community (IWC) was created in 2009, bringing together officers, enlisted, and civilian professionals who possess extensive skills in information-intensive fields. This corps of professionals receives extensive training, education, and work experience in information, cyberspace, intelligence, counterintelligence, human-derived information, networks, space, meteorological, and oceanographic disciplines. Members of the IWC continually develop and deliver warfighting capabilities in support of U.S. Navy, Joint and national war fighting requirements.

Information as a warfighting discipline. Until 2009, the information-intensive communities of Oceanography, Cryptologic Warfare, Information Professional, Intelligence, and the Space Cadre were treated principally as individual enablers necessary to support the Navy’s traditional warfighting pillars. Recognizing the enhanced combat power of fusing the Navy’s manpower, information and cyberspace capabilities, the Chief of Naval Operations consolidated these communities under the banner of Information Dominance. In February of 2016, the Information Dominance Corps was redesignated the Information Warfare Community. The Navy’s aggregate information capability has begun to emerge as a modern warfighting enterprise, and serves as a potent asymmetric complement to its kinetic warfare capabilities. Information Warfare has been established as the Navy’s newest warfighting discipline in support of the Navy’s primary tenet of Warfighting First, and information itself has become a potent weapon.

II. Mission

Gain a deep understanding of the inner workings of our adversaries, develop unmatched knowledge of the battlespace, provide our operating forces with sufficient over-match in wartime command and control, and project power through and across cyberspace. The focus of the IWC is:

- Information Warfare
- Kinetic and non-kinetic weapon/defense
- Development and experimentation of manned and unmanned vehicles
- Expansion of the electromagnetic maneuver warfare concept to include space and cyberspace in partnership with the fleet
- Cybersecurity
- The warfighting pillars:
  - Assured Command and Control (C2). Through the Navy’s networks, the IWC assures secure and rapid sharing of information across all commands and most platforms, and ensures the ability of commanders to direct operations and coordinate the application of force.
  - Battlespace Awareness. The IWC maintains awareness of the physical environment (i.e. weather, air column, water column, topography, infrastructure, etc.) of the operating area, as well as a robust awareness of the capabilities, vulnerabilities, movement, trends, intentions, and threats posed by potential adversaries thus enabling informed decision
making by operational and tactical commanders. Put another way, knowing the enemy and the environment.

- **Integrated Fires.** IWC capabilities include cyberspace operations, electronic warfare, and information operations that are used to deny, disrupt, defeat, or manipulate an adversary’s capabilities, or enhance and coordinate the application of force by U.S. and coalition assets.

**Key Concept:** The IWC core capabilities that support Navy mission objectives are, assured Command and Control (C2), Battlespace Awareness, and Integrated Fires.

### III. Personnel and Capabilities

The IWC is made up of Information Professional Officers (IP), Cryptologic Warfare (CW) Officers, Intelligence Officers (INTEL), Oceanography Officers (METOC), and Space Cadre. Below is a chart depicting the officer designators and associated enlisted ratings.

<table>
<thead>
<tr>
<th>Officer Designators</th>
<th>Information Professional (IP)</th>
<th>Cryptologic Warfare (CW)</th>
<th>Intelligence (INTEL)</th>
<th>Meteorology/Oceanography (METOC)</th>
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<td>182X, 642X, 742X</td>
<td>181X, 644X, 744X</td>
<td>183X, 645X, 745X</td>
<td>180X, 646X</td>
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<tr>
<td><strong>Enlisted Ratings</strong></td>
<td><strong>Information Systems Technician (IT)</strong></td>
<td><strong>Cryptologic Technician (CT)</strong></td>
<td><strong>Intelligence Specialist (IS)</strong></td>
<td><strong>Aerographer’s Mate (AG)</strong></td>
</tr>
<tr>
<td>IT Civilian</td>
<td>CTR, CT, CTR, CTR</td>
<td>IS</td>
<td>AG</td>
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<tr>
<td>Other</td>
<td>Space Cadre</td>
<td>Intelligence Civilian</td>
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<tr>
<td></td>
<td>5500x, 6206x, Subspecialists</td>
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**Information Professional (IP)**

Information Professional (IP) officers operate, maintain, secure, plan, acquire, and integrate three network domains afloat and ashore. The domains are separated based on the classification of information being transmitted on them [ref. (6)]:

- **NIPRNET:** Non-Classified Internet Protocol Routing Network, used for Unclassified information only
- **SIPRNET:** Secret Internet Protocol Routing Network, used for information up to and including information classified at the Secret level
- **JWICS:** Joint Worldwide Intelligence Communications System, used for information up to and including Top Secret (TS) and Sensitive Compartmented Information (SCI).

The two primary assignments for IP officers are either Fleet Information Warfare or Cyber and Net-Centric Commands that are summarized below [ref. (13)]:

1. **Fleet Information Warfare.** These Navy IP officers are responsible for vital shipboard functions that support everything including air operations, ship machinery control, logistics, intelligence systems, medical, and quality of life systems. While the same systems exist on smaller combatants, IPs at sea are typically found only on large deck platforms such as CVNs, LHDs, and LHAs.
2. **Cyber and Net-Centric Warfare Commands.** These are assignments ashore and include a myriad of IP facilities as well as various staffs.

**Cryptologic Warfare (CW)**

The Cryptologic Warfare Community provides the Commander with kinetic and non-kinetic means of achieving key objectives by affecting adversary and protecting friendly capabilities. This is achieved through the application of:

- Cyberspace Operations (CO) – Offensive Cyberspace Operations (OCO) and Defensive Cyberspace Operations (DCO).
- Signals Intelligence (SIGINT) – The collection and analysis of electromagnetic signals from an adversary’s communication, radar, and weapons systems.
- Electronic Warfare (EW) – Includes Electronic Attack (EA) which targets an adversary, Electronic Protection (EP) which protects friendly units, and Electronic Support (ES) which includes the detection of Indications and Warnings (I&W).

Assignments for CW Officers begin with the 8-week Cryptologic Warfare Basic Course (CWBC). Following graduation from the Basic Course, CW Officers are typically assigned to one of four National Cryptologic Centers - San Antonio, Texas; Kunia, Hawaii; Augusta, Georgia; or Fort Meade, Maryland. Following their initial tour, Cryptologic Warfare Officers have several educational opportunities. One is the Naval Postgraduate School. Another is the Junior Officer Career Cryptologic Program, a competitive three-year program that offers participants the opportunity to develop broad technical and operational expertise through a combination of academics and an intensive internship at the National Security Agency. Follow on tours provide opportunities for critical CW assignments, such as a Cryptologic Resource Coordinator (CRC), the Information Warfare Commander (IWC), and positions within the Cyber Mission Force (CMF) – to include National Mission Teams (NMT), National Support Teams (NST), Combat Mission Teams, Cyber Protection Teams, or Combat Support Teams. There are also opportunities to be imbedded with SEAL teams and Marine Units.

**SIGINT Capabilities**

**Ship’s Signals Exploitation Space (SSES).** The Navy’s afloat Signals Intelligence (SIGINT) collection and analysis work center is SSES. SSES provides real time SIGINT tactical support using ship’s sensors and national resources in support of national, theater, and fleet cryptologic requirements. Operationally, SSES collects and analyzes foreign signals and provides tactically relevant time-sensitive I&W data extending beyond the horizon. All aircraft carriers (CVN) and amphibious assault ships (LHA/LHD), as well as many CGs and DDGs have a SSES. On CVNs and LHA/LHDs, a junior IW officer will head a division of CTs who work in SSES, but on smaller ships (i.e. CGs and DDGs) a smaller CT detachment will man SSES that is usually headed by a LT or a CWO. [ref. (6)]

**EP-3 Aries.** The Navy’s most capable airborne SIGINT collection platform is the EP-3. The EP-3 provides commanders with near real-time tactical SIGINT and full motion video intelligence. With sensitive receivers and high-gain dish antennas, the EP-3E exploits a wide range of electronic emissions from deep within targeted territory. The crew fuses the collected intelligence along with off-board data and disseminates the collaborated information for direct threat warning, indications and warnings, information dominance, battle space situational awareness, suppression of enemy air defenses, destruction of enemy air-defense, anti-air warfare, and anti-submarine warfare applications. In addition to pilots, NFOs, and AWs, aircrew qualified CTs, IW officers, Intelligence Officers and ISs, are assigned to and fly in EP-3 squadrons. [ref. (8)]
U.S. Navy EP-3 Aries. Note the many antennae used for SIGINT collection.

**Intelligence (INTEL)**

The Naval Intelligence Community provides evaluated intelligence about an adversary’s capabilities, vulnerabilities, movement, trends, and intentions in support of planning and operations. Intelligence allows anticipation or prediction of future situations and circumstances and it informs decisions by illuminating the differences in available courses of action.

One goal of naval intelligence is to reduce the risk to operations by identifying adversary capabilities, vulnerabilities, and intentions. It attempts to impart knowledge of the situation through the application of three basic intelligence functions that form the foundation of required analytical support to the commander:

1. **Intelligence Preparation of the Battlespace (IPB)** – Intelligence Preparation of the Battlespace (IPB), sometimes also referred to in Joint Doctrine, as Joint Intelligence Preparation of the Operating Environment (JIPOE), is the systematic and continuous analysis of the adversary, terrain, and weather in the assigned or potential battlespace. Its goals include understanding the adversary’s forces, doctrine, tactics, training, and probable courses of action, together with the physical and environmental characteristics of the target area. IPB identifies gaps in knowledge that require intelligence collection efforts.

2. **Indications and Warning (I&W)** – The goal of Indications and Warning (I&W) is to provide early warning of potential hostile action. To accomplish this goal, the analyst must be familiar with an adversary’s operational order of battle (i.e. inventory) and normal operating patterns. The intent of I&W is to prevent surprise and reduce risk through early detection of adversary actions that may threaten friendly forces.

3. **Targeting** – Targeting is a function of both intelligence and operations, in which an adversary’s critical vulnerabilities are identified for possible attack or disruption. Targeting is an analysis process in which the components of a target, or target system, and their vulnerabilities and relative importance are assessed to determine what effect their loss or impairment would have on the adversary. Intelligence can indicate where selective employment of force can have a major effect. For example, the destruction of a single enemy radar site can render multiple surface-to-air missile (SAM) sites useless. Targeteering, which is an intelligence function, identifies which weapons will achieve the desired effects on a specific target.

**Intelligence Specialist (IS)** is the enlisted rating associated with INTEL Community. While all ISs have a common core of duties (assist in collection, processing, analysis and dissemination of intelligence products and reports; prepare and present intelligence briefs; assist in mission planning and debrief; assist in IPB; and safeguard classified materials), the four areas of IS specialization are:

1. Imagery Analyst – Process, interpret, measure, and annotate imagery and geospatial products
2. Naval Special Warfare Analyst – Provide intelligence support for NSW mission planning, and assist in processing, interpreting, and disseminating collected information.
4. OPINTEL Analyst – Produce Operational Intelligence (OPINTEL) by collecting, analyzing, and processing all-source intelligence regarding an adversary’s trends in military operations, training, and capabilities; perform Indications and Warning (I&W).

**Carrier Intelligence Center (CVIC).** Pronounced ‘civic,’ several different work centers comprise CVIC, which is an afloat intelligence production and analysis center located aboard every CVN. Most of these work centers are collocated within a suite of spaces on the ship. CVIC serves as the organic intelligence center for a Carrier Strike Group (CSG). Numerous intelligence activities are conducted in CVIC such as imagery interpretation and reporting, intelligence production, strike planning, OPINTEL, mission de brief, and providing I&W to other U.S., coalition, and allied operational units. As such, CVIC maintains close liaison with other fleet assets, naval shore commands, and joint intelligence and operational commands. CVIC maintains close liaison with fleet and theater I&W watches, Navy and joint intelligence reachback agencies, and specialized national or theater targeting/analytical centers. CVIC provides timely, customized, relevant all-source intelligence products and I&W for operational commanders and mission planners in all mission areas. [ref. (6)]

**Joint Intelligence Center (JIC).** The JIC is the afloat intelligence production and analysis center located aboard every LHA/LHD that supports the operational commanders of an Amphibious Ready Group (ARG) in the same basic ways that CVIC serves within a Carrier Strike Group. The most notable difference between a CVIC and a JIC is the presence of Marine Corps intelligence functions working jointly in the JIC. [ref. (6)]

### Levels of Intelligence

<table>
<thead>
<tr>
<th>STRATEGIC</th>
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<tbody>
<tr>
<td>Senior Military and Civilian Leaders</td>
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<tr>
<td>Combatant Commanders</td>
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<tr>
<td>• Assist in developing national strategy and policy</td>
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<tr>
<td>• Monitor the international situation</td>
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<td>• Assist in developing military plans</td>
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<tr>
<td>• Assist in determining major weapon systems and force structure requirements</td>
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<tr>
<td>• Support the conduct of strategic operations</td>
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<tr>
<th>OPERATIONAL</th>
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<tbody>
<tr>
<td>Combatant and Subordinate Joint Force</td>
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<tr>
<td>Commanders and Component Commanders</td>
</tr>
<tr>
<td>• Focus on military capabilities and intentions of enemies and adversaries</td>
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<tr>
<td>• Monitor events in the Joint Force Commander’s area of interest</td>
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<td>• Support the planning and conduct of joint campaigns</td>
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<td>• Identify adversary centers of gravity</td>
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<tr>
<th>TACTICAL</th>
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<tr>
<td>Commanders</td>
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<tr>
<td>• Support planning and conducting battles and engagements</td>
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<td>• Provide commanders with information on imminent threats to their forces</td>
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<td>• Provide commanders with obstacle intelligence</td>
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**Intelligence Sources (i.e. the “INTS”)**

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<thead>
<tr>
<th>GEOINT – Geospatial Intelligence</th>
<th>HUMINT – Human Intelligence</th>
<th>SIGINT – Signals Intelligence</th>
<th>MASINT – Measurement and Signature Intelligence</th>
<th>OSINT – Open-Source Intelligence</th>
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<tbody>
<tr>
<td>– Imagery</td>
<td>– Debriefings</td>
<td>– COMINT - Communications Intelligence</td>
<td>– Electromagnetic Data</td>
<td>– Academia</td>
</tr>
<tr>
<td>– IMINT - Imagery Intelligence</td>
<td>– Source Operations</td>
<td>– ELINT - Electronic Intelligence</td>
<td>– Radio Frequency Data</td>
<td>– Geophysical Data</td>
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<td>** Operational ELINT**</td>
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<td>– Newspapers/Periodicals</td>
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<td>– FISINT - Foreign Instrumentation Signals Intelligence</td>
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<td>– Media Broadcasts</td>
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<td>– Internet</td>
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**Meteorology/Oceanography (METOC)**

Both the terms ‘METOC’ and ‘OCEANO’ are used to refer to the Oceanography community that provides actionable information to include meteorological, climatological, oceanographic, and space environment observations, analyses, prognostic data or products and meteorological and oceanographic effects. The METOC Community has four Warfare Directorates that support the warfighter.

- **Undersea Warfare Directorate** – Supports Anti-Submarine and Mine Warfare using state-of-the-art technology to capture the characteristics of the water column, provide predictions of sensor and weapon performance, employ Unmanned Underwater Vehicles (UUV) and side scan sonar, and conduct advanced planning.
- **Expeditionary Warfare Directorate** – Provides Naval Special Warfare (NSW) with information that defines the physical environment allowing optimization of mission planning for tactical advantage. Deployments with SEAL teams are common, requiring outstanding physical fitness and an ability to conduct METOC support operations in remote locations.
- **Weather Services Directorate** – Supports several distinct operations:
  - Fleet Operations – METOC support for afloat units. Officers are generally attached to a specific ship (LHD/LHA/CVN), Strike Group, or Numbered Fleet.
  - Maritime Operations – Responsible for providing afloat units with enroute weather (WEAX) and Optimum Track Ship Routing, a service designed to keep ships safely away from hazardous weather.
  - Aviation Operations – Focused on flight weather support to aviation units around the world.
- **Precise Time and Astrometry Directorate**
  - Positioning and Timing – The Naval Observatory is the preeminent authority in the areas of Precise Time and Astrometry, and distributes Earth Orientation parameters and other Astronomical Data required for accurate navigation and fundamental astronomy.
  - Navigation – Focused on providing hydrographic surveys supporting real world operations, as identified by Combatant Commanders and other DoD customers. Consists primarily of USNS hydrographic survey vessels and the Fleet Survey team. Their combined objective is to deliver navigation products within a single deployment (45-60 day turnaround).
Aerographer’s Mate (AG) is the enlisted rating associated with the METOC community. AGs collect, measure, and analyze elements of the physical operating environment (land, sea, air, space). They prepare weather forecasts and weather briefs. They prepare and disseminate air space and water column analysis in support of operations. They predict how the physical environment impacts the performance of sensors and weapons systems.

Sources:
1. OPNAV Instruction 5300.12, October 2009, Establishing the Information Dominance Corps
6. NWP 2-01, Intelligence Support to Naval Operations
7. NTTP 6-02, C4I Infrastructure
12. Joint Publication 3-05, Special Operations
13. Information Professional Officer Career Handbook 2014
14. Joint Publication 2-01.3, Joint Intelligence Preparation of the Operating Environment
WEEK 14: U.S. MARINE CORPS HISTORY AND TRADITIONS

I. Origin

Birth of the Marine Corps
The United States Marine Corps is a direct descendent of the British Royal Marines, who were founded in 1664. When the 2nd Continental Congress drew up plans for a Navy, it also established a Continental Marine Corps. **November 10, 1775 marks the United States Marine Corps’ official birthday.** Tun Tavern in Philadelphia, Pennsylvania is recognized as the birthplace of the Marine Corps. Samuel Nicholas, a Philadelphia merchant, was commissioned a Captain and ordered to raise the required number of Marines to form the two battalions. He is considered the first Commandant of the Marine Corps.

II. History and Traditions

First Amphibious Landing during The Battle of Nassau
The attack on New Providence, Bahamas, led by Samuel Nicholas, was the first amphibious raid in the history of the Marine Corps. Landing on 3 March 1776, the Marines took the British defenders completely by surprise. The British withdrew from Fort Montague and the Marines captured the fort without firing a shot.

Early Traditions
- **Quatrefoil** – One of the traditions, which evolved from the late 1700s and early 1800s, was the use of the Quatrefoil. It enabled our sharpshooting Marines in the riggings of sailing ships to distinguish between friend and foe. Our boarding parties attached a cross design piece of rope to the top of their covers. From this evolved the Quatrefoil, today the cross-shaped braid is worn on top of the Officer’s barracks cover.
- **Leatherneck** – The Marines long-standing nickname ‘Leatherneck’ goes back to the leather collar, or neckpiece, which was worn from 1775 to 1875, that was intended to ensure the Marines kept their heads erect, and to protect their necks from sword slashes. The high collar on the blue dress uniform commemorates it today.
- **Rank Of Sergeant Major** – In 1798 Congress established the rank of Sergeant Major. The first Marine to rise to the rank of Sergeant Major was Sergeant Major Archibald Sommers. In 1957, the 21st Commandant, General Pate, established the billet of Sergeant Major of the Marine Corps as the Commandant’s senior enlisted advisor. The first Sergeant Major of the Marine Corps was Sergeant Major Bestwick.
- **Marine Corps Band** – The Marine Band was established in 1798 and has played for every president except George Washington. Thomas Jefferson gave them the nickname ‘The President’s Own.’
- **Mameluke Sword** – In 1805, the Ruler of Tripoli, Prince Hamet, presented the Mameluke sword to First Lieutenant Presley O’Bannon as a token of gratitude for the Marines’ actions during the Barbary Pirate Wars. A replica of that sword was adopted for use and is carried by all Marine officers. The Mameluke Sword is the oldest weapon still in use today by any of the U.S. Armed Forces.
- **The Scarlet Stripe** – The scarlet trouser stripe first appeared on uniform trousers in 1798, and reappeared in 1840 and 1859, partly because of the military fashions of the day. The popular story, which cannot be supported by fact, is: In the battle of Chapultepec during the Mexican War in 1847, 90% of the Marine officers and noncommissioned officers were casualties. Thirteen of the twenty-three Marine officers participating in this battle were decorated for bravery. Thus, the scarlet stripe, or
The Island Hopping Campaign of World War II

Guadalcanal

In August 1942, the 1st Marine Division made the first amphibious landing of World War II. When the Marines came ashore, the Japanese launched a sea attack against the U.S. Navy amphibious ships. The operation was not yet complete when the Navy withdrew from Guadalcanal with thousands of Marines and critical equipment aboard. Instead of spearheading an offensive operation, the Marines assumed a
defensive perimeter until the rest of the Marines aboard the ships could return. By February of 1943, the Marines had full control of Guadalcanal and the U.S. concentrated on the offensive in the Pacific.

**Tarawa**

There were over 4,800 Japanese on Tarawa manning 32 large coastal artillery pieces, 106 machine guns, and 14 tanks. In November 1943, the 2d Marine Division attacked Tarawa. The reefs surrounding the island stopped the majority of the landing craft. The Marines waded to the shore, some 500 hundred yards distant, in the face of machine gun and mortar fire. 76 hours after the start of the assault on Tarawa, the Marines captured the island at the cost of 1,100 dead and 2,300 wounded Marines.

The significance of Tarawa was that the Japanese commander claimed, “a million men assaulting for a hundred years could not take Tarawa.” It took the Marines just 76 hours. Only 17 Japanese surrendered; the rest fought to the death.

**Iwo Jima**

Iwo Jima was needed in order to provide a clear flight path for American B-29 strategic bombers. The Japanese spent almost 20 years preparing for the defense of this island. On the morning of 19 February 1945, the Marines landed on Iwo Jima. It was the largest Marine amphibious landing to date, and the costliest. The Marines sustained more than 26,000 casualties while fighting the 21,000 Japanese soldiers that defended the barren, rugged terrain. Many of the 1500 caves and pillboxes on the island had reinforced walls ten feet thick.

In recognition of the Marines’ heroism in the battle on Iwo Jima, Navy Admiral Chester A. Nimitz said, “Among the Americans who fought and died at Iwo Jima, uncommon valor was a common virtue.”

During this battle, Marines raised the American flag on Mount Suribachi. An Associated Press photographer, Joe Rosenthal, snapped a picture, which has taken its place with the most famous pictures and paintings of our country’s history. This picture was the inspiration for the Marine Corps War Memorial in Washington, D.C.
**Okinawa**

The final great land offensive in the Pacific area was the invasion of Okinawa by the combined forces of the Marine Corps and the Army. The Marine Corps landed the two Marine Divisions on the western beaches of Okinawa, with another Marine Division held in reserve. Defending this mighty fortress were 117,000 Japanese. However, on 21 June 1945, after three months of fighting, Japanese resistance ended. The successful conquest of the island of Okinawa enabled our ships, planes, and submarines to tighten the blockade around Japan’s home islands.

**The Korean War**

**The Pusan Perimeter**

Following World War II, Korea split into North and South along the 38th parallel. The North became Communist and the South became a Democratic Republic. In the summer of 1950, North Korean troops supplied with Russian and Chinese equipment and advisors crossed the 38th Parallel attacking South Korea. The U.S. Army was immediately dispatched from Japan along with other United Nations (UN) forces.

The South Koreans and the U.S. Army were pushed back to a small perimeter around the port city of Pusan. Within days, the 1st Provisional Marine Brigade sailed from San Diego for Pusan. This rapid deployment of a combat ready Marine contingent displayed the Marine Corps’ concept of being a ‘Force in Readiness.’

When the Marines arrived in August 1950, elements of the U.S. Army were already surrounded within the Pusan Perimeter. The 1st Provisional Marine Brigade was used to plug holes in the perimeter defense. The Marines then pushed the North Koreans back 26 miles along the left flank.

As the Marines moved in as a blocking force, a North Korean division attacked. The following day the Marines attacked the left flank of the North Korean division and the rest of the regiment soon took the ridges overlooking the river. On 3 September, the North Koreans attacked the perimeter again. The Marines moved in and, after three days of tough fighting, they pushed the North Koreans back 6 miles, securing the perimeter.

**The Inchon Landing**

The significance of this assault was (1) the tides, (2) the maneuver to an unexpected landing site, and (3) the dramatic effect on the war. The city of Inchon had tidal variation of 33 feet, was surrounded by large mud flats, had an island fortress protecting it, and was surrounded by an 8-foot sea wall, which the Marines had to scale from their landing craft.

In September 1950, the 1st Marine Division, commanded by MajGen Oliver P. Smith, fought in hand-to-hand combat, using flame-throwers and any weapons at their disposal. After 2 days of fighting, the Marines captured Inchon and prepared to advance onto the South Korean capital of Seoul.

**The Battle for Seoul**

On September 22, 1950, the 1st Marine Division entered Seoul to find it heavily fortified. Casualties mounted as the forces engaged in desperate house-to-house fighting. Seoul was taken after 3 days of heavy fighting.

**The Chosin Reservoir**

The 1st Marine Division pushed north toward the border between North Korea and Communist China as winter arrived. As the Marines moved north through the frozen mountainous terrain, the Communist Chinese Forces (CCF) prepared to move south. The Marines marched to the west of a man-made reservoir called Chosin. Colonel Lewis B. ‘Chesty’ Puller served as the commanding officer of the 7th Marine Regiment.
On the night of 2 November, just south of the Chosin Reservoir, a Chinese Communist Division attacked the 7th Marine Regiment who was the lead element for the division. The Marines fought off the attack for five days until the Chinese broke contact and simply disappeared.

On 27 November, eight Chinese divisions out-flanked the Marines. The Army units on the Marine’s left flank were crumbling and the Marines were dangerously exposed. The UN forces crumbled and retreated. The Marines were left alone with their supply lines cut off, 70 miles from the sea. There was only one choice for the Marines, to fight their way back down the supply lines to the sea. This is when MajGen Smith said, “We are not retreating, we’re just attacking in a different direction.” It was a testament of the Marines’ fighting spirit.

As the 1st Marine Division began their controlled withdrawal from the Chosin Reservoir, the weather became just as fierce as the enemy. As the Marines withdrew from the Chosin Reservoir, they took all of their men and equipment, evacuated all the dead and wounded, and left nothing to aid the Chinese divisions.

The 1st Marine Division was the only unit to come out of the Chosin Reservoir intact. Colonel ‘Chesty’ Puller was awarded his fifth Navy Cross for his leadership and bravery. Chesty Puller is the only Marine who has been awarded five Navy Crosses.

The war quickly came to a stalemate. For several months, Marines conducted limited operations. The overall situation changed little in the months to come as the Chinese offered to negotiate. A truce was signed on 27 July 1953.

Three Developments from the Korean War
- Use of lightweight body armor in the latter stages of the war. This is the origin of the flak jackets used in the fleet today.
- Introduction of the thermal boots. Because of the intense cold, frostbite injuries, and the problem of fighting in an arctic environment, all Marine replacements for Korea were sent to Bridgeport, California for extensive cold weather training prior to departure for Korea.
- Introduction of the helicopter into a combat environment. The Marine Corps pioneered the doctrine of Vertical Envelopment; also known as the helicopter assault.

The Vietnam War
The Vietnam War was part of a wider containment strategy, with the stated aim of stopping the spread of communism. The U.S. aim in Vietnam was to secure an independent and non-Communist South Vietnam.

Da Nang
As air strikes went deep into North Vietnam, the Americans established an airbase in the northern part South Vietnam at Da Nang. The U.S. suspected the Viet Cong would attack this air base, so the Marine Corps was called in to protect it. On March 8, 1965, the 9th Marine Expeditionary Brigade landed at Da Nang. They were the first ground combat forces to deploy to South Vietnam and by the end of 1965, more than 38,000 Marines would be there.

Operation STARLITE
In late July of 1965, intelligence reports indicated that the 1st Viet Cong Regiment, some 2,000 strong, was preparing to attack Chu Lai. Acting on this information, the Marines initiated the first regimental-sized operation since the Korean War. On 18 August 1965, a classic ‘hammer and anvil’ operation was launched. It was named Operation STARLITE.

2d Battalion, 4th Marines conducted a helicopter-borne assault from the west and 3d Battalion, 3d Marines conducted an amphibious assault from the southeast. Both battalions converged on the 1st Viet Cong Regiment, and with reinforcement from 3d Battalion, 7th Marines, they dealt the Viet Cong its first major defeat of the war, denying them sanctuary along the coast, and testing the combined helicopter and amphibious doctrine that the Marines had developed and studied for more than a decade. Two Medals of Honor, 6 Navy Crosses, and 14 Silver Stars were among the honors awarded the leathernecks of Operation STARLITE.
Khe Sanh

The Quang Tri province in which Khe Sanh was located bordered the demilitarized zone (DMZ) and was one of the key objectives of the North Vietnamese Army (NVA) in 1967. U.S. defense of the DMZ was centered on the Khe Sanh Combat Base and the NVA had to take it in order to control the province.

Northwest of Khe Sanh was a group of hills that overlooked the base and was used by the NVA to launch mortar and rocket attacks. The 2d and 3d Battalions of the 3d Marine Regiment attacked the NVA, pushed them off the high ground, and occupied the hills. The significance of the ‘Hill Fights’ was that the Marines denied the NVA control of Quang Tri Province and at the same time enhanced the security of Khe Sanh. However, the NVA would attack the base again on a large scale during the Tet Offensive.

Tet Offensive

On January 31, 1968, 70,000 NVA and Viet Cong forces launched a large-scale operation that coincided with the Vietnamese Lunar New Year called Tet. The Tet Offensive was a coordinated series of attacks on more than 100 cities and towns in South Vietnam. The North Vietnamese believed that the attacks would foment discontent and rebellion among the South Vietnamese and that the offensive would break up the alliance between South Vietnam and the United States.

The NVA managed to infiltrate and gain control of Hue city. The Marines fought house-to-house and street-to-street to retake the city; it was the first time since Korea that the Marines fought in this manner. After 24 days of fighting, the NVA forces were defeated and Hue was secured.

At Khe Sanh Combat Base, the Marines came under siege by three NVA divisions for 77 days. Despite being cut off by land, the Marines were supporting by massive aerial firepower and resupply and they successfully held Khe San.

Tet related battles continued for four more months, but when it was over, the Communists had suffered a stunning military defeat with 80,000 casualties. Despite the North Vietnamese defeat, the Tet Offensive provoked a political crisis in the U.S. that marked a turning point in the Vietnam War.

Global War on Terrorism (GWOT) and Operation ENDURING FREEDOM (OEF)

Following the terrorist attacks of September 11, 2001, the United States government began what was called the ‘Global War on Terrorism.’

In response to the Taliban government’s refusal to respond to known terrorist activities within their borders, Marines were deployed to Afghanistan as part of Operation ENDURING FREEDOM (OEF). The entire American military focused its might on defeating Al-Qaeda. Combat operations began in October, and in November, Marines of the 26th Marine Expeditionary Unit (MEU) were the first major ground forces in Afghanistan. In mid-December 2001, these Marines captured Kandahar Airport and converted it into one of the first coalition command centers in the country.

After the initial invasion, much progress had been made. The threat of violence had been greatly reduced, hundreds of schools had been constructed, and millions in aid had been distributed. In October 2004, Afghanistan held its first direct elections, and one year later, they conducted the first Afghan parliamentary election.

As early as 2004, Marine infantry units embedded female Marines in these formerly all-male units to build trust with the local populace. In 2009, the Corps formalized the program to train and deploy Female Engagement Teams (FETs) alongside infantry units in order to build trust and confidence with Afghan women. Each team of female Marines had to cross difficult cultural hurdles in order to obtain permission to engage with Afghan women before they could begin to assess their needs, convey information, perform security searches, and whenever possible, win the support of Afghan mothers and daughters. What they learned as some of the first cultural outsiders to ever talk to remote Afghan women helped the Marine Corps define its aid programs and build trust with villagers. The program was successful.

At the start of 2010, the II Marine Expeditionary Brigade (MEB) led Operation MOSHTARAK. The largest military operation since the beginning of the war in Afghanistan, Operation MOSHTARAK drove the Taliban from cities across southern Afghanistan, including the Taliban stronghold of Marjah, and effectively ended their 2-year rule of the region.

The war in Afghanistan officially became the longest war in U.S. history in June of 2010. Marines continue to fight the Taliban and train Afghan soldiers to eventually shoulder the burden of Afghanistan’s national security. With the first democratic transfer of power in Afghanistan scheduled to occur this year, the U.S. combat mission in Afghanistan will end in 2014.
**Operation IRAQI FREEDOM (OIF)**

**Initial Operations**

In 2003, Iraq became a second front in the war on terrorism with Operation IRAQI FREEDOM (OIF), with Marine responsibilities ranging from combat and security operations to humanitarian efforts. One of the key objectives of OIF during 2003 was the capture of Iraq’s capital, Baghdad. A convoy of 30,000 Marines advanced 500 miles from the border of Kuwait in just 10 days. On April 9, 2003, Marines secured the center of Baghdad. That same day, Coalition forces declared an end to Saddam Hussein’s rule.

**Al Anbar Province Overview**

During the first four years of OIF, the Anbar Province was the deadliest province for American service members, claiming approximately one-third of American fatalities. In a country where most were associated with the Shi’ia branch of Islam, the Anbar Province was the Sunni stronghold that had long provided Saddam Hussein with the support he needed to remain in power. Early in OIF, it provided an important base for Al Qaeda and insurgent operations. Part of its significance came from the fact that the Western Euphrates River Valley served as an important infiltration route for foreign fighters headed to Iraq’s heartland. The New York Times compared this region to the Vietnam War’s Ho Chi Minh Trail, as foreign fighters and insurgents used the river valley to move in relative safety from the Syrian border to cities like Baghdad, Ramadi, and Fallujah.

**Fallujah, Al Anbar Province**

Fallujah was one of the least damaged areas of Iraq immediately after the 2003 invasion by the U.S.-led Coalition. Iraqi Army units stationed in the area abandoned their positions and disappeared into the local population, leaving unsecured military equipment behind. Fallujah was also the site of a Ba’athist resort facility called ‘Dreamland,’ located a few kilometers outside the city proper. The damage the city had avoided during the initial invasion was negated by damage from looters, who took advantage of the collapse of Saddam Hussein’s regime. The looters targeted former government sites, the Dreamland compound, and the nearby military bases. Aggravating this situation was the proximity of Fallujah to the infamous Abu Ghraib prison, from which Saddam Hussein, in one of his last acts, had released all prisoners.

In early March 2004, the Army’s 82nd Airborne Division transferred authority of Al Anbar province to I Marine Expeditionary Force (MEF). The Marines soon had their hands full when insurgents in Fallujah ambushed a convoy later that month, capturing four American contractors employed by Blackwater USA. The captives were beaten, set on fire, and then hung from a bridge over the Euphrates River. In response, on April 4, 2004, the Marines conducted Operation VIGILANT RESOLVE in which they surrounded the city and tried to find the responsible insurgents, backing off at the request of the provisional government. A cease-fire was declared in May, and the Marines stayed out of the city for the next six months.

The break in fighting gave insurgents in Fallujah a chance to build up. Coalition patrols that came close to the perimeter of the city were met with enemy fire. In early November, the Iraq interim government declared a state of emergency and Iyad Allawi, the prime minister, agreed that something needed to be done to ‘clean Fallujah from the terrorists.’ **Operation PHANTOM FURY** began November 8, 2004, with American, Iraqi, and British forces entering the city. Regimental Combat Team 1 and Regimental Combat Team 7, the Marine units involved in the assault, entered from the north, and proceeded to fight through the streets. By November 16 most of the major resistance was suppressed, but Marines continued to find isolated cells until December 23.

Fallujah is the greatest urban battle Marines have fought since the 1968 Battle for Hue City. It served as a decisive strike against the Iraqi insurgency, but also showcased the Marine core values of honor, courage, and commitment. At least eight Navy Crosses were awarded for the battle, more than any other single action in Iraq or Afghanistan.

**The Marines**

The following are the accounts of three Marines in OIF and OEF.

- In 2004, during a reconnaissance mission in the town of Karabilah, Iraq, Corporal Jason Dunham and his men heard gunfire erupt nearby. Cpl Dunham ordered his squad toward the fighting, receiving enemy fire as they moved. At the scene, they discovered seven vehicles scrambling to depart. As they halted the vehicles to search for weapons, an insurgent leapt out. He attacked Dunham and then released a grenade. Without hesitation, the corporal tore off his Kevlar helmet
and used it to cover the grenade. He bore the full force of the fatal explosion, saving the lives of at least two other Marines in his squad. Dunham’s brave actions distinguished him as the first Marine to be awarded the Medal of Honor since the Vietnam War.

- On 8 September 2009, Corporal Dakota Meyer maintained security at a patrol rally point while other members of his team moved on foot with two platoons of Afghan National Army and Border Police into the village of Ganjgal for a pre-dawn meeting with village elders. Moving into the village, the patrol was ambushed by more than 50 enemy fighters firing rocket propelled grenades, mortars, and machine guns from houses and fortified positions on the slopes above. Corporal Meyer took the exposed gunner’s position in a gun-truck as they drove down the steeply terraced terrain in a daring attempt to disrupt the enemy attack and locate the trapped U.S. team. Disregarding intense enemy fire now concentrated on their lone vehicle, Corporal Meyer killed a number of enemy fighters with the mounted machine guns and his rifle, some at near point blank range, as he and his driver made three solo trips into the ambush area. During the first two trips, he and his driver evacuated two dozen Afghan soldiers, many of whom were wounded. When one machine gun became inoperable, he directed a return to the rally point to switch to another gun-truck for a third trip into the ambush area where his accurate fire directly supported the remaining U.S. personnel and Afghan soldiers fighting their way out of the ambush. Despite a shrapnel wound to his arm, Corporal Meyer made two more trips into the ambush area in a third gun-truck accompanied by four other Afghan vehicles to recover more wounded Afghan soldiers and search for the missing U.S. team members. Still under heavy enemy fire, he dismounted the vehicle on the fifth trip and moved on foot to locate and recover the bodies of his team members. For his daring initiative and bold fighting spirit throughout the 6-hour battle, Corporal Meyer was awarded the Medal of Honor.

- On 21 November 2010, Lance Corporal Kyle Carpenter and a fellow Marine were manning a rooftop security position on the perimeter of Patrol Base Dakota in a small village in the Marjah District of Afghanistan when enemy forces initiated a daylight attack using hand grenades, one of which landed inside their sandbagged position. Without hesitation and with complete disregard for his own safety, Lance Corporal Carpenter moved toward the grenade in an attempt to shield his fellow Marine from the deadly blast. When the grenade detonated, his body absorbed the brunt of the blast, severely wounding him, but saving the life of his fellow Marine. For his undaunted courage, bold fighting spirit, and unwavering devotion to duty in the face of almost certain death, Lance Corporal Carpenter was awarded the Medal of Honor.

Sources:
1. MILLET, R. ALLAN SEMPER FIDELIS, The History of the United States Marine Corps
5. Fallujah – Looking Back at the Fury by Lance Corporal Benjamin Harris from Marines Magazine (June 29, 2010)
I. Who We Are

Marines and amphibious naval forces operate in an expeditionary lane that makes use of position and tempo across the physical domains. The Marine Corps’ special role in the joint force remains grounded in our ethos. Indeed, who we are shapes what we do, and how we do it. To Marines, the intertwined nature of our spirit and our actions is so natural that we struggle to tell our story in any other terms; it is the service-defining principle that has brought victory on hundreds of battlefields. What matters most about the Marine Corps is not its warfighting methodology, but its warfighting philosophy. To understand the role of the Marine Corps in the nation’s defense, you have to start with the individual Marine.

We are United States Marines. We have carried a tradition of honor, courage, and commitment since 1775. Marines have fought in large wars and small, smoothly adapting to the nation’s needs and demands. The adaptability of Marines to challenges in every clime and place is a hallmark of our Corps. We have fought pirates, insurgents, regulars, and irregulars. We have fought them in the air, on the ground, at sea, and in cyberspace. We are expeditionary, tough, disciplined, and always faithful. We have a well-earned reputation for directness, but this belies a subtlety and complexity in our warfighting.

We serve. We are proud to defend a great nation. In the information age, the headlines come from all continents, and at all hours. Yet, while tyranny rises and falls, while injustice spreads, while innocents are threatened and global stability is challenged, Americans are confident of one thing: their Marines stand ready. Americans need a force that is ready to move to the sound of chaos. Our leaders need a ready force that can be committed at a moment’s notice to buy time for strategic decision-making. Wherever and however our citizens, allies, or interests are threatened, this nation needs a force ready to respond to today’s crisis with today’s force . . . today. In special partnership with the world’s finest Navy, Marines are that force.

We make Marines. What happens on the parade decks at Parris Island and San Diego, or in the hills of Quantico, is what makes us Marines—it is the hardening of body and mind, the infusion of discipline and the casting of an indelible esprit de corps. Marines come from all walks of life, every race, every ethnicity, and both genders. E pluribus unum: from many, one. We take the best young Americans and shape them through a crucible of tough training. From diversity, a uniformity of character and discipline emerges. We temper them in core values—honor, courage, and commitment—to make them resilient. We polish them to a razor-sharp edge, honing them with a dedication to duty that makes a Marine willing to serve, willing to sacrifice, willing to fight. We instill in young warriors the idea that one succeeds by being part of a team, serving a cause greater than one’s self. ‘Marine’ means living hard, executing any mission, no matter how austere the conditions. ‘Marine’ means leaders who are trusted, biased for action, and accountable. ‘Marine’ means men and women who know that to lead is to serve. ‘Marine’ means being always faithful to the nation and one’s fellow warriors . . . it is a moral imperative that drives Marines, from fire-team leader to Commandant.

We prevail on the battlefield; any battlefield. “The Marines have landed and the situation is well in hand.” Our success is founded on one thing: the Marine Corps ethos and its manifestation in the individual Marine. For Marines, failing to achieve success is unthinkable; personally or professionally. Over centuries, the courage and fortitude of Marines have made household names of places like Belleau Wood, Guadalcanal, Iwo Jima, Chosin Reservoir, Khe Sanh, Kuwait City, Fallujah, and Marjah. That legacy continues, revealed in places like a tsunami ravaged Japan, an imploded Libya, a flooded Pakistan, a shell-shocked Beirut, and a Taliban-infested Helmand Province in Afghanistan. We are proud of our heritage, and sometimes wear our pride on our sleeves. I do not think the nation would want it any other way, for we are America’s Marines.
We make our nation strong. Building Marines is an investment in the character of our citizenry. The Marine mindset draws from the special characteristics of the American people, and they are rightly proud to be reminded of the virtue that lies within them. The large number of Marines who have gone on to be successful CEOs, entrepreneurs, astronauts, university presidents, and political leaders gives evidence that selfless service, disciplined character, strong values, and mental toughness stay with a Marine long after he or she takes off the uniform. Today’s young Marines represent the strength of our youth, the legacy of our elders, and the pride of our nation.

– Excerpt from “Who we are” by General James F. Amos, USMC 2012 Proceedings, U.S. Naval Institute, Annapolis, MD

II. Mission

As directed by the National Security Act of 1947, the Marine Corps shall be organized, trained, and equipped to:

1. Provide Fleet Marine Forces of combined arms, together with supporting air components, for service with the United States Fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign.
2. Provide detachments and organizations for service on armed vessels of the Navy, and security detachments for the protection of naval property at naval stations and bases.
3. Develop, in coordination with the Army, Navy, and Air Force, the doctrines, tactics, techniques, and equipment employed by landing forces in amphibious operations. The Marine Corps shall have primary interest in the development of those landing force doctrines, tactics, techniques, and equipment that are of common interest to the Army and the Marine Corps.
4. Provide, as required, Marine forces for airborne operations, in coordination with the Army, the Navy, and the Air Force and in accordance with doctrines established by the Joint Chiefs of Staff.
5. Develop, in coordination with the Army, the Navy, and the Air Force, doctrines, procedures, and equipment of interest to the Marine Corps for airborne operations which are not provided for by the Army.
6. Be prepared, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components to meet the needs of war.
7. Perform such other duties as the President may direct.

The collateral functions of the Marine Corps are to:

1. Maintain a Marine Corps Reserve for the purpose of providing trained units and qualified individuals to be available for active duty in the Marine Corps in time of war or national emergency and at such other times as the national security may require.
2. Provide Marine officer and enlisted personnel in support of the Department of State security program overseas.

The implied functions of the Marine Corps are to:

1. Organize, train, and equip Marine Corps forces for assignment to unified and specified commands in support of national war plans.
2. Assign such forces to unified and specified commands, as directed.
3. Support Marine Corps and other forces assigned to unified and specified commands, as directed.
4. Be prepared, in accordance with integrated joint mobilization plans, to expand peacetime components to meet the needs of war.

Marine Corps aviation shall be organized to provide supporting air components for the Fleet Marine Forces in the seizure or defense of advanced naval bases and in the conduct of such land operations as may be essential to the prosecution of a naval campaign; and, as a collateral function, to participate as an integral component of naval aviation in the execution of such other Navy functions as the fleet commanders may direct.¹

III. Ethos

Being a Marine is a state of mind. It is an experience some have likened more to a calling than a profession. Being a Marine is not a job—not a pay check; it is not an occupational specialty. It is not male or female, majority or minority; nor is it a rank insignia. Stars, bars, or chevrons are only indicators of the responsibility or authority we hold at a given time. Rather, being a Marine comes from the eagle, globe, and anchor that is tattooed on the soul of every one of us who wears the Marine Corps uniform. It is a searing mark in our innermost being that comes after the rite of passage through boot camp or Officer Candidates School when a young man or woman is allowed for the first time to say, “I’m a United States Marine.” And unlike physical or psychological scars, which, over time, tend to heal and fade in intensity, the eagle, globe, and anchor only grow more defined—more intense—the longer you are a Marine. ‘Once a Marine, always a Marine.’

This matter of being different is at the very heart of leading Marines. It defines whom and what we are by reflecting the mystical cords of the mind that bind all Marines. What we are, what we have been, what Marines will always be, is enduring.

There is yet another element of being different that defines Marines and that is selflessness: a spirit that places the self-interest of the individual second to that of the institution we know as the Corps. That selflessness is stronger nowhere in American society than among Marines.

The Marine Corps’ vision of leading is less concerned with rank, self-identity, recognition, or privilege than the essence of our Corps: the individual Marine and the unyielding determination to persevere because Marines and the Corps do not fail. Our vision of leading is linked directly to our common vision of warfighting, which needs leaders devoted to leading, capable of independent and bold action, who are willing and eager to assume new and sometimes daunting responsibilities, willing to take risks—not because they may succeed, but because the Corps must succeed.2

IV. Enduring Principles

Principles define fundamental beliefs that form the foundation from which Marines derive their ethos and basic operating instincts. The following principles help to further define the cultural identity of Marines in the most basic terms—they express what we believe:

**Every Marine a Rifleman.** Every Marine - regardless of military occupational specialty - is first and foremost a disciplined warrior.

**Expeditionary Naval Force.** Marines are ‘soldiers of the sea,’ an integral part of the naval Services — lean, versatile, flexible, and ready. We are organized, trained, and equipped to conduct naval campaigns and operate on and from naval platforms, or to fight in protracted campaigns ashore.

**Combined Arms Organization.** In 1952, Congress directed the Marine Corps’ composition as an air-ground combined arms force. This integrated force, known as the MAGTF, has unique and incomparable warfighting capabilities. Our MAGTF contains organic air, ground, and logistics elements under a single command element, making it an effective and integrated combined arms force.

**Ready and Forward Deployed.** Congress’ intent that the Marine Corps serve as the ‘force in readiness’ was founded on a recognized national need for a force capable of rapid response to emerging crises. This requirement mandates high standards of readiness across the force. We are routinely forward deployed around the globe and stand prepared to respond quickly in times of crisis.

**Agile and Adaptable.** The Marine Corps’ agility is based on its expeditionary mindset and flexible structure, able to operate either from the sea or in sustained operations ashore. We can adapt quickly with unparalleled speed across an extraordinary range of military operations. Our organizational design and training facilitate a seamless transition between these operations, providing the necessary capability to operate effectively.

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Marines Take Care of Their Own. We are stewards of the most important resource entrusted to us – our Nation’s sons and daughters. We make Marines, imbue them with our Core Values, and offer them the opportunity to serve a cause greater than themselves. Marines live up to the motto, Semper Fidelis. We are faithful to those who fall and we care for our wounded Marines and their families.

V. Culture and Mentality

The close integration of dissimilar Marine units stems from an organizational culture centered around the infantry. Every other Marine capability exists to support the infantry. Unlike many Western militaries, the Marine Corps remained conservative against theories proclaiming the ability of new weapons to win wars independently. For example, Marine Aviation has always been focused on close air support and has remained largely uninfluenced by airpower theories proclaiming that strategic bombing can single-handedly win wars.

This focus on infantry is matched with the fact that ‘Every Marine is a rifleman,’ emphasizing the infantry combat abilities of every Marine. All enlisted Marines receive training first and foremost as a rifleman; all officers receive training as a rifle platoon commander. The value of this culture has been demonstrated many times throughout history.

VI. Organization

The Marine Corps is a task-organized, multi-capable military organization. It is a middleweight force that lies between our Special Operations Forces and our nation’s heavier forces in the Army with a force that complements both. It is scalable and adaptive and it provides our Nation with a force capable across the range of military operations.

The Marine Air-Ground Task Force (MAGTF) is the Marine Corps’ principal organization. It provides combatant commanders with scalable, expeditionary force able to respond to a broad range of contingency, crisis and conflict situations.

MAGTF (regardless of size) is composed of the following four elements:

1. Ground Combat Element (GCE): Infantry (battalion, regiment, or division) augmented with tank, artillery, Light Armored Reconnaissance (LAR), Amphibious Assault Vehicles (AAV), combat engineers, and reconnaissance assets.
2. Aviation Combat Element (ACE): Contains aircraft to support the tactical situation. Tactical helicopters with fixed wing assets for close air support
3. Logistics Combat Element (LACE): Provides all necessary logistical support to the MAGTF including Transportation, Engineering, Embarkation, Medical/Dental, and Headquarters and Service.
4. Command Element (CE): Administration, intelligence, operations, logistics, communications, medical, legal, chaplain, etc.

Although a MAGTF is a task organization tailored to a specific mission, there are four types of MAGTFs: the Marine Expeditionary Unit (MEU), the Marine Expeditionary Brigade (MEB), the Marine Expeditionary Force (MEF), and the Special Purpose MAGTF (SPMAGTF).
**Marine Expeditionary Force (MEF)**

The MEF is the largest principal war-fighting element in the active force structure of the Marine Corps and is usually commanded by a Lieutenant General. The size and composition of a deployed MEF varies depending on the needs of the mission. Each MEF has one to three Marine Expeditionary Units (MEU) assigned to it that deploy throughout the globe.

![Diagram of MEF structure]

**Marine Expeditionary Brigade (MEB)**

The MEB is the next largest MAGTF structure the Marine Corps employs. Unlike the MEF, which has permanent structure, the MEB is typically stood up for specific theaters and engagements, such as MEB Afghanistan (MEB A), or deployed as a smaller, forward deployed element of the MEF. The MEB is typically commanded by a Brigadier or Major General and is composed of a Regimental Combat Team (RCT), a Marine Air Group (MAG), and a Combat Logistics Regiment (CLR).

![Diagram of MEB structure]

**Marine Expeditionary Unit (MEU)**

In combat and non-combat situations alike, the Marine Expeditionary Unit (MEU) is our nation’s self-contained, forward-deployed response force. Embarked aboard amphibious assault ships, the MEU maintains a constant state of readiness, able to plan and launch a mission within six hours. Each MEU can be customized but generally includes a reinforced infantry battalion, a composite aircraft squadron, and a support group. It is routinely deployed with an Expeditionary Strike Group (ESG).

![Diagram of MEU structure]
**Special Purpose MAGTF (SPMAGTF)**

A special purpose MAGTF (SPMAGTF) may be formed to conduct a specific mission that is limited in scope and focus and often in duration. A special purpose MAGTF may be any Expeditionary Operations size, but normally it is a relatively small force—the size of a Marine expeditionary unit or smaller—with narrowly focused capabilities chosen to accomplish a limited mission. A special purpose MAGTF may be task-organized deliberately from the assets of a standing Marine expeditionary force and deployed from its home base for a particular mission, or it may be formed on a contingency basis from an already deployed MAGTF to perform an independent, rapid-response mission of usually limited scope and duration.\(^3\)

**VII. Locations**

**Locations of Major Air/Ground Elements**

**West Coast**
Camp Pendleton, CA: I MEF, 1st Marine Division, 1st Marine Logistics Group
Marine Corps Air Station (MCAS), Miramar, CA: 3d Marine Aircraft Wing
11th, 13th, 15th MEUs*

**East Coast**
Camp Lejeune, NC: II MEF, 2d Marine Division, 2d Marine Logistics Group,
MCAS, Cherry Point, NC: 2d Marine Aircraft Wing
22nd, 24th, 26th MEUs*

Marine Corps Bases, Okinawa, Japan
III MEF, 3d Marine Division, 3d Marine Logistics Group, 1st Marine Aircraft Wing
31st MEU*

*MEUs are not standing units. The command element of a MEU is a standing command. The units that comprise the GCE, ACE, and LCE rotate after each scheduled deployment. Each particular unit is ‘chopped’ or attached to a MEU for a period of approximately 18 months.

**New Orleans, Louisiana**
Marine Corps Reserves (MARFORRES) – Serves as the headquarters for all Marine Reservists and Reserve units. The four subordinate commands of MARFORRES are the 4th Marine Division, the 4th Marine Aircraft Wing, the 4th Marine Logistics Group, and the Marine Corps Mobilization Command.

**VIII. Rifle Platoon**

The goal of all initial Marine Corps training is to make each Marine a competent element of a Rifle Platoon, either as a platoon commander or a platoon member.

**Mission**

The primary mission of a Marine Rifle Platoon is to locate, close with, and destroy the enemy by fire and maneuver or to repel his assault by fire and close combat.

**Rifle platoon makeup**

The platoon is composed of three rifle squads. Each squad consists of three fire teams. The Rifle Squad is normally employed as part of the rifle platoon and will be assigned a mission as a base of fire or as a maneuver element. The fire team is the basic fire unit and is organized into the following roles.

1. Rifleman – acts as a scout for the fire team, carrying and employing the M16A4 Service Rifle.
2. Team Leader – the Fire team leaders initiate the action directed by the squad leader. In the attack, fire team leaders act as fighter-leaders, controlling their fire teams primarily by example. Fire team members base their actions on the actions of their fire team leader. Throughout the attack,

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fire team leaders exercise such positive control as is necessary to ensure that their fire teams function as directed. He carries and employs the M4 Carbine.

3. Automatic Rifleman – carries the M27 Infantry Automatic Rifle (IAR), providing the bulk of the firepower for the fire team, and serves as the Assistant Fire Team Leader.

4. Grenadier/Assistant Automatic Rifleman – carries and employs the M203 40mm grenade launcher that provides the fire team with an indirect fire asset to compliment the rest of the team’s direct fire weapons. He also carries extra ammunition for the Automatic Rifleman.

The fire team is the smallest and most efficient tactical element in the Marine Corps; this four-man team provides sufficient firepower and exceptional flexibility on the battlefield. Marines depend on the Marines they fight alongside, and nowhere is this commitment more evident—or critical—than in a Marine fire team.

IX. The Four Weapon Safety Rules

There are four weapon safety rules that have been adopted as a foundation for all Marines. These must be strictly adhered to at all times. They are:

- **Rule #1. Treat every weapon as if it were loaded.** When a Marine takes charge of a rifle in any situation, he must treat the weapon as if it were loaded, determine its condition, and continue applying the other safety rules.

- **Rule #2. Never point a weapon at anything you do not intend to shoot.** A Marine must maintain muzzle awareness at all times. This rule exists not only for your safety, but also for the others around you.

- **Rule #3. Keep your finger straight and off the trigger until you are ready to fire.** A target must be identified before moving the finger to the trigger. By keeping your finger straight you prevent the reaction of prematurely firing a round prior to positively identifying the target.

- **Rule #4. Keep the weapon on safe until you intend to fire.** A target must be identified before taking the weapon off safe. This rule is intended to eliminate the chance of the weapon discharging by accident (e.g., brush snagging the trigger). Additionally, this rule acts as a fail safe. It protects you and fellow Marines from allowing an automatic motor-reflex determine when the weapon will fire. Negligent Discharge is usually followed by Non-judicial Punishment.

Before moving from the firing line on the range each weapon will be cleared by visually inspecting the chamber (safety on, magazine removed, bolt pulled to the rear, chamber empty) and verbally stated ‘clear’ by the shooter and also the coach.

Sources:

1. MCDP 1-0: Marine Corps Operations
2. Marine Corps Vision and Strategy 2025
3. USMC Concepts and Programs 2013
5. MCRP 3-1A Rifle Marksmanship
6. FMFM 6-4 Infantry Company/Platoon
I. Rifle Platoon - Individual Weapons

M16A4 Service Rifle

**Primary Function:** Designed for three-round burst or single-shot semi-automatic firing, the M16 is lightweight, yet still pinpoint accurate rifle, capable of hitting targets with precision at a maximum effective range of 550 meters.

- **Caliber:** 5.56x45mm NATO
- **Weight:** 8.79 lbs. (with 30 round magazine)
- **Effective Range:** Area TGT – 800 meters, Point TGT – 550 meters

M4 Carbine

**Primary Function:** Infantry Weapon—less weight and shorter barrel than the M16 making it more appropriate weapon for shorter distances and confined spaces.

- **Caliber:** 5.56x45mm NATO
- **Weight:** 7.5 lbs (with 30 round magazine)
- **Effective Range:** Area TGT – 600 meters, Point TGT – 500 meters

M203 40mm Grenade Launcher

**Primary Function:** The M203 is a single-shot, 40mm grenade launcher that attaches to the M16A4 assault rifle and the M4 Carbine. When targets cannot be accessed by direct fire, Marines use the M203 Grenade Launcher to engage enemies. Typically, this weapon is carried by either the Fire Team’s Grenadier or Fire Team Leader.

- **Caliber:** 5.56x45mm NATO
- **Effective Range:** Area TGT - 350m, Point TGT - 150 meters
M27 Infantry Automatic Rifle (IAR)

**Primary Function:** The M27 is the automatic weapon that delivers accurate suppressive fires in support of the Fire Team. It is a lightweight, magazine-fed 5.56mm weapon. The M27 is intended to enhance an automatic rifleman’s maneuverability and displacement speed.

- **Caliber:** 5.56mmx45mm NATO
- **Weight:** 7.9 lb (3.6 kg) empty
- **Effective Range:** Area TGT 800m, Point TGT 550m

II. Rifle Company/Battalion - Crew Served Weapons

**M249 Light Machine Gun**

**Purpose:** The M249 light machinegun provides Marines with a lighter smaller caliber machinegun that can be used in conjunction with the M240B medium machinegun or depending on the mission as a smaller lighter machinegun that still provides a continuous and high rate of fire to engage long-range targets.

- **Ammunition:** 5.56X45mm NATO-standard ammunition
- **Weight:** 17 pounds with bipod and tools
- **Length:** 41 inches
- **Maximum effective range:** 1000 meters
- **Maximum range:** 3600 meters
- **Rate of fire:** 85 rounds/minute sustained, 725-850 rounds/minute cyclic
- **Capacity:** Ammunition comes in 100- or 200-round belts. The SAW can also accept the standard 30-round M16 magazine

**M240B Medium Machine Gun**

**Purpose:** The M240 Machinegun provides Marines with a continuous and high rate of fire to engage long-range targets. It is a heavier automatic weapon than the M249 Squad Automatic Weapon (SAW) but provides a faster rate of fire and a longer effective range. Typically, the tripod is employed when the weapon is to be used for defensive situations, or when precise fire is needed in support of maneuver units. The bipod is always attached and is suitable for use while patrolling.
**Ammunition:** 7.62mm  
**Weight with bipod:** 24 pounds  
**Maximum effective range with tripod:** 1,800 meters  
**Maximum range:** 3,725 meters  
Can be mounted on tanks and light armored vehicles

**MK-153 Shoulder Launched Multipurpose Assault Weapon (SMAW)**

**Purpose:** Portable anti-armor rocket launcher. Its mission is to destroy bunkers and other fortifications during assault operations as well as other designated targets with the dual mode rocket and to destroy main battle tanks with the HEAA rockets.  
**Ammunition:** 83mm  
**Weight:**  
To Carry: 16.6 pounds (7.54 kg)  
Ready-to-Fire (HEDP): 29.5 pounds (13.39 kg)  
Ready-to-Fire (HEAA): 30.5 pounds (13.85 kg)  
**Maximum effective range:**  
1 x 2 Meter Target: 250 meters  
Tank-Sized Target: 500 meters

**MK19 Mod 3 Automatic Grenade Launcher**

**Purpose:** At the smallest unit level, the lightest weapons often carry the day, as maneuverability is one of the primary assets of a Marine fireteam. When high-volume, suppressive fire support is required, there are few weapon systems as effective as the MK19 Mod 3 Automatic Grenade Launcher. Capable of destroying most light-armored vehicles, protecting supply convoys, and even defending against hovering rotary aircraft, the MK19 provides Marine infantry battalions with the means to deliver massive direct fire or indirect fire from hidden positions. The MK19 rapidly fires explosive 40mm grenades, making it an ideal weapon against armored, mechanized, and enemy infantry forces.  
**Ammunition:** High-explosive, dual-purpose M430 40x53mm grenades  
**Weight:** 72.5 pounds  
**Weight with tripod:** 120 pounds  
**Maximum effective range:** 1,500 yards  
**Nearest safe distance to launch:** 75 meters in combat/310 meters in training
.50 Caliber Machine Gun

**Purpose:** The Browning .50 Cal Machine gun provides Marines with automatic weapon suppression fire for offensive and defensive purposes. This weapon can be used effectively against enemy personnel, light armored vehicles, and slow, low-flying aircraft.

**Ammunition:** .50 caliber rounds  
**Weight:** 124 pounds (84-pound gun; 44-pound tripod)  
**Length:** 65.13 inches  
**Maximum effective range:** 1,829 meters with tripod mount

FGM-148 JAVELIN

**Purpose:** The greatest assets to Marines fighting on the ground are maneuverability and firepower, and perhaps no weaponry provides a better combination of both than the FGM-148 Javelin Anti-tank Missile. In fact, after firing the Javelin, Marines can begin moving to a different area before the missile even reaches its target, preventing the enemy from discovering their position.

BGM-71 TOW Missile

**Purpose:** Tube launched, optically tracked wire-guided anti-tank missile capable of penetrating armor 30-inches thick at more than 3,000 meters.
Purpose: Marines are known for their exceptional ability to work cohesively as a unit, and nowhere is this more evident than when mortar teams are providing effective, indirect fire on a target. With 60mm and 81mm mortars, Marines work together to provide constant and accurate high-angle suppressive fire on targets they may not be able to even see. Marine mortar teams locate targets by converting chart data to firing data, delivering mortar fire in timely response to the ground units they support.

Features: Serving as lightweight, portable artillery, mortars are fired by dropping each round into the muzzle. The round slides down the base of the barrel where it strikes the firing pin located inside the base cap. The flame from the exploding cartridge ignites the propelling charge, producing the gas pressure that drives the round up and out of the barrel, high into the air. After it has reached its apogee, the mortar round falls to the target.

Types of Mortars: 60mm mortars are organic to the rifle company and have a range of 3,500 meters. 81mm mortars are an asset of the infantry battalion and have a range of 5,700 meters. Both mortars can fire:
- High Explosive (HE) shells (several varieties) – Effective against lightly armored targets, personnel and fortifications
- Smoke rounds – Effective as a screening or signaling round
- Illumination rounds – Effective in night missions requiring illumination of an enemy target

III. Additional Weapons and Platforms

M777 Howitzer
Purpose: Marines on the ground rely on the Marines by their side, but they also depend on Marine fire support from long range. The M777 Lightweight 155mm howitzer provides timely, accurate, and continuous firepower in support of Marine Infantry forces. In 2005, the Marine Corps began fielding the M777, a much smaller, lighter (9,000 pounds lighter) and more maneuverable towed cannon weapon than its predecessor, resulting in improved transportability and mobility without impacting range or accuracy. 7-ton trucks are used to move the M777s, enabling Marine artillery units to move faster between positions. A must for equipment in an expeditionary force, the howitzer is also highly deployable, able to be lifted externally by both the MV-22 Osprey and CH-53E Super Stallion.

High Mobility Multipurpose Wheeled Vehicle (HMMWV)

Purpose: Since the mid-1980s, there has not been a Marine vehicle more utilized for a wider variety of missions than the Marine HMMWV. Operating on every area of the battlefield, Marine HMMWVs are truly multipurpose vehicles, serving such functions as command and control, troop transport, shelter carrier, towed weapons mover, armament carrier, TOW missile system carrier and even ambulance. For Marine units requiring specific vehicle configurations, Marine HMMWVs have several kits that can be easily installed to meet the requirements of each mission.

Features: 6.2 Litre, V8 diesel engine; 3 speed, automatic transmission; Four-wheel drive, independent rear suspension; Can be mounted with the M2 .50 cal, M240 or M249 machinegun; Fording capable with deep-water fording kit installed; Armored plating and bullet-resistant glass can be mounted.

M142 High Mobility Artillery Rocket System (HIMARS)

Purpose: Transportable by the KC-130 Super Hercules, the HIMARS is the Marine Corps’ most advanced artillery system, accurately engaging targets over great distances under all weather conditions. With high volumes of lethal rocket and missile fire, the HIMARS delivers precise strikes from over 40 miles away. A weapon system mounted on a truck, the HIMARS provides fire support for Marines fighting in every corner of the battlefield.
Features: From 40 miles out, HIMARS munitions are accurate within 26 feet; Six tubes hold 200-pound rockets; Crew of three Marines; 24,000 pounds; Fires M270 artillery rockets and anti-aircraft missiles; Ready to fire within 15 minutes of being unloaded; Consists of a launcher, carrier and a Fire Control System; Able to launch rockets and move to a different location before the enemy can locate its firing position.

Medium Tactical Vehicle Replacement (MTVR)

Purpose: With a highly survivable armor package, off-road mission profile and large cargo and crew compartment, the MTVR brings Marines and supplies to the fight fast, even in the most austere environments. The MTVR Armor System (MAS) provides complete 360-degree protection, including overhead and underbody armor that can withstand small-arms fire, Improvised Explosive Devices (IEDs) and mine blasts. In addition to transporting Marines and hauling fuel, water, food and supplies on paved roads, dirt roads or makeshift roads, the MTVR is also the primary mover of the M777 Lightweight 155mm howitzer.

Features: Can transport up to 15 tons of payload at a maximum speed of 65 miles per hour, Cargo compartment is 26 feet long, 8 feet wide and 12 feet high, Can ford five feet of water, all MTVR model variants can carry three Marines in the cab, Independent suspension provides excellent off-road maneuverability, Features a central tire inflation system

Light Armored Vehicle (LAV-25)

Primary function: Marines are known for being adaptable, versatile, and reliable. With numerous variants and a proven track record on the battlefield, the LAV-25 has also earned this reputation. Marine Light Armored Vehicles combine speed, maneuverability, and firepower to perform a variety of functions, including security, command and control, reconnaissance and assault. Able to operate on land and in water, carry communications equipment and provide a weapons platform, the LAV is not just part of a
combined arms force—it is one.

**Features:** Can drive in 4- or 8-wheel drive; Can reach speeds of 62.5 mph on land; Powerful diesel fuel engine; 360-degree traversing turret; Armed with 25mm cannon and two M240 machine guns; Operated by a crew of three Marines; Includes two 4-barrel smoke grenade launchers

**Mine-Resistant Ambush-Protected (MRAP) Vehicle/MRAP All-Terrain Vehicle (MATV)**

![Mine-Resistant Ambush-Protected (MRAP) Vehicle/MRAP All-Terrain Vehicle (MATV)](image)

**Purpose:** With V-shaped hulls, raised chassis and armored plating, the Mine Resistant Ambush Protected Vehicle (MRAP) and MATV have proven to be the single most effective counter to Improvised Explosive Devices (IEDs). Blast-resistant underbodies and layers of thick, armored glass offer unparalleled protection, while all-terrain suspension and run flat combat tires ensure Marines can operate in complex and highly restricted rural, mountainous, and urban terrains.

**M1A1 Abrams Tank**

![M1A1 Abrams Tank](image)

**Purpose:** Marine equipment is not typically described as being ‘heavy,’ but exceptions can be made when ‘heavily armored’ and ‘heavily armed’ are also part of the description. At close to 70 tons, the M1A1 Abrams is among the heaviest tanks in the world, but it more than makes up for its heft with tremendous firepower and surprising maneuverability. The principal battle tank of the Marine Corps, the M1A1 provides armor-protected firepower in support of Marine ground forces.

**Features:** Bulk of firepower comes from its 120mm smoothbore main gun; Mounted guns include a M2 .50 cal machine gun and two M240 machine guns; 2 six-barreled smoke grenade launchers; Powered by a 1,500 horsepower gas turbine power plant system; Speeds top out at approximately 41 mph; Ammunition is stored in a blowout compartment for crew safety; Operated by a crew of four Marines; Six periscopes provide 360-degree view.
**Assault Amphibian Vehicle (AAV)-7**

*Purpose:* From ship to shore to objective, no equipment better defines the distinction and purpose of Marine Corps expeditionary capabilities than the AAV-7 Amphibious Assault Vehicle. Designed to assault any shoreline from the well decks of Navy assault ships, AAVs are highly mobile, tracked armored amphibious vehicles that transport Marines and cargo to and through hostile territory.

*Features:* Typically, the first vehicles to land during beach raids and assaults; All-welded aluminum hull protects crew from small arms fire; Eight smoke grenade launchers; Turret armed with .50 cal machinegun and 40mm grenade launcher; Can be outfitted with Mine Clearance Line Charges; Operates at speeds of 45mph on land; 8-10 knots in water; Can carry 21 combat-loaded Marines and 3 crewmembers; Can transport 10,000 pounds of cargo; Can fire on land and water; Enough fuel to drive 300 miles inland.

**AH-1Z Super Cobra/Viper**

*Purpose:* No aircraft defines the role of close air support better than the Marine AH-1 Super Cobra/Viper. Whether it is providing cover for advancing ground forces or escorting assault support helicopters en route to a landing zone, the AH-1Z is called on when Marines need firepower from the air.

*Features:* Able to project multiple missiles, rockets and 20mm cannon fire on targets otherwise inaccessible, the AH-1 has played a major role in every U.S. military conflict since Vietnam. Today it continues to provide the precision, armament, and tactical situational awareness to fight in close proximity with our Marines below. Equipped with enhanced navigation displays that distinguish friends from enemies, data transfer systems that deliver real-time aerial reconnaissance to Marines on the ground and composite rotor blades and tail booms that can withstand 23mm cannon fire, the Marine AH-1 is the perfect example of why Marine Aviation has been called ‘flying artillery.’
**UH-1Y Huey/Venom**

**Purpose:** No single aircraft provides a better blend of all six Marine Aviation functions than the Marine UH-1. A case study in Offensive Air Support, Assault Support, Command and Control, and Aerial Reconnaissance, the Marine utility helicopter of choice is truly a microcosm of Marine Aviation. With low-flying AH-1s aimed in on the hostile street ahead and hovering UH-1s covering adjacent rooftops, combat Marines can engage under the watchful eye of close air support.

**Features:** When outfitted with door-mounted .50 caliber and 7.62 machine guns and teamed alongside AH-1s, Marine UH-1s arm MAGTF commanders with unprecedented response, situational awareness and a 360-degree field of fire support for advancing ground forces. Currently, all Marine UH-1N Hueys are being replaced with four-bladed UH-1Y Venoms featuring upgraded glass cockpit avionics, a new satellite data link network, a 125% boost in payload and 50% increase in range and speed. Now, with the power to keep up with the larger helicopters they escort, utility helicopters will continue to support Marines for decades to come.

**CH-53E Sea Stallion/Super Stallion Helicopter**

**Purpose:** The heavy-lift helicopter of the Marine Corps can carry a 26,000-pound Light Armored Vehicle, 16 tons of cargo 50 miles and back, or enough combat-loaded Marines to lead an assault or humanitarian operation; but perhaps what’s most amazing about the largest military helicopter in the U.S. is what it achieves despite its size. Though powerful enough to lift every aircraft in the Marine inventory except the KC-130, the CH-53E Super Stallion is compact enough to deploy on amphibious assault ships, and has the armament, speed, and agility to qualify as much more than a heavy lifter.

**Features:** Armed with window-mounted .50-caliber machine guns, chaff and flare dispensers for anti-air defense, an in-flight refueling probe for limitless range and a forward-looking infrared (FLIR) imager for night and all-weather navigation, the Marine CH-53E is commonly called on for assault transport of Marine ground forces. Though long-range insertion missions are standard protocol for this Marine workhorse, it is the rapid resupply of Marines at the forefront that makes the Super Stallion one of the most used aircraft in Marine Aviation.
MV-22 Osprey Tiltrotor

**Purpose:** With the speed and range of a turboprop, the maneuverability of a helicopter and the ability to carry 24 Marine combat troops twice as fast and five times farther than previous helicopters, the Osprey greatly enhances the advantages Marines have over their enemies. The Osprey’s impact was felt immediately upon its arrival in Iraq. Commenting on its advanced expeditionary capabilities and staggering operational reach, a top Marine commander went as far as to say it turned his battle space “from the size of Texas into the size of Rhode Island.”

**Features:** Designed for expeditionary assault, raid operations, cargo lift and special warfare; Built with composite materials, fly-by-wire flight controls, digital cockpits; Vertical takeoff and landing, and short takeoff and landing capabilities; In-flight refueling.

F/A-18 Hornet

**Purpose:** A basic tenet of all Marine aircraft is the requirement for usability in multiple missions, and the Marine F/A-18 upholds this doctrine. Able to be quickly configured for fighter or attack missions, or a combination of both, the twin-engine, all-weather, day or night Marine jet can be used for fighter escort, enemy air defense suppression, reconnaissance, air control and the calling card of Marine Aviation: close air support.

**Features:** With external and internal weapon stations able to deliver Sparrow, AMRAAM and Sidewinder air-to-air missiles, air-to-ground munitions in the form of Harpoon and Maverick missiles, general purpose, cluster and laser-guided bombs, and a 6-barrel 20mm gun in the nose section for extremely close encounters, few aircraft in the world are counted on as heavily as the F/A-18 Hornet.
**AV-8B Harrier II**

**Purpose:** Representing, arguably, the greatest breakthroughs in aircraft technology, the Harrier was the first VSTOL-capable (vertical/short takeoff and landing) jet in the Marine inventory, giving MAGTF commanders new flexibility on the battlefield. With the ability to attack anywhere, the Harrier forces the enemy to defend everywhere, exposing vulnerabilities the enemy must divert resources to protect.  
**Features:** 22,000 pounds of thrust enable the Harrier II to hover like a helicopter, and then blast forward like a jet at near-supersonic speeds. Like every aircraft in the Marine fleet, this aircraft is used for multiple missions, which include attacking and destroying surface and air targets, escorting helicopters, engaging in air-to-air defense, providing reconnaissance and applying offensive and defensive support with its arsenal of missiles, bombs and an onboard 25mm cannon. Offering the versatility to conduct almost any mission, the Harrier II provides the ideal blend of firepower and mobility to effectively counter enemies engaged by our ground forces.

**EA-6B Prowler**

**Purpose:** It is the ability of the EA-6B Prowler to neutralize enemy air defenses that enables Marines to gain the air superiority needed for mission success. Enemy air defenses rely on early warning radar to indicate an impending air strike. But to acquire a signal, they have to send a signal, and it is the electronic warfare equipment arming Marine Prowlers that illuminates these electronic footprints. The Marine Prowler’s ability to detect, sort, classify, jam, and destroy air defenses leaves the enemy with two options: leave the radar on, or turn it off. Either way, their defenses are reduced to expensive but useless metal.  
**Features:** Information is not allowed to return to an enemy’s radar because EA-6Bs intercept it first, and the methods by which these signals can be exploited are numerous. Marine Prowlers are equipped with five tactical jamming pods, electronic surveillance systems, radar-seeking HARM missiles, non-kinetic fire systems that leave electronic equipment disabled but intact, and countermeasures that mask the approach of our nearby ground-attack aircraft. The Marine Corps expects to retire the last Prowler by October 2016.
**Strike Fighter**

The **F-35C Lightning II** is the replacement for the aging F/A-18A/C. Variants of the F-35 will be used by the Air Force (A-Variant), Marine Corps (B-Variant with V/STOL capability), and Navy (C-Variant with carrier capability), as well as a number of international partners. The Marine Corps is the first service to stand-up an operational squadron.

**KC-130J Hercules**

**Purpose:** To achieve the global reach and rapid deployability our nation requires, Marine Aviation must be able to deliver Marines, fuel, and cargo where needed. Answering the call is the Marine KC-130 Hercules. A tactical tanker/transport aircraft that stretches more than 90 feet in length and 130 feet wing to wing, the KC-130 Hercules can resupply austere battle zones, provide a Direct Air Support Center, insert ground troops, and perform medevac operations. It is during the mission of tactical aerial refueling, however, that the Marine KC-130 has earned the reputation for being best in the world.

**Features:** Able to carry more than 12,000 gallons of fuel and simultaneously refuel two aircraft at 300 gallons a minute, the Hercules has been called the workhorse of Marine Aviation. Recently, the first armed version of the Marine KC-130 was employed—named the Harvest HAWK (Hercules Airborne Weapons Kit). With the ability to deliver air-to-ground Hellfire missiles, precision-guided bombs, and 30mm autocannon rounds, Marines in the air now have another way to support Marines on the ground.
**RQ-7B Shadow**

**Purpose:** The recent development and fielding of Unmanned Aircraft Systems (UAS) has delivered even more capabilities to our Marines. One such aircraft, the RQ-7B Shadow, is deployed in squadrons as an asset of the Marine Expeditionary Force or Marine Expeditionary Brigade. Designed to provide reconnaissance, relay communications and assist in target acquisition, the RQ-7B Shadow keeps an eye above the battlefield for extended periods of time, constantly relaying information between Marine air and ground controls. The Shadow enhances the capabilities of Marine commanders across the spectrum of military operations and was first deployed during Operation Iraqi Freedom in September 2007.

**Features:** Remotely piloted; Conducts reconnaissance, surveillance, target acquisition, indirect fires adjustment, battlefield damage assessment and rear area security support; Equipped with electro-optical and infrared (EO/IR) sensors, communications relay payloads and laser designators; Video and laser targeting is used to locate enemy positions; Launched from a trailer-mounted pneumatic catapult; Fixed, 3-wheel landing gear; Total endurance time up to 6 hours; max speed 135 mph; gross weight 375 lbs; range 68 miles.

**Sources:**
1. [http://www.marines.com/operating-forces/equipment](http://www.marines.com/operating-forces/equipment)
WEEK 17: CURRENT GLOBAL CHALLENGES

I. State Based Challenges

Information for this module is drawn from the fundamental strategic guidance of the U.S. government. The National Security Strategy Report (NSS) is a White House publication intended to articulate the global security interests, goals, and objectives of the United States (source: National Security Strategy Archive, http://nssarchive.us/). From this Presidential guidance, the Department of Defense (DoD) crafts the Quadrennial Defense Review (QDR). The QDR meets the legislative mandate for a review of DoD strategy and priorities. The QDR assesses threats and challenges, and adjusts strategies, capabilities, and forces to address current and future threats (Source: Strategic Defense Reviews).

In addition to this guidance, the DoD annually provides threat assessment reports to Congress. The Director, Defense Intelligence Agency (DIA) appears before Congressional committees to provide ‘assessments based upon the agency’s worldwide human intelligence, technical intelligence, counterintelligence, and document and media exploitation capabilities, along with information from DIA’s partners in the Intelligence Community (IC) and the entire defense intelligence enterprise, international allies, and open sources.’ U.S. law also requires the DoD to report annually on the military and security developments of China and, separately, North Korea.

These documents are carefully reviewed and scrutinized to properly represent the available intelligence and official U.S. government intentions. As such, the majority of this module is comprised of direct excerpts in order to avoid misstatements or ambiguities:

Regional challenges from state actors are highlighted in both the NSS and QDR, specifically China, North Korea, Iran, and Russia. These states are part of a ‘broad array of threats and opportunities’ confronting the U.S., including threats from non-state actors (terror groups, private citizens) and global trends (aging, technological change, climate change). Never the less, these four states – due to a range of factors such as military capability, intentions, geography, and political institutions – are the principal state based challenges to U.S. national security in the near term.

China

Bottom Line Up Front (BLUF): The rapid pace and comprehensive scope of China’s military modernization continues, combined with a relative lack of transparency and openness from China’s leaders regarding both military capabilities and intentions. There is greater risk that tensions over long-standing sovereignty disputes or claims to natural resources will spur disruptive competition or erupt into conflict, reversing the trends of rising regional peace, stability, and prosperity in the Asia-Pacific region. (Source: 2014 Quadrennial Defense Review)

THE PEOPLE’S REPUBLIC OF CHINA (PRC) the long-term, comprehensive modernization of the armed forces of the People’s Republic of China (PRC) entered a new phase in 2015 as China unveiled sweeping organizational reforms to overhaul the entire military structure. These reforms aim to strengthen the Chinese Communist Party’s (CCP) control over the military, enhance the PLA’s ability to conduct joint operations, and improve its ability to fight short-duration, high-intensity regional conflicts at greater
distances from the Chinese mainland. China’s leaders seek ways to leverage China’s growing military, diplomatic, and economic clout to advance its ambitions to establish regional preeminence and expand its international influence. Chinese leaders have characterized modernization of the People’s Liberation Army (PLA) as essential to achieving great power status and what Chinese President Xi Jinping calls the ‘China Dream’ of national rejuvenation. They portray a strong military as critical to advancing Chinese interests, preventing other countries from taking steps that would damage those interests, and ensuring that China can defend itself and its sovereignty claims. (Source: 2016 DoD Annual Report on China)

Throughout 2015, China continued to assert sovereignty claims over features in the East and South China Seas. In the East China Sea, China continued to use maritime law enforcement ships and aircraft to patrol near the Senkaku (Diaoyu) Islands in order to challenge Japan’s claim. In the South China Sea, China paused its land reclamtion effort in the Spratly Islands in late 2015 after adding more than 3,200 acres of land to the seven features it occupies in the archipelago. Although these artificial islands do not provide China with any additional territorial or maritime rights within the South China Sea, China will be able to use them as persistent civil-military bases to enhance its long-term presence in the South China Sea significantly. (Source: 2016 DoD Annual Report on China)

China demonstrated a willingness to tolerate higher levels of tension in the pursuit of its interests, especially in pursuit of its territorial claims in the East and South China Sea; however, China still seeks to avoid direct and explicit conflict with the United States. China’s leaders understand that instability or conflict would jeopardize the peaceful external environment that has enabled China’s economic development, which is central to the perpetuation of the CCP’s domestic legitimacy. In the near-term, China is using coercive tactics short of armed conflict, such as the use of law enforcement vessels to enforce maritime claims, to advance their interests in ways that are calculated to fall below the threshold of provoking conflict. (Source: 2016 DoD Annual Report on China)

In the long term, Chinese leaders are focused on developing the capabilities they deem necessary to deter or defeat adversary power projection and counter third-party— including U.S.— intervention during a crisis or conflict. China’s military modernization is producing capabilities that have the potential to reduce core U.S. military technological advantages. China’s officially disclosed military budget grew at an average of 9.8 percent per year in inflation-adjusted terms from 2006 through 2015, and Chinese leaders seem committed to sustaining defense spending growth for the foreseeable future, even as China’s economic growth decelerates. (Source: 2016 DoD Annual Report on China)

As China’s global footprint and international interests grow, its military modernization program has become more focused on investments and infrastructure to support a range of missions beyond China’s periphery, including power projection, sea lane security, counter piracy, peacekeeping, and humanitarian assistance/disaster relief (HA/DR). PLA global operations in 2015 included counter piracy patrols, humanitarian assistance and disaster relief, exercises, and sea-lane security operations. China’s November 2015 public confirmation of its intention to build its first overseas military support facility in Djibouti likely reflects this more global outlook, as it will be utilized to sustain the PLA Navy’s operations at greater distances from China. (Source: 2016 DoD Annual Report on China)

During 2015, the PLA continued to improve key capabilities that would be used in theater contingencies, including cruise missiles; short, medium, and intermediate-range ballistic missiles; high performance aircraft; integrated air defense networks; information operations capabilities; and amphibious and airborne assault units. The PLA is developing and testing new intermediate- and medium-range conventional ballistic missiles as well as long-range, land-attack, and anti-ship cruise missiles, which once operational would extend the military’s reach and push adversary forces further from potential regional conflicts. China is also focusing on counterspace, offensive cyber operations, and electronic warfare (EW) capabilities meant to deny adversaries the advantages of modern, information technology-driven warfare. (Source: 2016 DoD Annual Report on China)

The United States welcomes the rise of a stable, peaceful, and prosperous China. We seek to develop a constructive relationship with China that delivers benefits for our two peoples and promotes security and prosperity in Asia and around the world. We seek cooperation on shared regional and global challenges
such as climate change, public health, economic growth, and the denuclearization of the Korean Peninsula. While there will be competition, we reject the inevitability of confrontation. At the same time, we will manage competition from a position of strength while insisting that China uphold international rules and norms on issues ranging from maritime security to trade and human rights. We will closely monitor China’s military modernization and expanding presence in Asia, while seeking ways to reduce the risk of misunderstanding or miscalculation. On cybersecurity, we will take necessary actions to protect our businesses and defend our networks against cyber-theft of trade secrets for commercial gain whether by private actors or the Chinese government. (Source: 2015 National Security Strategy)

**North Korea**

**BLUF:** As many Asia-Pacific countries seek to achieve greater prosperity, establish regional norms, and strive for a stable military balance, North Korea remains closed and authoritarian. North Korea’s long-range missile and weapons of mass destruction (WMD) programs – particularly its pursuit of nuclear weapons in contravention of its international obligations – constitutes a significant threat to peace and stability on the Korean Peninsula and in Northeast Asia and is a growing, direct threat to the United States. (Source: 2014 Quadrennial Defense Review)

The Democratic People’s Republic of Korea (DPRK or North Korea) remains one of the most critical security challenges for the United States and the broader international community. In particular, North Korea’s willingness to undertake provocative and destabilizing behavior, including attacks on the Republic of Korea (ROK), its continued development of nuclear weapons and long-range ballistic missiles, and its proliferation of weapons in contravention of United Nations Security Council resolutions (UNSCRs) pose a serious threat to the United States, the region, and the world. (Source: 2015 DoD Annual Report on DPRK)

Since assuming control in December 2011, Kim Jong Un’s regime has used force and the threat of force combined with inducements to quell domestic dissent and strengthen internal security; co-opt the North Korean military and elites; develop strategic military capabilities to deter external attack; and challenge the ROK and the U.S.-ROK Alliance. In April 2013, Kim announced the ‘byungjin’ policy, which emphasizes the parallel development of the country’s economy and nuclear weapons program, to reinforce his regime’s domestic, diplomatic, economic, and security interests. (Source: 2015 DoD Annual Report on DPRK)

North Korea fields a large, conventional, forward-deployed military that retains the capability to inflict serious damage on the ROK, despite significant resource shortfalls and aging hardware. The U.S.-ROK Alliance has deterred large-scale conventional attacks by maintaining a robust combined defense posture and strong military readiness. North Korea’s continued pursuit of nuclear technology and capabilities and development of intermediate- and long-range ballistic missile programs underscore the growing threat it
poses to regional stability and U.S. national security. North Korea’s pursuit of a submarine-launched ballistic missile capability also highlights the regime’s commitment to diversifying its missile force, strengthening the missile force’s survivability, and finding new ways to coerce its neighbors. Furthermore, North Korea continues to proliferate ballistic missile technology prohibited under UNSCRs 1718, 1874, 2087, and 2094, exacerbating the security challenge for the United States and the international community. (Source: 2015 DoD Annual Report on DPRK)

We must stay ahead of limited ballistic missile threats from regional actors such as North Korea, seeking to deter attacks or prevent them before they occur. To do this, we are increasing our emphasis on actively countering ballistic missile challenges by detecting missiles and continuously defending the U.S. homeland at longer ranges and at all altitudes. The ability to deter and defeat these kinds of threats protects the United States, reassures our allies and partners, and preserves strategic stability with Russia and China. (Source: 2014 Quadrennial Defense Review)

Given the continued and growing threat from North Korea, its nuclear and missile programs, and its proliferation of related technology, the U.S. Department of Defense will continue to manage the North Korean security challenge through close coordination and consultation with the international community, particularly the ROK and Japan. The United States remains vigilant in the face of North Korea’s continued provocations and steadfast in its commitments to allies in the region, including the extended deterrence commitments provided through both the nuclear umbrella and conventional forces. (Source: 2015 DoD Annual Report on DPRK)

We will strengthen U.S. and international capacity to prevent conflict among and within states. In the realm of inter-state conflict, Russia’s violation of Ukraine’s sovereignty and territorial integrity—as well as its belligerent stance toward other neighboring countries—endangers international norms that have largely been taken for granted since the end of the Cold War. Meanwhile, North Korean provocation and tensions in the East and South China Seas are reminders of the risks of escalation. American diplomacy and leadership, backed by a strong military, remain essential to deterring future acts of inter-state aggression and provocation by reaffirming our security commitments to allies and partners, investing in their capabilities to withstand coercion, imposing costs on those who threaten their neighbors or violate fundamental international norms, and embedding our actions within wider regional strategies. (Source: 2015 National Security Strategy)

Vigilance is required to stop countries and non-state actors from developing or acquiring nuclear, chemical, or biological weapons, or the materials to build them. The Nuclear Security Summit process has catalyzed a global effort to lock down vulnerable nuclear materials and institutionalize nuclear security best practices. Our commitment to the denuclearization of the Korean Peninsula is rooted in the profound risks posed by North Korean weapons development and proliferation. (Source: 2015 National Security Strategy)

Iran

BLUF: In the Middle East region, Iran remains a destabilizing actor that threatens security by defying international law and pursuing capabilities that would allow it to develop nuclear weapons. In July 2015, Iran agreed to conditions that could drastically rollback its nuclear program in exchange for the lifting of international economic sanctions. Even if this agreement successfully curbs Iran’s nuclear ambitions, Iran’s other destabilizing activities will continue to pose a threat to the Middle East, especially to the security of our allies and partners in the region and around the world. (Source: 2014 Quadrennial Defense Review & analysis reflecting current events)
For decades, the Islamic Republic of Iran has endangered the security of the region and the United States and failed to live up to its international responsibilities. In addition to its illicit nuclear program, it continues to support terrorism, undermine peace between Israelis and Palestinians, and deny its people their universal rights. Many years of refusing to engage Iran failed to reverse these trends; on the contrary, Iran’s behavior became more threatening. We have made clear Iran must meet its international obligations and demonstrate its nuclear program is entirely peaceful. Our sanctions regime has demonstrated that the international community can— and will—hold accountable those nations that do not meet their obligations, while also opening up a space for a diplomatic resolution. Having reached a first step arrangement that stops the progress of Iran’s nuclear program in exchange for limited relief, our preference is to achieve a comprehensive and verifiable deal, which as of July 2015 appears to be coming to fruition that assures Iran’s nuclear program is solely for peaceful purposes. This is the best way to advance our interests, strengthen the global nonproliferation regime, and enable Iran to access peaceful nuclear energy. However, we retain all options to achieve the objective of preventing Iran from producing a nuclear weapon. (Source: 2012 & 2014 National Security Strategies)

Iran remains a threat to regional stability as its national interests often diverge from our own and those of our regional allies. Iran’s national security priorities are ensuring regime survival, expanding regional influence, and enhancing Tehran’s military capabilities and deterrence posture. Iran’s security strategy is based on deterrence, withstanding an initial strike should deterrence fail, and retaliating to force a diplomatic resolution. Iran uses underground facilities and denial and deception extensively to conceal and protect its strategic assets. We do not anticipate changes to this security posture in 2016. Iran will focus on defending allies in Syria, Iraq, and Yemen, with its actions intended to increase regional influence at Western expense. (Source: 2015 Defense Intelligence Agency Worldwide Threat Assessment & 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee)

In January 2016, Iran fulfilled key commitments under the Joint Comprehensive Plan of Action (JCPOA). This extended the timeline for Iran to gather enough fissile material to build a weapon to about a year. In exchange, Iran received sanctions relief under the agreement, but such economic relief is unlikely to have an immediate impact on Iran’s military capabilities. Over the long term, however, economic growth could support its conventional military priorities such as ballistic and cruise missiles, naval systems, unmanned aerial vehicles (UAVs), and air and air defense systems. Iran’s ballistic missiles are capable of striking targets throughout the region, ranging as far as southeastern Europe. Iran stated publicly it intends to launch the Simorgh Space-Launch Vehicle (SLV), which would be capable of intercontinental ballistic missile (ICBM) ranges if configured as such. This test launch could occur in 2016. Iran continues to develop additional anti-access/area denial capabilities. The Navy is fielding increasingly lethal weapons, to include mines that are more advanced, small submarines, armed UAVs, attack craft, and ship and shore based anti-ship capable cruise missiles. Tehran is also prioritizing the improvement of its air and air defense forces. (Source: 2015 Defense Intelligence Agency Worldwide Threat Assessment & 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee)
The survival and stability of its key Iraqi and Syrian allies is an Iranian priority. Islamic Revolutionary Guard Corps-Qods Force and Lebanese Hizballah are important foreign policy instruments, and provide Tehran the ability to project power in Iraq, Syria, Yemen, and beyond. In 2016, we expect Iran and Hizballah to increase the provision of training, materiel, and funding to forces defending the Syrian Regime. In Iraq, Iran and Hizballah train and advise Iraqi Shia militant groups, and provide training and equipment to Government of Iraq forces. Iranian advisers have planned and led operations against ISIL. Iranian-supported Iraqi Shia groups also warn of their willingness and preparedness to fight U.S. forces in Iraq. Although almost certainly not at the direction of Iran or group leadership, low-level Shia group members may have conducted attacks against coalition aircraft and personnel. In late 2015, Iran deployed over 1,000 ground troops to engage in combat operations in Syria. The arrival of Iranian ground forces coincided with the start of Russian airstrikes and increased Russian support to pro-regime operations. Tehran and Moscow have deepened their cooperation and are coordinating operations in Syria to preserve their Syrian ally, while also participating in diplomatic talks aimed at ending the conflict. (Source: 2015 Defense Intelligence Agency Worldwide Threat Assessment & 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee)

In July 2015, negotiations aimed at preventing Iran from acquiring nuclear weapons and heading off a regional nuclear arms competition resulted in the Joint Comprehensive Plan of Action (JCPOA) between Iran and the P5+1 countries (China, France Germany, Russia, the United Kingdom and the United States). The JCPOA provides for deep reductions in Iran’s existing uranium enrichment capacity and the re-design of its planned plutonium-production reactor, which together effectively eliminates its capability to produce fissile materials for nuclear weapons for at least ten to fifteen years. In return, the significant economic sanctions were lifted. Reactions to this deal have been divided within the United States and throughout the world. Critics claim that this deal will only delay and not prevent a nuclear-armed Iran; does not impede Iran’s destabilizing regional behavior and will even worsen the problem; and is a part of a regional realignment unfavorable to America’s traditional partners. (Source: Brookings Institute, The Iran Nuclear Deal: Prelude to Proliferation in the Middle East)

**Russia**

BLUF: Russia’s multi-dimensional defense modernization and actions that violate the sovereignty of its neighbors present risks. We will engage Russia to increase transparency and reduce the risk of military miscalculation. The United States is willing to undertake security cooperation with Russia, both in the bilateral context and in seeking solutions to regional challenges, when our interests align, including Syria, Iran, and post-2014 Afghanistan. (Source: 2014 Quadrennial Defense Review)

Moscow continues to devote major resources to modernizing its military forces, viewing military power as critical to achieving key strategic objectives: acknowledged great power status, dominating smaller regional states and deterring NATO from military action in Eurasia. Russian leadership considers a capable and survivable nuclear force as the foundation of its strategic deterrent capability, and modernized, agile general purpose forces as vital for Eurasian and limited out-of-area power projection. Moscow’s assertive pursuit of foreign policy and security objectives includes military involvement in Ukraine, operations in Syria and expansion of its military capabilities in the Arctic. Last year, the Russian military continued its
robust exercise schedule and its aggressive, and sometimes provocative, out-of-area deployments. We anticipate similar high levels of military activity in 2016, although Moscow’s military modernization efforts will be complicated by economic and demographic challenges. (Source: 2015 Defense Intelligence Agency Worldwide Threat Assessment & 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee)

Operations in Syria: Moscow, a long-time ally of Syrian President Bashar al Assad, has supplied the Syrian regime with weapons, supplies, and intelligence throughout the Syrian civil war. Moscow deployed military forces to Syria in late August 2015, likely to both shore up the regime and assert Russia’s status as a military player and powerbroker in the Middle East. The majority of Russian air strikes, artillery, and rocket fires supported regime ground offensives and focused on opposition targets. Strikes targeted Islamic State forces and facilities while sustaining operations against the opposition. Russia sought to use the Syrian intervention as a showcase for its military modernization program and advanced conventional weapons systems. Moscow launched land-attack cruise missiles (LACMs) from Caspian Sea naval units and a Kilo-class submarine in the Mediterranean Sea. They also demonstrated new capabilities with air-launched cruise missiles (ALCMs) from its Tu-160 Blackjack and Tu-95MS Bear H heavy bombers. These operations were meant to demonstrate strategic capabilities and message the West about the manner in which the Russian military could operate in a major conventional conflict.

In March, 2016, Russia withdrew the majority of their forces in Syria declaring that “the task that was assigned to the Ministry of Defense and the armed forces as a whole was achieved.” Although the majority of forces have withdrawn, residual forces remain and the ability for Russia to send “a number of instructors and military advisors necessary for the Syrian military to learn how to operate new weapons and for training its personnel, allows Russia to send its military to Syria in quite large numbers.” (Source: 2015 Defense Intelligence Agency Worldwide Threat Assessment; 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee; Russia Direct, July, 2016; CNN.com, March, 2016)

Ukraine Crisis: In September 2015, Moscow began placing more emphasis on diplomacy after a year of often intense fighting along the line of contact. While maintaining the strong separatist military force it trained, equipped, and furnished with leadership, the Kremlin focused on implementing the Minsk II agreement to institutionalize influence with Ukraine without risking more sanctions. Despite deemphasizing a military approach to Ukraine, Moscow retains the ability to rapidly redeploy troops to the border, including prepositioning logistics stockpiles. (Source: 2015 Defense Intelligence Agency Worldwide Threat Assessment & 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee)

Military Doctrine and Strategy: Russia’s military doctrine reflects its perception of a heightened threat environment and sense of urgency about its preparedness to address those perceived threats. Moscow has moved to further improve its capabilities to meet what it sees as Western challenges to its internal stability, dominance of neighboring states and status as a great power abroad. In 2016, Russia will attempt to optimize its strategic forces, develop precision strike weapons, create efficiencies in defense industry, and improve professional military training and education. Russia will also seek to prepare its economy and state and local governments to transition from peace to wartime. (Source: 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee)

The Arctic — and associated international disputes — is a major emphasis for Russian security policy. Moscow has increased the readiness of its Northern Fleet through increased exercise activities and refurbishing airbases and has added air-defense and coastal-defense cruise missiles and ground force assets to the region. The Joint Strategic Command (OSK) ‘North,’ established in late 2014 based on the Northern Fleet, will be reinforced by an air force and air defense (PVO) army. Despite this increased military focus on the Arctic, we believe Russia will likely prefer to use existing multilateral and bilateral mechanisms to address competing claims and other security issues in the region. (Source: 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee)
Force Modernization: Russia’s future force will be smaller, but more capable of handling a range of contingencies on Russia’s periphery and expeditionary operations. We expect continued effort to improve joint operations capabilities and rearmament. Russia’s ambitious rearmament program will be challenged by corruption and industrial inefficiency, Western sanctions, and the poor state of its economy. Moscow will continue its military modernization efforts despite these difficulties, but many major programs will likely face delays or cuts Russia places the highest priority on the maintenance of its robust arsenal of strategic and nonstrategic nuclear weapons. Moscow is making large investments in its nuclear weapon programs. Strategic nuclear forces priorities include force modernization and command and control facilities upgrades. Russia will field more road-mobile SS-27 Mod-2 ICBMs with multiple independently targetable reentry vehicles, deploy more Dolgorukiy class ballistic missile submarines with SS-N-32 Bulava submarine-launched ballistic missiles, and will continue the development of the RS-26 ICBM and next-generation cruise missiles. (Source: 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee)

Space and Counterspace: Russia is advancing its space-based intelligence, surveillance, and reconnaissance (ISR) capability and has nearly doubled the number of satellites in its ISR constellation since 2014. Moscow views U.S. dependence on space systems as key enablers for military operations as a vulnerability. Russian military doctrine highlights counterspace capability as a force multiplier. Russia has a highly advanced space surveillance network, a prerequisite for counterspace operations, and is modernizing and expanding these systems. Russia’s counterspace capabilities include satellite warning-enabled denial and deception and jamming systems targeting satellite communications. Russian leaders assert that their armed forces have antisatellite weapons and conduct antisatellite research. (Source: 2016 Defense Intelligence Agency Statement for the Record: Worldwide Threat Assessment to Senate Armed Services Committee)

Russia’s aggression in Ukraine makes clear that European security and the international rules and norms against territorial aggression cannot be taken for granted. In response, we have led an international effort to support the Ukrainian people as they choose their own future and develop their democracy and economy. We are reassuring our allies by backing our security commitments and increasing responsiveness through training and exercises, as well as a dynamic presence in Central and Eastern Europe to deter further Russian aggression. This will include working with Europe to improve its energy security in both the short and long term. We will support partners such as Georgia, Moldova, and Ukraine so they can better work alongside the United States and NATO, as well as provide for their own defense. And we will continue to impose significant costs on Russia through sanctions and other means while countering Moscow’s deceptive propaganda with the unvarnished truth. We will deter Russian aggression, remain alert to its strategic capabilities, and help our allies and partners resist Russian coercion over the long term, if necessary. At the same time, we will keep the door open to greater collaboration with Russia in areas of common interests, should it choose a different path—a path of peaceful cooperation that respects the sovereignty and democratic development of neighboring states. (Source: 2015 National Security Strategy)

II. Foreign Terrorist Organizations

Foreign Terrorist Organizations (FTOs) are designated by the Secretary of State in accordance with section 219 of the Immigration and Nationality Act (INA). FTO designations play a critical role in the fight against terrorism and are an effective means of curtailing support for terrorist activities. Legal Criteria for Designation under Section 219 of the INA as amended:

- It must be a foreign organization.
- The organization must engage in terrorist activity, as defined in section 212 (a)(3)(B) of the INA (8 U.S.C. § 1182(a)(3)(B)), or terrorism, as defined in section 140(d)(2) of the Foreign Relations Authorization Act, Fiscal Years 1988 and 1989 (22 U.S.C. § 2656f(d)(2)), or retain the capability and intent to engage in terrorist activity or terrorism.
- The organization’s terrorist activity or terrorism must threaten the security of U.S. nationals or the national security (national defense, foreign relations, or the economic interests) of the United States.
An interactive map of FTOs can be accessed via the Office of the Director of National Intelligence, National Counterterrorism Center (NCTC) Counterterrorism Calendar at https://www.nctc.gov/site/groups.html.

In February of 2016, the Director of the Defense Intelligence Agency (DIA) provided the Annual Threat Assessment to the Senate Armed Services Committee that focused on the transnational threats posed by the Islamic State of Iraq and Levant (ISIL), Al-Qa’ida (AQ), AQ affiliates in Yemen, Somalia, North Africa, Syria, and South Asia, Homegrown Violent Extremists (HVEs).

Below is the DIA’s list of Transnational Terrorist Threats, many of which are designated Foreign Terrorist Organizations.

- The Islamic State of Iraq and Levant (ISIL) (also known as ISIS, or the Islamic State, and Daesh)
- Al-Qa’ida (AQ) Command and Control
- Al-Qa’ida in the Arabian Peninsula (AQAP)
- Al-Qa’ida in the Lands of the Islamic Maghreb (AQIM)
- Al-Shabaab (AS)
- Al-Murabitun
- Islamic Revolutionary Guard Corps–Qods Force (IRGC-QF) and Hizballah
- Lashkar-e Tayyiba (LT)
- Revolutionary Armed Forces of Colombia (FARC)
- U.S. Homegrown Violent Extremists (HVEs) and Insider Threats
- European Home Grown Violent Extremists (HVEs)

The Islamic State of Iraq and Levant (ISIL) (also known as ISIS, or the Islamic State, and Daesh)

As the attacks in Paris and Brussels demonstrated, ISIL has now become the most significant terrorist threat to the U.S. and our allies. In 2015, the group remained entrenched in Iraq and Syria and expanded globally, establishing official branches in Libya, Sinai, Afghanistan, Nigeria, Algeria, Saudi Arabia, Yemen, and the Caucasus. Branches in Libya and Sinai posed the greatest threat in 2015, but DIA assesses that other branches will likely grow increasingly dangerous. Emerging branches include those in Mali, Bangladesh, Indonesia, Tunisia, Somalia, and possibly other countries. Spectacular external attacks demonstrate ISIL’s relevance and reach and is a key part of their narrative.

ISIL will likely increase the pace and lethality of its transnational attacks as infrastructure and capabilities mature. It will purposefully attempt to stoke sectarian conflict between Shia and Sunni, and between the West and Islam, to create the chaotic environment in which it thrives. ISIL will probably conduct additional attacks in Europe and attempt to direct attacks on the U.S. Homeland in 2016. DIA expects that ISIL leaders in Syria will be increasingly involved in directing attacks rather than just encouraging lone attackers. ISIL’s foreign fighter cadre is core to its external attack capability, and the large number of western jihadists in Iraq and Syria will pose a challenge for western security services.

- Originally established as Al Qa’ida in Iraq (AQI) in April 2004 by Sunni extremist Abu Mus’ab al-Zarqawi who pledged his group’s allegiance to Usama Bin Ladin, the group targeted Coalition forces and civilians using tactics such as vehicle-borne improvised explosive devices (VBIEDs), suicide bombers, and executions of hostages by beheading and other means, attempting to pressure countries and foreign companies to leave Iraq. ISIL’s leader, Abu Bakr al-Baghdadi, assumed power in April 2010, following the death of post-Zarqawi leaders Abu Ayub al-Masri and Abu ‘Umar al-Baghdadi. Under Abu Bakr al-Baghdadi’s authority, the group has continued conducting high-profile attacks across Iraq. ISIL has expanded its ranks through prison breaks and integration of fighters drawn to the Syrian conflict. In April 2013, Abu Bakr al-Baghdadi publicly declared the group’s presence in Syria under the name ISIL and that ISIL had founded the al-Nusrah Front in Syria. Al-Nusrah Front in June 2013 publicly pledged allegiance to al-Qa’ida leader Ayman al-Zawahiri. The disagreement and ISIL’s hardline ideology caused a backlash in Syria. ISIL rejected al-Nusrah Front, Syrian opposition enemies, and al-Qa’ida’s efforts to force the group to leave Syria. In February 2014, al-Qa’ida publicly stated ISIL was no longer a branch of al-Qa’ida, a status the group had held since 2004. ISIL in April 2014 responded to the disavowal by publicly attacking al-Qa’ida as being unfit for Usama Bin Ladin’s legacy and stating
that ISIL was a better example for jihadists. Major ISIL-led efforts to overthrow the Iraqi Government erupted in June 2014, freeing prisoners and gaining access to more weapons and vehicles usable in Iraq or Syria. In late June 2014, ISIL declared the establishment of an Islamic caliphate under the name the “Islamic State” and called for all Muslims to pledge allegiance to the group. (Source: 2015 NCTC Counterterrorism Calendar)

Al-Qa’ida (AQ)
Al-Qa’ida also remains a serious threat to U.S. interests worldwide. It retains affiliates in Yemen, Somalia, North Africa, Syria, and South Asia. International focus on ISIL may allow al-Qa’ida to recover from its degraded state. We are concerned al-Qa’ida could reestablish a significant presence in Afghanistan and Pakistan, if regional counterterrorism pressure decreases.

- **Command and Control** – Al-Qa’ida is a transnational terror group responsible for the September 11, 2001 attacks on the United States and the training of extremist fighters in Afghanistan, Iraq, and Syria. AQ’s strategic objectives are to remove Western influence from the Muslim world, topple governments of Muslim countries, and establish a pan-Islamic caliphate under Sharia Law. AQ’s leadership is constrained to a safe haven in Pakistan, but continues to inspire regional terrorist affiliates and other terror groups. (Source: 2015 NCTC Counterterrorism Calendar)

- **Al-Qa’ida in the Arabian Peninsula (AQAP)** – AQAP is a Sunni extremist group based in Yemen that has orchestrated numerous high-profile terrorist attacks. The group has targeted local, U.S., and Western interests in the Arabian Peninsula, but is now pursuing a global strategy. (Source: 2015 NCTC Counterterrorism Calendar)

- **Al-Qa’ida in the Lands of the Islamic Maghreb (AQIM)** – An Algeria-based Sunni Muslim jihadist group which operates primarily in the northern coastal areas of Algeria and in parts of the desert regions of southern Algeria and northern Mali. AQIM was originally formed in 1998 as the Salafist Group for Preaching and Combat (GSPC), a faction of the Armed Islamic Group, which was the largest and most active terrorist group in Algeria. The GSPC was renamed in January 2007 after the group officially joined al-Qa’ida. GSPC had close to 30,000 members at its height, but the Algerian Government’s counterterrorism efforts have reduced AQIM’s ranks to fewer than 1,000. AQIM mainly employs conventional terrorist tactics, including guerilla-style ambushes and mortar, rocket, and IED attacks. Its principal sources of funding include extortion, kidnapping, and donations. Although counterterrorism pressure is probably compelling AQIM to consider alternative safe havens in other under-governed areas elsewhere in the region, the group most likely retains the capability to launch attacks against regional and Western interests in Mali and neighboring countries. During the next year, we expect AQIM to likely bolster its ties to al-Qa’ida-aligned terrorist groups in North and West Africa. (Source: 2015 NCTC Counterterrorism Calendar)

Al-Shabaab (AS)

- The Harakat Shabaab al-Mujahidin—commonly known as al-Shabaab, or simply Shabaab—was the militant wing of the Somali Council of Islamic Courts that took over most of southern Somalia in the second half of 2006. Despite the group’s defeat by Somali and Ethiopian forces in 2007, al-Shabaab—a clan-based insurgent and terrorist group—has continued its violent insurgency in southern and central Somalia. The group has exerted temporary and, at times, sustained control over strategic locations in those areas by recruiting, sometimes forcibly, regional sub-clans and their militias, using guerrilla warfare and terrorist tactics against the Somali Federal Government (SFG), African Union Mission in Somalia (AMISOM) peacekeepers, and nongovernmental aid organizations. As of 2015, however, pressure from AMISOM and Ethiopian forces had largely degraded al-Shabaab’s control, especially in Mogadishu but also in other key regions of the country, and conflict among senior leaders had exacerbated fractures within the group. (Source: 2015 NCTC Counterterrorism Calendar)

- The group continued to pose a threat to Western interests in East Africa as demonstrated by the September 2013 attack on the Westgate Mall in Nairobi, Kenya, which left at least 67 dead. During 2015, a regrouped al-Shabaab will continue to pose a threat to the fragile Somali government and its regional backers. It will attempt to replicate the success of its Westgate attack
with additional operations outside Somalia. (Source: 2015 Defense Intelligence Agency Annual Threat Assessment)

Al-Murabitun
- This newly formed group poses a growing threat to Western interests in North Africa, based on the network’s record of sophisticated attacks against Western mineral and energy interests in Niger and Algeria in 2013. (Source: 2014 Defense Intelligence Agency Annual Threat Assessment)

Islamic Revolutionary Guard Corps – Qods Force (IRGC-QF) and Hizballah
- Formed in 1982 in response to the Israeli invasion of Lebanon, Hizballah (the ‘Party of God’), a Lebanon-based Shia terrorist group, advocates Shia empowerment globally. The group also supports Palestinian rejectionist groups in their struggle against Israel and provides training for Iraqi Shia militants attacking Western interests in Iraq. Hizballah Secretary General Hasan Nasrallah publically indicated in May 2013 that Hizballah was supporting Bashar al-Asad’s regime by sending fighters to Syria. (Source: 2015 NCTC Counterterrorism Calendar)
- Iran continues to support and arm terrorist and militant groups in the Middle East. The IRGC-QF has supported pro-regime fighters in Syria, including elements from Lebanese Hizballah, Iraqi Shia groups, and Syrian militias. Captured video footage suggests the Qods Force is operating artillery and leading attacks against Syrian opposition. Hizballah also continues to send operatives to other locations outside Syria to plan external attacks and operations. (Source: 2014 Defense Intelligence Agency Annual Threat Assessment)

Lashkar-e Tayyiba (LT)
- Lashkar-e-Tayyiba, also known as Army of the Righteous, is one of the largest and most proficient of the Kashmir-focused militant groups. LT formed in the early 1990s as the military wing of Markaz-ud-Dawa-wal-Irshad, a Pakistan-based Islamic fundamentalist missionary organization founded in the 1980s to oppose the Soviets in Afghanistan. Since 1993, LT has conducted numerous attacks against Indian troops and civilian targets in the disputed Jammu and Kashmir state, as well as several high-profile attacks inside India itself. Concern over new LT attacks in India remains high. The United States and United Nations have designated LT an international terrorist organization. The Pakistani Government banned LT and froze its assets in 2002. In 2008, the U.S. Treasury Department imposed sanctions on four senior LT leaders, and in April 2012, two senior LT leaders were placed on the U.S. State Department Rewards for Justice List. LT coordinates its charitable activities through its front organization, Jamaat-ud-Dawa (JuD). In 2014, JuD and FiF were providing relief to internally displaced persons in Pakistan who fled from Pakistani military operations in the Federally Administered Tribal Areas. (Source: 2015 NCTC Counterterrorism Calendar)
- The group has focused on India, but has dedicated greater operational resources from Indian Kashmir to Afghanistan in the years following the 2008 Mumbai attacks. LT ideologically advocates killing Americans and other Westerners, and in previous years has advanced plots ultimately disrupted by counterterrorism authorities in Australia and Denmark. (Source: 2014 Defense Intelligence Agency Annual Threat Assessment)

Revolutionary Armed Forces of Colombia (FARC)
- Established in 1964 as the military wing of the Colombian Communist Party, the Revolutionary Armed Forces of Colombia (Fuerzas Armadas Revolucionarios de Colombia) is Latin America’s oldest, largest, most capable, and best-equipped insurgency of Marxist origin—although it only nominally fights in support of Marxist goals today. The FARC primarily operates in Colombia, with some activities—including extortion, kidnapping, weapons acquisition, and logistics—occurring in neighboring countries. (Source: 2015 NCTC Counterterrorism Calendar)
- This group poses a significant and continuing threat to U.S. personnel and interests, despite peace talks with Bogota. (Source: 2014 Defense Intelligence Agency Annual Threat Assessment)
U.S. Home Grown Violent Extremists (HVE)
- HVEs DIA assesses that Homegrown Violent Extremists (HVE) will continue to pose a threat to DoD interests. Although HVEs are likely less able to conduct complex or spectacular attacks, difficulty in detecting preoperational planning makes them more likely to succeed. Lone actors continue to find inspiration from ISIL propaganda. Since 2004, more than half of HVE plots in the U.S. either targeted or considered targeting DoD facilities or personnel.

European Home Grown Violent Extremists (HVE)
- Individuals will remain an ongoing security concern and challenge for Western security services as they radicalize within their home base, return home after gaining terrorist training or combat experience abroad, or develop contacts domestically or abroad to plan attacks against Western interests. Although not all returning fighters will pose a threat, DIA is particularly concerned about self-initiated or “lone wolf” attacks on U.S. military and allied military members in Europe. The Revolutionary People’s Liberation Party/Front (DHKP/C) also signaled a renewed effort to target U.S./DoD interests with its 1 February 2013 attack on the U.S. Embassy in Ankara and has proven resilient despite crackdowns on the organization in Turkey and elsewhere. (Source: 2014 Defense Intelligence Agency Annual Threat Assessment)

Sources:
WEEK 18: U.S. NAVY ENLISTED PERSONNEL AND SHIPBOARD FAMILIARIZATION

I. Introduction

In preparation for your 3/C cruise, it is important for you to understand more about the enlisted Sailors with whom you will be paired and working with. Enlisted Sailors in the modern Navy have a higher level of training and education than ever before. Many of our Sailors have acquired college credits and degrees either before entering the Navy or as a result of self-development. Today the Navy requires unprecedented technical proficiency and expertise in its enlisted Sailors. Officers are tasked with leading these motivated individuals and developing them into a cohesive team with mission accomplishment as the highest priority. Given the quality and diversity of these sailors, officers will find leading them both challenging and rewarding. The trust and professionalism shared between an officer and his or her Sailors starts with an appreciation and respect for the value of these individuals and a desire to know them beyond their productivity levels. Therefore, it is essential that each officer learn about his or her Sailors, how they are trained, and how they advance.

II. Rates, Rating, and Paygrade

Every member of the Navy is either nonrated, rated, or a commissioned officer. Men and women who enlist in the Navy begin as nonrated personnel. A combination of experience and specialized training will allow them to move into a rated category and then advance through a number of levels. Rated personnel are called ‘petty officers.’ Nonrated and rated personnel together are referred to as ‘enlisted personnel.’

Paygrade

Everyone in the Navy has a paygrade. A paygrade defines a person’s relative standing in the Navy and, of course, determines how much money he or she is paid per month. A new enlisted recruit enters the Navy as an E-1, which is the first enlisted paygrade. Enlisted personnel advance through their paygrades by taking advancement exams (E-4 through E-7) and having their records evaluated by a selection board (E-7 through E-9).

Rating

A rating is an occupational specialty in the Navy. In order to qualify for a rating, a Sailor must work their way through the general apprenticeship levels (E-1 through E-3) or attend a service school. Personnel in paygrades E-1 through E-3 can be considered either designated or non-designated. Non-designated personnel pick one of three available Professional Apprenticeship Career Track (PACT) programs: Airman, Seaman, or Fireman. A PACT Sailor seeking to advance into a specific rating is considered a ‘striker’ and is required to achieve a significant level of experience and training toward a particular rating to formally recognize as a ‘designated striker.’ Once designated a formal rating abbreviation is added to the general rate and paygrade (i.e., BMSA, YNSR, etc…)

There are three categories of ratings: general, service, and emergency.
- General ratings are occupations for paygrades E-4 through E-9. Each general rating has a distinctive badge. Examples are OS, GM, ET.
- Service ratings are those general ratings that are subdivided into specific services. Examples are Gas-turbine systems Technician (GS), which is subdivided into GSE (electrical) and GSM (mechanical).
- Emergency Ratings can be created in times of war or national emergency and are ratings not normally needed by the Navy. There are currently no emergency ratings active today.
The following is a list of common ratings that you should know by name and abbreviation:

| AB (Aviation Boatswain’s Mate) | IT (Information Systems Technician) |
| AT (Aviation Electronics Technician) | LN (Legalman) |
| AD (Aviation Machinist’s Mate) | LS (Logistics Specialist) |
| AE (Aviation Electrician’s Mate) | MA (Master-at-Arms) |
| AO (Aviation Ordnanceman) | MC (Mass Communications Specialist) |
| AS (Aviation Support Equipment Technician) | MM (Machinist’s Mate) |
| AW (Aviation Warfare Systems Operator) | MU (Musician) |
| CS (Culinary Specialist) | OS (Operations Specialist) |
| CT (Cryptologic Technician) | QM (Quartermaster) |
| DC (Damage Controlman) | RP (Religious Programs Specialist) |
| ET (Electronics Technician) | PS (Personnel Specialist) |
| EOD (Explosive Ordnance Disposal Technician) | SO (Special Warfare Operator) |
| FC (Fire Controlman) | UT (Utilitiesman) |
| GM (Gunner’s Mate) | |
| HM (Hospital Corpsman) | |

**Rate**

Petty Officers are identified by a combination of letters and/or numbers that represent the individual’s paygrade and rating. This is known as an enlisted personnel’s *rate*. The first two or three letters represent the general or service rating; the number or letter(s) following indicate the paygrade. An enlisted person who identifies him/herself as BM2 Smith, would be a Boatswain’s Mate Second Class. The ‘BM’ is the general service rating and the ‘2’ indicates the paygrade of an E-5. Examples:

| HM3 | Hospital Corpsman Third Class (Petty Officer) |
| LN2 | Legalman Second Class (Petty Officer) |
| OS1 | Operations Specialist First Class (Petty Officer) |
| LSC | Chief Logistics Specialist |
| CTTCS | Senior Chief Cryptological Technician-Technical |
| MMCM | Master Chief Machinist Mate |

**Petty Officers**

In the Navy, E-4 to E-6 personnel are considered non-commissioned officers (NCOs), and are specifically called Petty Officers in the Navy. Petty Officers perform not only the duties of their specific career field but also lead junior enlisted personnel. They take responsibility for their subordinates, address grievances, inform the chain of command on matters pertaining to good order and discipline, and may even have to place personnel on report. The title Petty Officer comes from the French word *petit* meaning small. In medieval England, villages had several ‘petite’ or ‘petty’ officers who were subordinate to major officials. Thus, Petty Officers are assistants to senior officers.

**Chief Petty Officers**

In the Navy, E-7 to E-9 personnel are senior NCOs collectively known as the Chief’s Mess. Chiefs are specifically tasked, in writing, with the duty of training Junior Officers (Ensign, Lieutenant (j.g.), Lieutenant, and Lieutenant Commander). They have separate berthing and dining facilities (where feasible), wear khaki uniforms similar in appearance to a commissioned officer’s, and perform separate duties from other enlisted Sailors. Advancement to Chief Petty Officer (E-7) or above requires a peer review by existing Chief Petty Officers beyond the normal examination score and performance evaluation process. The proper form of address to a Chief Petty Officer is ‘Chief,’ ‘Senior Chief,’ or ‘Master Chief.’

**Command Master Chief (CMC)**

After obtaining Master Chief Petty Officer, service members may choose to further their career by becoming a Command Master Chief Petty Officer (CMC). A CMC is considered to be the senior-most enlisted service member within a command, and is the special assistant to the Commanding Officer in all matters pertaining to the health, welfare, job satisfaction, morale, utilization, advancement and training of
the command’s enlisted personnel. CMC insignia are similar to the insignia for Master Chief, except that the rating symbol is replaced by an inverted five-point star, reflecting a change in their rating.

III. Uniform Insignia

Enlisted personnel will wear rating badges or insignias on all uniforms with the exception of non-rated personnel when they wear utilities and coveralls. Insignias and badges with no rating specific markings will be worn on utilities or coverall for E-4 personnel and above. Personnel in paygrades E-7 through E-9 wear collar devices (i.e., gold anchors with USN and fouled chain). A Senior Chief will have one Silver Star above the anchor, and a Master Chief will have two silver stars. When wearing either the peacoat or outer jacket, rating badges or collar devices will be worn with the exception of non-rated personnel. An E-4 ( Petty Officer Third Class) wears one chevron on his/her rating badge, an E-5 ( Petty Officer Second Class) has two, and an E-6 ( Petty Officer First Class) has three.

The insignia shown below depict that a Boatswain’s Mate (BM). The crossed anchors below the ‘crow’ identify the individual as a BM on the rating badge. Notice the star in the place of the anchors on the insignia of the Master Chief Petty Officer of the Navy. The star shows the individual is a CMC.

| Non-Commissioned Officer and Enlisted Rate Structure of the United States Navy |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Master Chief Petty Officer of the Navy | Master Chief Petty Officer | Senior Chief Petty Officer | Chief Petty Officer | Petty Officer First Class |
| E-9 | E-9 | E-8 | E-7 | E-6 |

<table>
<thead>
<tr>
<th>Petty Officer Second Class</th>
<th>Petty Officer Third Class</th>
<th>Seaman</th>
<th>Seaman Apprentice</th>
<th>Seaman Recruit</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-5</td>
<td>E-4</td>
<td>E-3</td>
<td>E-2</td>
<td>E-1</td>
</tr>
</tbody>
</table>

Note: Personnel in paygrades E-3 and below are identified by their diagonal stripes and the color assigned to their prospective community.

General Apprenticeships

<table>
<thead>
<tr>
<th>General Apprenticeships</th>
<th>Color of Stripes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seaman</td>
<td>White on Black Background/ Black on White Background</td>
</tr>
<tr>
<td>Fireman</td>
<td>Red Stripes on Black or White Background</td>
</tr>
<tr>
<td>Hospital Corpsman</td>
<td>White on Black Background/ Black on White Background</td>
</tr>
<tr>
<td>Constructionman</td>
<td>Light Blue Stripes on Black or White Background</td>
</tr>
</tbody>
</table>

IV. Naval Enlisted Classification (NEC) Codes

An NEC is a special code used to identify a skill, knowledge, aptitude, or qualification not included in general or service rating training. For example, not all Boatswain’s Mates (BM) are qualified tugmasters. They would go through the qualification process and earn the NEC BM-0161. This tells the detailer – the administrative personnel at Navy Personnel Command (NAVPERSCOM) in Millington, TN, who match
individuals to specific assignments (billets) in the Navy- that this particular Sailor can be assigned the tugmaster billet anywhere in the Navy. With few exceptions, NECs are assigned to personnel by the Enlisted Personnel Management Center (EPMAC) in New Orleans. There are six type of NEC codes: entry series, rating series, special series, alphanumeric, numerical, and planning.

V. Service Schools

For some ratings, graduation from a particular service school is necessary for advancement. Selection for a service school depends on the rate, time in service, current duty assignment, school quotas, and the operational schedule of the Sailor’s unit. The five types of enlisted service schools are:

- **Class A** – Provides the basic technical knowledge required for job performance and further specialized training. An NEC may be awarded to identify the skill.
- **Class C** – Advanced skills and techniques needed to perform a particular job are taught. An NEC may also be awarded to identify the level of skill.
- **Class E** – Designated for professional education leading to an academic degree.
- **Class F** – Trains fleet personnel who are en route to, or are members of ships’ companies. Also provides individual training such as refresher, operator, maintenance, or technical training of less than 13 calendar days. A NEC is not awarded.
- **Class R** – This is the basic school that provides initial training after enlistment, also known as ‘boot camp’ or ‘recruit training.’ It prepares the recruit for early adjustment to military life by inculcating basic skills and knowledge about military subjects. Class R schooling for all recruits is conducted at Recruit Training Center, Great Lakes, IL.

VI. Enlisted Advancement

Advancement in the Navy means greater responsibility, increased pride, better pay, and more privileges. Advancements to Petty Officer in the Navy are made through centralized competition. The general requirements are:

- Advancement to E-2 and E-3 is based on Time-In-Rate (TIR), 9 months in length, and performance.
- Advancement to E-4 through E-9 is based on a combination of time in service, TIR, awards, performance (evaluations), and score on the annual/semi-annual exams held in March and September for E-4 through E-6. For E-7 the advancement exam is held annually, in January. A selection board is convened in July and results are posted in early August. For E-8 and E-9, advancement is based on performance and board selection.
- Meet all appropriate citizenship or security clearance requirements for advancement in certain rates or ratings.
- Fulfill special requirements for certain ratings.
- Meet all physical readiness/body fat standards.
- Be recommended by the Commanding Officer.

VII. Shipboard Familiarization

Enlisted Deck Watches

- **Boatswain’s Mate of the Watch (BMOW):** As the senior enlisted deck watchstander, the BMOW is charged with assisting the Officer of the Deck in carrying out the daily routine. The BMOW is responsible for ensuring all stations are manned, passing word, supervising all other enlisted deck watchstanders, and maintaining the appearance and cleanliness of the pilothouse.
- **Quartermaster of the Watch (QMOW):** As the navigator’s representative on the bridge, the QMOW is responsible for fixing the ship’s position, advising the Officer of the Deck with respect to navigation, maintaining the deck log, and raising or lowering signal flags as required.
- **Helmsman:** The helmsman is responsible for steering the ship and maintaining a steady course in accordance with the conning officer’s standard commands.
• Lee Helmsman: The lee helmsman is responsible for controlling the ship’s engines in accordance with the conning officer’s standard commands.
• Petty Officer of the Watch (POOW): Similar responsibilities to the BMOW, but only stationed in port. Subordinate to the Officer of the Deck, the POOW is responsible for passing word, carrying out the daily routine, maintaining the deck log, and maintaining the appearance and cleanliness of the quarterdeck.

**Bullseyes**
All shipboard spaces are given a ‘bullseye’ to identify the deck, frame, and distance from centerline at which they are located. Just as a town or city has a system using street signs and addresses to aid in navigation, so does a Navy ship. The top sequence of numbers on a bullseye refers to the deck, frame, and distance from centerline—for example, 4-95-3-M means that the space is located on the 4th deck, at the 95th frame, the 3rd compartment to starboard of centerline (because 3 is an odd number—‘port even, starboard odd’), and is a magazine. Further compartment letter identifiers (the last letter in a bullseye) can be found in Chapter 12 of the *Bluejacket’s Manual*.

**Topside Responsibilities and Identification**
Many deck evolutions onboard a Navy ship are potentially hazardous and require personnel involved in these evolutions to wear the proper Personal Protective Equipment (PPE), which includes hard hats. These evolutions range from launching the ship’s boats to anchoring or even refueling while underway. One can easily determine which responsibilities each person has by the color hard hat they are wearing:
- White: Officer/CPO or Safety Observer
- Yellow: Petty Officer in Charge (POIC)
- Blue: Line Handler/Deck Rigger
- Purple: Fuel Handler
- Red: Line Thrower Gunner

**Typical Divisional Chain of Command**

![Divisional Chain of Command Diagram](image)
Sources:
5. The Bluejacket’s Manual
6. OPNAVINST 3120.32D (Standard Organization and Regulations Manual of the U.S. Navy)
7. The Watch Officer’s Guide
8. NAVEDTRA 14343 (Boatswain’s Mate)
**4/C MIDSHIPMEN QUALIFICATION STANDARDS**

*Reference:* Professional Knowledge Book (Pro-Book)

**Purpose of MQS:** To establish the learning objectives (LO) for Pro-Quizzes, Pro-Exams, Professional Competency Boards (PCB), and Professional Competency Assessments (PCA).

**Signature Authorities:** These are identified for each LO and are either a SME (Subject Matter Expert) or a Midshipman within the chain of command. By signing off an LO, the signature authority is affirming that the midshipman receiving the signature has demonstrated the requisite knowledge. The signature authority shall fill out all required information (printed name, alpha, signature, and date) or, if a SME desires, he/she may print/sign/date a roster that shall be included in each midshipman’s MQS. Each midshipman is responsible for achieving applicable LOs prior to a quiz/exam/board/assessment.

- **Chain of Command (CoC)**
  - 4/C midshipmen shall receive signatures from 3/2/1/C midshipmen in their CoC.
  - 3/C midshipmen shall receive signatures from 2/1/C midshipmen in their CoC.
  - 2/C midshipmen shall receive signatures from 1/C midshipmen in their CoC.

- **Subject Matter Experts (SME)**
  - Based on their billet and/or experience, only some individuals are equipped to provide signatures for specific learning objectives.
  - Some are in the Brigade (i.e., Company Financial Officer). Others are on the Naval Academy staff (i.e., Senior Enlisted Leader).
  - SMEs are signature authorities for any item in their respective area.
  - A current list of warfare community/service SMEs is provided at the end of the MQS.

I. Midshipmen Regulations

1. Know the requirements for midshipmen behavior & attendance at Formation and Meal. Ref. 5400.6S 1.5

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<tr>
<th>Print Name (CoC)</th>
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2. Know the Athletic Reserve period workout standards including where and when you can work out. Ref. 5400.6S 1.6

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3. Know when the different midshipmen classes are allowed to utilize Drydock for take-out and sit-down meals. Ref. 5400.6S 1.8

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4. Understand the process for TAPS and Late Lights. Ref. 5400.6S 1.9

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5. Understand the Town Liberty Schedule and the Uniform Requirements for each class. Ref. 5400.6S 1.11

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<th>Print Name (CoC)</th>
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</table>
6. Understand the Weekend Eligibility Requirements and the regulation regarding awarded weekends. Ref. 5400.6S 1.11

7. Know and understand the Table of Priorities. Ref. 5400.6S 2.1

8. Understand the Special Request Approval Authority guidelines. Ref. 5400.6S 2.2

9. Understand the differences between and definitions to Hazing and Discrimination. Ref. 5400.6S 3.2-3.3

10. Know the Upperclass-4/C Relationship guidelines and the other midshipmen relationships (midshipmen-USNA staff, enlisted personnel, officer, and other midshipmen). Ref. 5400.6S 3.6-3.10

11. Understand the regulations regarding the consumption of alcohol. Ref. 5400.6S 4.3

12. Know the required reading that pertains to the different midshipmen ranks. Ref. 5400.6S 4.7

13. Know and understand the Class Specific Rates. Ref. 5400.6S 6.2

14. Understand the guidelines regarding Bancroft Room Regulations. Ref. 5400.6S 6.3
15. Understand proper military protocol for King Hall.
Ref. 5400.6S 6.9

____________________  __________
Print Name (CoC)    Alpha            Signature             Date

16. Understand the general Uniform rules for USNA-Sponsored Events.
Ref. 5400.6S 6.15

____________________  __________
Print Name (CoC)    Alpha            Signature             Date

II. Financial Literacy

1. Know examples of good and bad money habits. (Pro-Book)

____________________  __________
Print Name (CoC)    Alpha            Signature             Date


____________________  __________
Print Name (CoC)    Alpha            Signature             Date

3. Know each of the following ‘financial tools’: (Pro-Book)
   a. Checking account
   b. Savings account
   c. Money Market account
   d. Certificates of Deposit (CD)
   e. Bonds
   f. Mutual Funds
   g. Stocks
   h. Individual Retirement Accounts (IRA)
   i. Credit Cards
   j. Loans

   (Company Financial Officer) Alpha Signature Date

4. Know the difference between compound and simple interest. (Pro-Book)

____________________  __________
Print Name (CoC)    Alpha            Signature             Date

5. Know the following: (Pro-Book)
   a. How to obtain a Credit Report
   b. The different levels of Credit Scores
   c. How to dispute fraud in a Credit Report

   (Company Financial Officer) Alpha Signature Date

6. Know and understand the significance of the following: (Pro-Book)
   a. MyPay
   b. Leave and Earnings Statement (LES)
c. Advance for Clothing and Equipment (ACE) Loan

d. Pay Day

e. Held Pay/Semester Utility Pay

f. Taxes

g. Service Member’s Group Life Insurance (SGLI)
h. Naval Academy Business Services Division (NABSD)
i. Charitable Allotments

j. Travel Reimbursement

7. Read the lesson on ‘How to Read the Midshipmen LES’:
   http://intranet.usna.edu/FinancialAdvisor/links.php


III. Military Courtesies, Customs, and Ceremonies & USNA Notable Graduates

1. Know when to render a salute/when not to render a salute and discuss specific situations. (Pro-Book)

2. Know the procedures for colors when conducted ashore and underway. (Pro-Book)

3. Know the procedures to half-mast the national ensign. (Pro-Book)

4. Know how colors are shifted aboard a U.S. Navy ship. (Pro-Book)

5. Know the procedures to board and depart a U.S. Navy ship. (Pro-Book)

6. Know the customs associated with the Bridge, Quarterdeck, Officers’ Country, and CPO Country. (Pro-Book)
7. Comprehend the significant accomplishments of USNA graduates and have conversational knowledge of those listed. (Pro-Book)

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date

IV. Mission and Organization of the Navy

1. Know the mission of the Navy. (Pro-Book)

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date

2. Know the Navy Ethos. (Pro-Book)

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date

3. Know the members of the National Security Council. (Pro-Book)

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date

4. Know the responsibilities of the CNO and CMC to the SECNAV. (Pro-Book)

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date

5. Know the difference between the Administrative and Operational chains of command. (Pro-Book)

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date

6. Know the members of the National Command Authority (NCA).

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date

7. Know the numbered Fleet Commanders, their HQ locations, and the Combatant Commander each supports. (Pro-Book)

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date

V. Navy Mission Areas, Capabilities, and the Current Maritime Strategy

1. Know the Navy’s Operational Mission Areas. (Pro-Book)

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date

2. Know the two largest operational units of the U.S. Navy and the typical composition of each. (Pro-Book)

____________________  ________________  __________________  ______________
Print Name (CoC)  Alpha  Signature  Date
3. Know the name of the current maritime strategy. (Pro-Book)

<table>
<thead>
<tr>
<th>Print Name (CoC)</th>
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<th>Date</th>
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</table>

4. Know the importance of the expeditionary character and versatility of maritime forces as it relates to the maritime strategy. (Pro-Book)

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<th>Print Name (CoC)</th>
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</table>

5. Know the five essential functions in a combined-arms approach of U.S. seapower. (Pro-Book)

<table>
<thead>
<tr>
<th>Print Name (CoC)</th>
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<th>Signature</th>
<th>Date</th>
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</table>

VI. Naval Air Warfare

1. Know the following: (Pro-Book)
   a. Name of the first Naval Aviator to successfully take off from and land on a ship
   b. Name of the first aircraft carrier
   c. Location of the first Naval Air Station

<table>
<thead>
<tr>
<th>Print Name (CoC)</th>
<th>Alpha</th>
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<th>Date</th>
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</table>

2. Know the roles and responsibilities of Naval Aviators (Pilot), Naval Flight Officers (NFO), and Naval Aircrewmen and identify their respective warfare insignia. (Pro-Book)

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<th>Print Name (CoC)</th>
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3. Know squadron types and meanings. (Pro-Book)

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<tr>
<th>Print Name (CoC)</th>
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<th>Date</th>
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</table>

4. Know the composition of a typical carrier air wing (CVW). (Pro-Book)

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<th>Print Name (CoC)</th>
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5. Comprehend the flight deck jersey colors and the corresponding duties. (Pro-Book)

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<th>Print Name (CoC)</th>
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<th>Signature</th>
<th>Date</th>
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</table>

6. Comprehend the basic hazards and safety precautions associated with flight operations: (Pro-Book)
   a. Foreign Object Debris (FOD)
   b. Fouled deck / Foul line
   c. Jet blast

<table>
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<tr>
<th>Print Name (CoC)</th>
<th>Alpha</th>
<th>Signature</th>
<th>Date</th>
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</thead>
</table>
VII. Naval Air Warfare Platforms

1. Comprehend the components of aircraft designations. (Pro-Book)

2. Know the designation/name, role/capabilities, distinguishing features, and crew composition of U.S. Navy aircraft:
   (Pro-Book)
   a. F/A-18C Hornet
   b. F/A-18E/F Super Hornet
   c. EA-18G Growler
   d. E-2C Hawkeye
   e. C-2A Greyhound
   f. P-3C Orion
   g. P-8A Poseidon
   h. E-6B Mercury
   i. EP-3E Aries II
   j. MH-60R ‘Romeo’ Seahawk
   k. MH-60S ‘Sierra’ Knighthawk
   l. MH-53E Sea Dragon

3. Demonstrate knowledge of future advances in Naval Aviation. (Pro-Book)

VIII. Surface Warfare

1. Comprehend the unique capabilities of the U.S. Navy’s modern surface ships. (Pro-Book)

2. Know the visual identification, mission, weapons, aircraft, and crew size of U.S. Navy ship classes: (Pro-Book)
   a. CVN-68 Nimitz Class
   b. CG-47 Ticonderoga Class
   c. DDG-51 Arleigh Burke Class
   d. LCS Littoral Combat Ship Classes
   e. MCM-1 Avenger Class
   f. PC-1 Cyclone Class
   g. LSD-41 Whidbey Island Class
   h. LPD-17 San Antonio Class
   i. LHD-1 Wasp Class
   j. LHA-6 America Class
k. LCU & LCM
l. LCAC

Print Name (CoC)  Alpha  Signature  Date

3. Demonstrate knowledge of current projects in Surface Warfare. (Pro-Book)

Print Name (CoC)  Alpha  Signature  Date

IX. Undersea Warfare

1. Know how the following events influenced submarine design and capability:
   (Pro-Book)
   a. American Revolution
   b. Civil War
   c. WWI
   d. WWII
   e. Cold War

   Print Name (CoC)  Alpha  Signature  Date

2. Know the visual identification, mission, weapons, specific capabilities, and crew size of U.S. Navy submarines. (Pro-Book)
   a. SSN-688 Los Angeles Class
   b. SSN-21 Seawolf Class
   c. SSN-774 Virginia Class
   d. SSBN-726 Ohio Class
   e. SSGN-726 Ohio Class

   Print Name (CoC)  Alpha  Signature  Date

3. Know and comprehend the combat systems associated with U.S. Navy submarines. (Pro-Book)

   Print Name (CoC)  Alpha  Signature  Date

X. Naval Special Warfare

1. Know the role LCDR Draper Kauffman played during WWII and his significance to the development of NSW. (Pro-Book)

   Print Name (CoC)  Alpha  Signature  Date

2. Know the historical reasons for the creation of Naval Combat Demolition Units (NCDUs), Underwater Demolition Teams (UDTs), and modern SEAL Teams. (Pro-Book)

   Print Name (CoC)  Alpha  Signature  Date
3. Know the missions of NSW. (Pro-Book)

Print Name (CoC) Alpha Signature Date

4. Comprehend the benefits of seabasing. (Pro-Book)

Print Name (CoC) Alpha Signature Date

5. Comprehend the limitations of NSW. (Pro-Book)

Print Name (CoC) Alpha Signature Date

6. Know the mission of each NSW craft. (Pro-Book)

Print Name (CoC) Alpha Signature Date

XI. Explosive Ordnance Disposal

1. Comprehend the mission of Navy EOD. (Pro-Book)

Print Name (CoC) Alpha Signature Date

2. Know what drove the need for ordnance disposal skills and the creation of the EOD community. (Pro-Book)

Print Name (CoC) Alpha Signature Date

3. Know the mission areas of Navy EOD. (Pro-Book)

Print Name (CoC) Alpha Signature Date

4. Know the difference and relationship between EOD Technicians, Officers, and Navy Divers. (Pro-Book)

Print Name (CoC) Alpha Signature Date

XII. Restricted Line, Staff Corps, Limited Duty, and Chief Warrant Officers

1. Know the six Restricted Line communities and their roles. (Pro-Book)

Print Name (CoC) Alpha Signature Date

2. Know the five Staff Corps Communities and their roles. (Pro-Book)

Print Name (CoC) Alpha Signature Date
3. Know the four Medical Corps Communities and their roles. (Pro-Book)

<table>
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<tr>
<th>Print Name (CoC)</th>
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<th>Date</th>
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</table>

4. Know the purpose of the Limited Duty Officer (LDO) and Chief Warrant Officer (CWO) programs and who competes for these commissions. (Pro-Book)

<table>
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<th>Print Name (CoC)</th>
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XIII. Information Warfare Community

1. Know the three core capabilities of the Information Dominance Corps (IWC): (Pro-Book)

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<tr>
<th>Print Name (CoC)</th>
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</table>

2. Know the five IWC officer communities. (Pro-Book)

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<tr>
<th>Print Name (CoC)</th>
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3. Know the three network domains used in the Navy and know their associated classification levels. (Pro-Book)

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<th>Print Name (CoC)</th>
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<th>Date</th>
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</table>

4. Know the function of SSES and the platforms on which it can be found. (Pro-Book)

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5. Know the function of CVIC and the platform on which it can be found. (Pro-Book)

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<th>Signature</th>
<th>Date</th>
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6. Using your Common Access Card (CAC), log in to Navy Knowledge Online (NKO) and complete (1) Uncle Sam’s OPSEC and (2) Privacy and Personally Identifiable Information (PII) Awareness Training. Print certificates of completion and turn in to your Company Training Officer prior to taking the Pro-Quiz. (https://www.nko.navy.mil)

<table>
<thead>
<tr>
<th>Print Name (Company Training Officer)</th>
<th>Alpha</th>
<th>Signature</th>
<th>Date</th>
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</table>

XIV. U.S. Marine Corps History and Traditions

1. Know the historical significance of the following Marine Corps traditions. (Pro-Book)
   a. Quatrefoil
   b. Blood Stripe
c.  Mameluke  
d.  Devil Dog  

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<th>Print Name (CoC)</th>
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2. Know the historical significance of the following locations/events in Marine history.  
   (Pro-Book)  
   a.  Battle of Nassau  
   b.  Battle of Belleau Wood  
   c.  Battle of Guadalcanal  
   d.  Operation STARLITE  
   e.  Operation PHANTOM FURY  

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XV. **U.S. Marine Corps Mission, Enduring Principles, and Organization**  
1. Comprehend the mission of the U.S. Marine Corps.  (Pro-Book)  

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2. Know the six Enduring Principles of the U.S. Marine Corps.  (Pro-Book)  

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3. Know the elements and organization of the Marine Air-Ground Task Force (MAGTF).  (Pro-Book)  

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4. Know the locations of the Marine Expeditionary Forces (MEF) and their associated Marine Aircraft Wings (MAW) and Divisions.  (Pro-Book)  

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XVI. **USMC Weapons and Platforms**  
1. Know the primary function/purpose of and be able to identify the individual and crew served weapons of the U.S. Marine Corps.  (Pro-Book)  
   a.  M16A4  
   b.  M4  
   c.  M203  
   d.  M27  
   e.  M249  
   f.  M240  
   g.  MK-153  
   h.  MK19 Mod 3  
   i.  .50 Caliber MG  
   j.  FGM-148  

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k. BGM-71
l. 60/80mm Mortars

2. Know the purpose and features of and be able to identify the additional weapons and platforms of the U.S. Marine Corps. (Pro-Book)
   a. M777
   b. HMMWV
   c. HIMARS
   d. MTVR
   e. LAV-25
   f. MRAP/MATV
   g. M1A1
   h. AAV-7
   i. AH-1Z
   j. UH-1Y
   k. CH-53E
   l. MV-22
   m. F/A-18
   n. AV-8B
   o. F-35B
   p. EA-6B
   q. KC-130J
   r. RQ-7B

XVII. Current Global Challenges

1. Comprehend the unique challenges posed by China. (Pro-Book)

2. Comprehend the unique challenges posed by North Korea. (Pro-Book)

3. Comprehend the unique challenges posed by Iran. (Pro-Book)

4. Comprehend the unique challenges posed by Russia. (Pro-Book)
5. Know the criteria for designating a Foreign Terrorist Organization (FTO) and which cabinet member is authorized to designate them. (Pro-Book)

6. Know the named locations and three strategic objectives of al-Qa’ida. (Pro-Book)

7. Know the origin of the Islamic State of Iraq and Levant (ISIL). (Pro-Book)

8. Comprehend the origin and threat posed by each of the other elements on the DIA’s list of Transnational Terrorist Threats. (Pro-Book)

XVIII. U.S. Navy Enlisted Personnel and Shipboard Familiarization

1. Know the difference between a paygrade, a rating, and a rate. (Pro-Book)

2. Comprehend the common ratings in this chapter. (Pro-Book)

3. Know the roles of a Petty Officer (PO), a Chief Petty Officer (CPO), and a Command Master Chief (CMC). (Pro-Book)

4. Know and identify the Navy enlisted ranks. (Pro-Book)

5. Know the general apprenticeships and the associated insignia colors. (Pro-Book)

6. Know the five types of enlisted service schools. (Pro-Book)

7. Know the general requirements for enlisted advancement. (Pro-Book)
8. Know the duties of the following enlisted deck watches. (Pro-Book)
   a. BMOW
   b. QMOW
   c. Helmsman
   d. Lee Helmsman
   e. POOW

9. Comprehend and apply the concept of a shipboard ‘bullseye.’ (Pro-Book/Ch. 12 of Bluejackets Manual)

10. Know the topside responsibilities and how to identify deck personnel. (Pro-Book)

11. Know the shipboard divisional chain of command. (Pro-Book)
# Subject Matter Experts (SME)

## APPENDIX A

### Surface Warfare Officers

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# Naval Aviators and Naval Flight Officers

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### Information Warfare Corps Officers

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**Information Warfare**

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