ARMY, MARINE CORPS, NAVY, AIR FORCE, COAST GUARD

MDO

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR MILITARY DIVING OPERATIONS

ATP 3-34.84
MCRP 3-35.9A
NTTP 3-07.7
AFTTP 3-2.75
CGTTP 3-95.17

February 2015

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES

FOREWORD

This multi-Service tactics, techniques, and procedures (MTTP) publication is a project of the Air Land Sea Application (ALSA) Center in accordance with the memorandum of agreement between the Headquarters of the Army, Marine Corps, Navy, Air Force, and Coast Guard doctrine commanders directing ALSA to develop MTTP publications to meet the immediate needs of the warfighter.

This MTTP publication has been prepared by ALSA under our direction for implementation by our respective commands and for use by other commands as appropriate.

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PREFACE

1. Purpose

This multi-Service tactics, techniques, and procedures (MTTP) publication for *Military Diving Operations (MDO)* serves as a reference guide to ensure effective planning and integration operations.

Note: For the Army, the term “command and control” was replaced with “mission command.” Mission command now encompasses the Army’s philosophy of command (still known as mission command) as well as the exercise of authority and direction to accomplish missions (formerly known as command and control).

2. Scope

This MTTP describes United States (US) military dive mission areas (DMAs), force structure, equipment, and primary missions each Service could provide in support of joint operations to assist commanders and staffs at all levels.

3. Applicability

This MTTP applies to commanders and planners at all levels across the Armed Services and the US Coast Guard. This publication is unclassified with Distribution Statement A, in accordance with Department of Defense Directive 5230.24.

4. Implementation Plan

Participating Service command offices of primary responsibility will review this publication; validate the information; and, where appropriate, reference and incorporate it in Service manuals, regulations, and curricula as follows:

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Marine Corps.[1] The Marine Corps will incorporate the procedures in this publication in US Marine Corps doctrine publications as directed by the Deputy Commandant, Combat Development and Integration (DC, CD&I). Distribution is in accordance with the Marine Corps Publication Distribution System.

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5. User Information

a. US Army Combined Arms Center; HQMC, DC, CD&I; NWDC; Curtis E. LeMay Center for Doctrine Development and Education (LeMay Center); Headquarters Coast Guard; and Air Land Sea Application (ALSA) Center developed this publication with the joint participation of the approving Service commands. ALSA will review and update this publication as necessary.

b. This publication reflects current joint and Service doctrine, command and control organizations, facilities, personnel, responsibilities, and procedures. Changes in Service protocol, appropriately reflected in joint and Service publications, will be incorporated in revisions to this document.

c. We encourage recommended changes for improving this publication. Key your comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to:

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SUMMARY OF CHANGES

ATP 3-34.84/MCRP 3-35.9A/NTTP 3-07.7/AFTTP 3-2.75/CGTTP 3-95.17, *Multi-Service Tactics, Techniques, and Procedures for Military Diving Operations.*

This revision, 13 February 2015:

Updates:

- Navy explosive ordnance disposal missions.
- Army engineer dive units' capabilities and organization charts.
- Air Force special operations organization chart.
- Coast Guard capabilities and mission charts.
- Figures 1-3, to be consistent with defined dive mission areas.

Deletes:

- Chapters III–VIII.
- Army reference to Field Manual 3-34.280.

Adds:

- Appendices B–G (formerly chapters III–VIII).
- Army reference to Training Manual 3.34.83.
- Marine Corps reference to Marine Corps Order 3150.4.
- Navy reference to Navy Diving Manual, Revision 6.
- Air Force reference to Air Force Instruction 10-3501.
- Marine Corps additional dive points of contact.

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ATP 3-34.84 [ATTP 3-34.84]	**US Army Training and Doctrine Command** **Joint Base Langley-Eustis, Virginia** **US Army Combined Arms Center** **Fort Leavenworth, Kansas**
MCRP 3-35.9A	**Headquarters, USMC, Deputy Commandant, CD&I** **Quantico, Virginia**
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AFTTP 3-2.75	**Curtis E. LeMay Center for Doctrine Development and Education** **Maxwell Air Force Base, Alabama**
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13 February 2015

MDO

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR MILITARY DIVING OPERATIONS

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EXECUTIVE SUMMARY

MDO

Throughout the history of diving, each of the five United States Armed Services has evolved its diving capabilities to meet the demands of Service-specific mission requirements. Their divers have specialized training, equipment, and capabilities based on those Service-specific missions. These dive capabilities are detailed in appendices B through G.

The Military Diving Operations (MDO) MTTP publication is designed to assist commanders and planning staffs who require dive operations capability. It provides considerations for immediate response as well as deliberate planning for situations requiring dive capabilities. It describes the 13 dive mission areas (DMAs) performed by military divers, describes the 13 different types of military divers within the Services, and lists associated capabilities and limitations for the types of divers.

Chapter I Military Diving Operations

Chapter I introduces MDO along with a short vignette on how divers assist the joint force commander.

Chapter II Dive Mission Areas

Chapter II describes the thirteen major DMAs and their subcategories that may be performed by military divers.

Chapter III Military Diving Operations Planning Considerations

Chapter III outlines considerations for coordinating and planning dive operations. It provides decision aids to assist the staff planner with determining which DMAs and subcategories are required to support the overall mission.

Appendix A Dive Mission Area Unit Capability Chart

Appendix A provides a quick-reference chart listing dive unit capabilities to accomplish each of the DMAs and subcategories.

Appendix B United States Navy Diving

Appendix C United States Army (USA) Diving

Appendix D United States Marine Corps (USMC) Diving

Appendix E United States Air Force (USAF) Diving

Appendix F Special Operations Forces (SOF) Diving

Appendix G Non-Department of Defense Diving

Appendices B through G provide Service-specific dive missions, organizations, employment concepts, and capabilities.

Appendix H Dive Point of Contact List

Appendix H provides a comprehensive list of dive program points of contact, including Service program managers and major units.

Appendix I Common Equipment and Restrictions

Appendix I provides a list of equipment and restrictions common to divers from all Services.

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Chapter I
MILITARY DIVING OPERATIONS (MDO)

Operation IRAQI FREEDOM Diver Recovery Mission

On 21 October 2005 at 1730L [local], the 64th Expeditionary Rescue Squadron was notified by the Joint Personnel Recovery Coordination Center that a high mobility multipurpose wheeled vehicle (HMMWV) with five United States (US) Marines onboard had been hit by an improvised explosive device near Fallujah, Iraq. Two Marines had been ejected from the vehicle, presumably into a 75 foot wide, 15 foot deep irrigation canal.

US Air Force personnel recovery (PR) forces on alert at Balad, Iraq, were tasked to initiate search and rescue efforts. The PR forces immediately deployed to the incident site by helicopter, linked up with the Marine ground force commander, and initiated recovery operations.

US Central Command planners continuously monitored the progress of the recovery operations and alerted US Navy divers to help with the recovery efforts.

The Air Force PR dive team worked throughout the night and into the afternoon, locating partial remains of the Marines, dog tags, and equipment items which allowed commanders to reclassify the two Marines as “killed in action.” Navy dive teams arrived at 1600L [local] the day after the incident [occurred] and a handover of the recovery operation was conducted.

Over the next few days, the Navy team continued sensitive recovery operations and recovered the remainder of the personal effects and sensitive equipment from the incident site. The ability of the joint force planners to quickly initiate dive recovery operations and transition the dive force to sustain the operation ensured the remains of these Marines could be returned with honor.

Source: Headquarters United States Air Force

a. In the United States (US) military, dive capabilities are maintained as skill sets to facilitate accomplishing a unit’s assigned missions. Diving is not a stand-alone mission and can be compared to tasks such as air-to-air refueling for aircraft or parachuting for airborne units.

b. Operations require commanders and planners to integrate divers to support the joint force commander (JFC). Planners must decide which type of dive unit can execute a particular mission requirement. This military diving operations (MDO) publication is intended to provide planners with a general understanding of dive mission areas (DMAs) and what type of dive units can accomplish each mission. The real-world example from Operation IRAQI FREEDOM highlights the dilemma for planners who require unique diving capabilities from different military divers to accomplish the mission.

c. There are currently 13 types of DMAs performed by divers of the US Armed Forces. Various dive units conduct these missions within Service DMAs. This MDO publication provides information on how each Service organizes and supports its dive-capable units and how Service-specific capabilities integrate with the overall Universal Joint Task List (UJTL).

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Chapter II
DIVE MISSION AREAS

1. Introduction

The DMAs are derived from the UJTL and are divided into the main areas where divers provide support to operations. Not all dive units are capable of all DMAs. For example, a dive unit may only have scuba equipment and be limited to a subcategory of one or two DMAs. Refer to appendix A for a comparison of DMA to dive unit and specific dive capabilities. The 13 DMAs are listed in table 1 as a reference, and each DMA is described in detail in this chapter.

Table 1. Dive Mission Areas

- Mobility
- Countermobility
- Protection (physical security)
- Explosive hazard and ordnance disposal
- Infiltration/exfiltration
- Underwater ship husbandry
- Port/harbor operations
- Joint logistics over-the-shore (JLOTS)
- Offshore petroleum distribution systems (OPDS)
- Salvage
- Search and rescue/recovery
- Conduct disaster response measures
- Hyperbaric chamber

2. DMA Descriptions

a. Mobility. Divers provide the commander with critical support for water obstacle crossing by supplying the information needed to determine crossing sites, bridging locations, and time estimates for reduction or removal of obstacles. This information is gathered by conducting hydrographic or bathymetric surveys, shore reconnaissance, and obstacle reduction or removal.

(1) Bridge, Fording Sites, and Existing Structures Reconnaissance. Divers determine the type of construction used, condition of the structure, battle damage assessment, and repair estimates. Structural engineer augmentation may be required.

(2) River Reconnaissance Operations. Divers conduct reconnaissance of both the near and far shores of a water obstacle to determine the ability of the site to support future wet gap crossing operations. They identify the bottom composition, establish bank slopes, water depths, and possible staging areas and rally points on the near and far shores.

(3) Obstacle Reduction. After identifying obstacles to mobility, divers can remove or reduce them using mechanical and/or explosive methods.

(4) Installation of Protective Barriers for Bridging Structures. Divers assist in installing impact booms, anti-mine booms, and anti-swimmer nets upstream and downstream of crossing sites. They can also inspect these devices routinely for signs of tampering or damage and repair them, as required.

(5) Underwater Surveys. Dive units can create sub-meter accurate charts of the waterway's bottom and note any obstacles to navigation. The initial survey can be conducted by a few personnel and small water craft configured with various types of technology packages to provide a quick and fairly accurate description of the underwater terrain. If obstructions are found or there are questionable readings, divers can conduct a physical inspection of the anomalies. The following are the three kinds of underwater surveys.

(a) High Resolution. A high resolution survey involves post-survey data rendering and aerial photograph overlays and provides sub-meter accuracy. Survey data can be provided in paper and digital form. High resolution surveys take the most time compared to the other types of underwater surveys.

(b) Medium Resolution. A medium resolution survey provides a graphic representation of the bottom profile with sub-meter accuracy. A digital copy is available within hours of the survey.

(c) Low Resolution. A low resolution survey provides 1- to 3-meter accuracy with a verbal description of the site and basic markings.

(6) Very Shallow Water (VSW) Operations. Divers conduct advanced force and pre-assault mine countermeasures exploratory and reconnaissance operations in the VSW zone (from 10- to 40- foot water depths) to locate and clear potential landing sites in support of joint littoral power-projection operations.

b. Countermobility. Divers aid the countermobility mission by creating obstacles in and around potential crossing sites. They are capable of emplacing underwater minefields and rigging bridges for command- and time-fused detonations.

(1) Obstacle Emplacement. Divers can build various types of obstacles designed to slow or impede the enemy's ability to conduct wet-gap crossing operations. These obstacles can be placed underwater with sub-meter accuracy creating an interlocking barrier navigable by allied forces and an obstacle to enemy forces.

(2) Demolition of Bridge Structures. To impede an enemy's ability to cross bridges, demolitions can be conducted to render the bridge impassible to the enemy. Some dive units have substantial training in precisely and surgically conducting demolitions. These teams, when augmented with structural engineers, can demolish a bridge in such a manner as to create an obstacle for the enemy but not for allied nations.

c. Protection (Physical Security). Divers can enhance protection in contingency operations or in response to national security concerns, including counterterrorism and counterdrug operations. Divers can rapidly deploy to secure critical areas. Physical security of bridges, ports, locks, and dams may include active and passive systems to protect or provide early warning of impending danger.

(1) Passive or Active Detection Methods. Divers assist in placing and maintaining physical security systems in port areas and waterways and on fixed bridges, locks, or dams.

(2) Security Swims. Divers provide security by searching the underside of a ship's hull and the adjacent pier to provide an active early detection system.

(3) Physical Security Inspections. Divers conduct inspections on the underwater portion of a vessel before it enters a facility or while moored outside a secured perimeter to locate possible explosive hazards.

(4) Vulnerability Assessments. Divers perform inspections and surveys to facilitate assessment of vulnerabilities to threats by enemy and terrorists with dive capabilities.

(5) Contraband Search. Divers conduct searches on the underside of a ship's hull to locate foreign devices and objects.

d. Explosive Hazard and Ordnance Disposal.

(1) Locate and Mark. Divers search for and record any identifying markings on foreign objects placed along ships' hulls, piers, port facilities, and other underwater structures. Foreign objects are marked for additional investigation by specially trained divers.

(2) Render Safe and/or Dispose of Underwater Ordnance and Explosive Hazards. Navy explosive ordnance divers render safe, remove, or mitigate effects of ordnance (i.e., sea mines, limpet mines, torpedoes, and other ordnance) designed to be used underwater, and explosive hazards (unexploded ordnance [UXO], improvised explosive devices, etc.) found underwater. This category also covers ordnance normally designed to function on land or in the air but is found underwater.

(3) Marine Mammal System (MMS) Operations. MMS detachments use trained animals including dolphins and sea lions to provide an enhanced capability to detect, identify, mark, render safe, recover, and neutralize objects within a water column or objects on or below the sea floor.

e. Infiltration/Exfiltration. These operations use diving as a means to circumvent enemy lines and defenses to facilitate follow-on missions such as surveillance, reconnaissance, and direct action.

f. Underwater Ship Husbandry. Ship husbandry is the in-water vessel inspection, maintenance, and repair. Vessel inspections are performed to assess the condition of the underwater hull and appendages. These inspections cover all parts of the vessel below the waterline and are part of a scheduled or emergent maintenance or damage assessment.

(1) Inspections.

(a) Hull. Make a damage assessment and identify any buildup from marine organisms growing on the hull, and the condition of antifouling paint surfaces.

(b) Propulsion and Steering Systems. Check the condition of shafts, propellers, and rudders and the serviceability of protective coatings, seals, and bearings.

(c) Vessel Appendages. Check the general condition and operational ability.

(2) Maintenance. Underwater maintenance tasks include hull cleaning; replacing sacrificial anodes; maintaining cathodic protection systems; replacing worn or corroded nuts, bolts, and screws; fairing in hydrodynamic surfaces; and servicing any items that would fall into disrepair if they are not maintained. Maintenance procedures require hand tools, pneumatic or hydraulic tools, and other special equipment, such as hull-cleaning devices.

(3) Repair. Most underwater repairs are intended to be permanent repairs. Repair tasks consist of removing and replacing hull appendages, sealing cracks or separated seams, and performing mechanical and metal repairs. Repairs may be accomplished in a wet environment or may require a cofferdam to provide a dry environment.

(4) Battle Damage Assessment (BDA) and Repair. BDA and repair provides immediate assistance to a vessel in distress. A remotely operated vehicle is used to inspect and assess areas of damage, providing a real-time video feed to repair facilities via satellite. Repairs are temporary and are meant to keep the vessel afloat until permanent repairs are made. BDA and repair normally is conducted in a remote, semi-permissive or permissive environment. BDA and repair capabilities are grouped into two categories. They are:

(a) Light Repair. Install small damage control plugs and design and emplace patches.

(b) Heavy Repair. Wet weld large patches and repair or replace underwater propulsion and steering systems.

g. Port and Harbor Operations. Port and Harbor operations include facilities opening, construction, clearance, and rehabilitation. Port facilities are fundamental to the movement of personnel and material for any military operation. Port facilities can either be improved for friendly forces or modified to deny use by the enemy.

(1) Planning and Inspection. Divers assist in planning any port operation to help determine priorities of work or prepare work estimates. A completed inspection can provide the water terminal commander with a report of existing conditions of underwater port facility structures.

(2) Hydrographic and Bathymetric Survey. Divers conduct surveys to depict water depths and obstruction locations to determine the size of ship the port can support.

(3) Clearance. Clearance operations are undertaken to neutralize or reduce obstacles blocking the shipping channels in ports, loading facilities, mooring sites, marine railways, dry-dock facilities, lock and dam structures, and other navigable waterways.

(4) Repair. Repairing port facilities is more desirable than initial construction because it requires far less time and fewer resources. A repair may involve underwater and surface operations and will depend on the close integration of divers and general engineer assets. Inspecting and repairing these structures may require specialized equipment.

(5) Construction. Constructing new ports and facilities is a major undertaking, usually requiring extensive use of divers. Divers provide valuable information during the initial site selection and survey. Hydrographic surveys of the proposed area are conducted to determine water depths, sea-bottom contours, and shipping channels and underwater obstacle locations.

h. Joint Logistics Over-the-Shore (JLOTS). JLOTS operations occur when Navy and Army logistics over-the-shore (LOTS) forces conduct LOTS operations together under a JFC. LOTS is the process of loading and unloading ships without the benefit of deep-draft capable, fixed-port facilities; or as a means of moving forces closer to tactical assembly areas. Generally, LOTS operations will be joint. Divers support JLOTS operations through the following tasks.

(1) Survey. Divers conduct a survey of the operation site, to include an underwater bottom profile, to determine potential LOTS operation sites. Dive units create sub-meter accurate charts of the bottom and note any obstacles to navigation. The initial survey can be conducted by a few personnel with small water craft configured with various types of technology packages which will provide a quick and fairly accurate description of the underwater terrain. If obstructions are found or there are questionable readings, divers can conduct a physical inspection of the anomalies.

(2) Obstacle Reduction. After identifying obstacles to LOTS sites, divers can remove or reduce obstacles using mechanical and/or explosive methods.

(3) Medium Salvage. In the event supplies are lost overboard, dive units can search the area to locate the submerged equipment. Depending on the size and depth of the submerged equipment, divers will attach lifting devices to the object for surface cranes to raise. If overhead lift support is not available, divers can secure (attach) inflatable bags and pontoons to the object, float it to the surface, and tow it into shore where vehicles can pull the object onto land.

(4) Anchoring System Recovery and Repair. During LOTS operations, a ship's anchor and anchor chains may become entangled in underwater cables, caught on reef structures, or wrapped around sunken objects. Divers can unfoul an anchor and anchor chain so the surface vessel can get underway. Anchors may also become detached from their chains and cables. Divers can locate and reattach them.

(5) Anchoring Systems to Stabilize Causeway. Divers imbed anchoring systems into the sea floor to provide greater stability to the causeway during rough seas.

i. Offshore Petroleum Distribution Systems (OPDSs). OPDSs are designed to facilitate the high-volume movement of bulk liquid cargo from ship to shore and are used extensively during fuel transfer operations. Engineer port construction companies, divers, and transportation watercraft groups play important roles in preparing, installing, repairing, and operating OPDS. Divers are required to support OPDS by performing the following actions.

(1) Installing a single-anchor leg-mooring (SALM) system. The SALM system is emplaced as a mooring station and discharge manifold providing a semi-

permanent installation for bulk fuel transfer directly from an offshore tanker to port storage.

(2) Conducting hydrographic surveys to determine beach gradient, underwater contour, and geotechnical information.

(3) Improving beach approaches.

(4) Clearing enemy emplaced or natural obstacles from beach approaches.

(5) Anchoring underwater pipelines to the seafloor.

(6) Inspecting pipelines and their components.

j. Salvage. Major salvage operations include clearing and removing submersed or sunken vessels, equipment, supplies, or other materials from port channels, berthing and docking facilities, mooring sites, lakes, lock and dam facilities, and other navigable waterways. A diver's ability to salvage vessels or other equipment depends on the type, size, and location of the object and the time available for the salvage effort. Salvage methods range from simple to large-scale operations requiring complex integration of surface-support assets, including multiple vessels and lift assets. There are three categories of salvage operations: light, medium, and heavy.

(1) Light salvage normally is done to clear berthing spaces. Objects weighing less than 10 tons are considered light salvage.

(2) Medium salvage objects weigh between 10 tons and 75 tons.

(3) Heavy salvage is anything weighing more than 75 tons.

k. Search and Rescue/Recovery. Divers assist in search and rescue/recovery of personnel and equipment lost in or near water.

(1) Physical searches. Divers use various techniques to locate personnel during combat, natural disasters, and other emergencies.

(2) Recovery. Recovery operations are focused on recovering personnel, sensitive equipment, or material of forensic value.

(3) Submarine Disaster Rescue. Operations to recover personnel and equipment from distressed submarines.

l. Conduct Disaster Response Measures.

(1) Assist in making plans and assessments to mitigate damage caused by natural disasters.

(2) Remove obstacles to navigation in areas damaged or covered by floods, earthquakes, or other naturally occurring and manmade disasters.

(3) Repair dams, levees, breakwaters, and other manmade retaining structures.

(4) Validate hydrographic surveys by verifying existing charts are accurate and waterways were not affected by the disaster.

m. Hyperbaric Chamber. Provide recompression therapy for pressure-related injuries resulting from flight or diving operations. Dive units may provide their own hyperbaric chambers. If not, available chambers may be located through the Naval Sea Systems Command worldwide web address (https://secure.www.supsalv.org) or by contacting the Naval Experimental Dive Unit emergency number (850) 230-3100.

These are not the definitive sources for all recompression chambers worldwide, however, they can be used as planning resources.

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Chapter III
Military Diving Operations Planning Considerations

1. Introduction

When planning for the deployment of military dive units, it is crucial for a planner to know the condition and capabilities of waterways, military diving, and civilian agency resources in the area of operations (AO). This information enables the joint force planner to determine the types and mix of assets required to support operational requirements. This chapter details the planning considerations for tasking Service dive capabilities and includes an overview of MDO capabilities.

2. Planning Considerations

a. Service commanders should determine the dive capabilities and forces required, arrival sequence, and support requirements to plan diving operations. This includes planning for the full range of military diving operations to support deliberate and crisis action planning for deployment, employment, sustainment, and redeployment of forces. The JFC will need expertise from Service diving representatives for coordination with all relevant agencies.

b. During deliberate planning, planners should first determine the dive capabilities required to support expected and contingency operations using the decision aids in this chapter and the DMA descriptions in chapter II. They should then use this analysis to initiate appropriate requests for forces through the established combatant command request process. This will ensure forces with the required capabilities are in the AO when needed.

(1) Deployment timelines for dive units can vary greatly and depend on the unit's equipment and transportation modes available. Timelines typically range from a couple of days with airlift available to several weeks if sealift is used.

(2) Most dive units are air deployable, with equipment such as hyperbaric chambers increasing the amount of cargo space required. Dive units may also deploy with a reduced equipment inventory scaled to the expected missions. Planners should carefully consider the reduced flexibility this scaled deployment provides and balance it with other mission requirements.

c. Planners and dive unit commanders should consider all phases of the operation when determining required capabilities. It may be necessary to use different organizational dive teams for different phases of the operation.

d. Plan for subsequent phases concurrently with initial phase execution in time-critical operations. Planners should initiate contact with first-response dive teams as quickly as possible to provide rescue, recovery, and initial site survey. First responders provide quick reaction with limited capabilities but are a vital source of information for follow-on operations. For example, in the case of a downed aircraft, divers may be tasked to:

(1) Locate the aircraft.

(2) Make a positive identification.

(3) Make the initial inspection.
(4) Render safe explosives.
(5) Recover remains.
(6) Recover and sanitize sensitive equipment.
(7) Remove hazardous materials.
(8) Recover critical structural elements.
(9) Recover aircraft.

3. Planning Decision Aids

a. When determining which dive units to use, planners should ask a series of questions to ensure the appropriate assets are matched to the mission. These questions begin with the time-critical decision of determining the need for rescue operations, then continues with methodically determining the required capabilities, and finishes with selecting dive units with the required capabilities. Staff planners can use the Dive Planning Guide (figure 1) to assist in the planning process. By answering the questions in this guide, the planner who is unfamiliar with diving operations, will be able to not only determine what type(s) of divers will be required to accomplish the mission, but also what information and support may be needed by the dive unit.

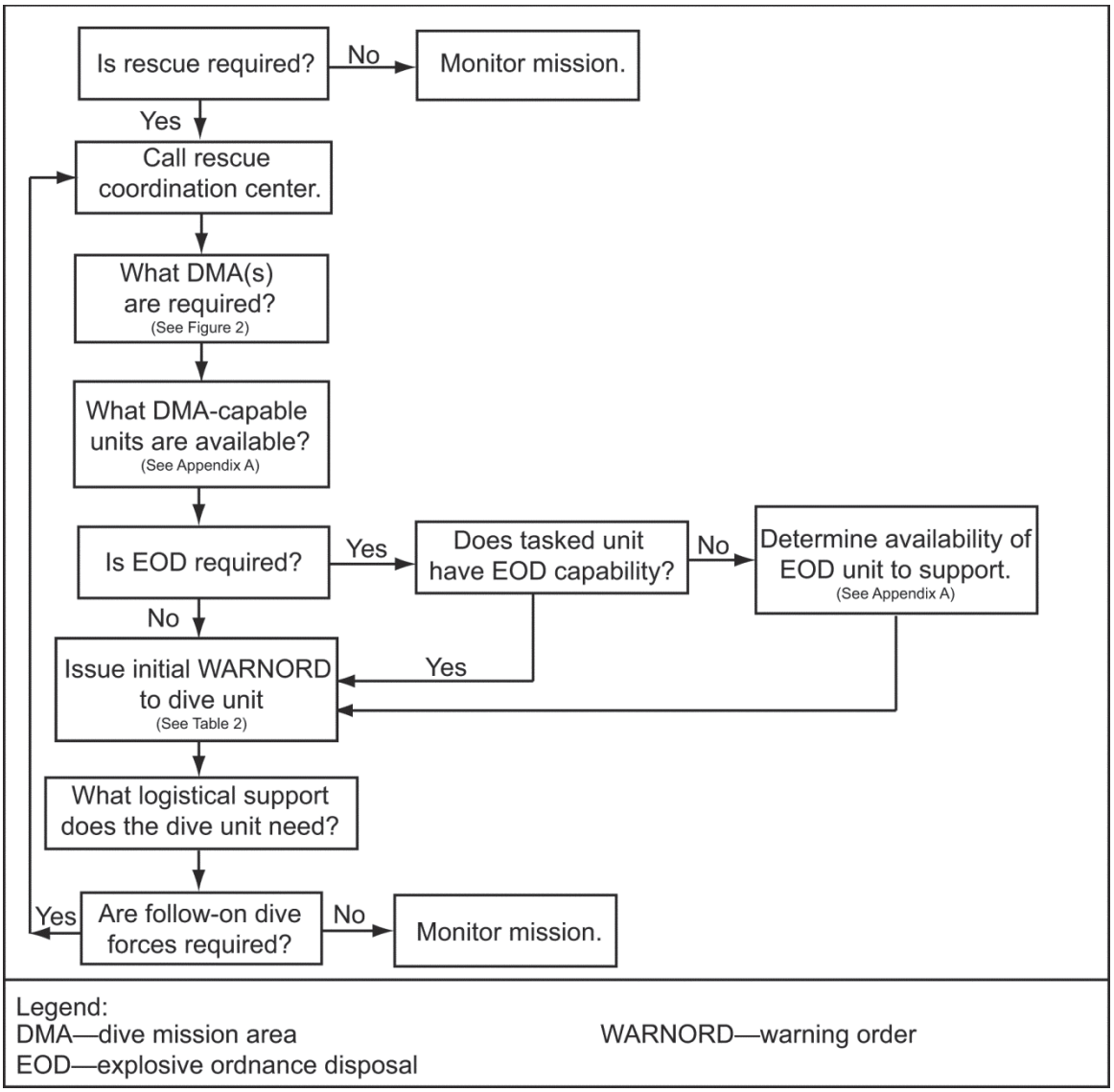

Figure 1. Dive Planning Guide

b. The DMAs are derived from specific tasks in the UJTL and describe the main areas where divers provide support to operations. (Planners should refer to chapter II of this publication for detailed descriptions of the DMAs and their subcategories.) Figure 2, DMA Decision Aid, provides a quick reference for planners to determine which DMAs may be applicable to each of the five major types of operations supported by the DMAs. These five types of operations are:

(1) Offensive.
(2) Defensive.
(3) Salvage/Repair.
(4) Logistical Support.
(5) Search and Rescue/Recovery (This DMA is its own mission type).

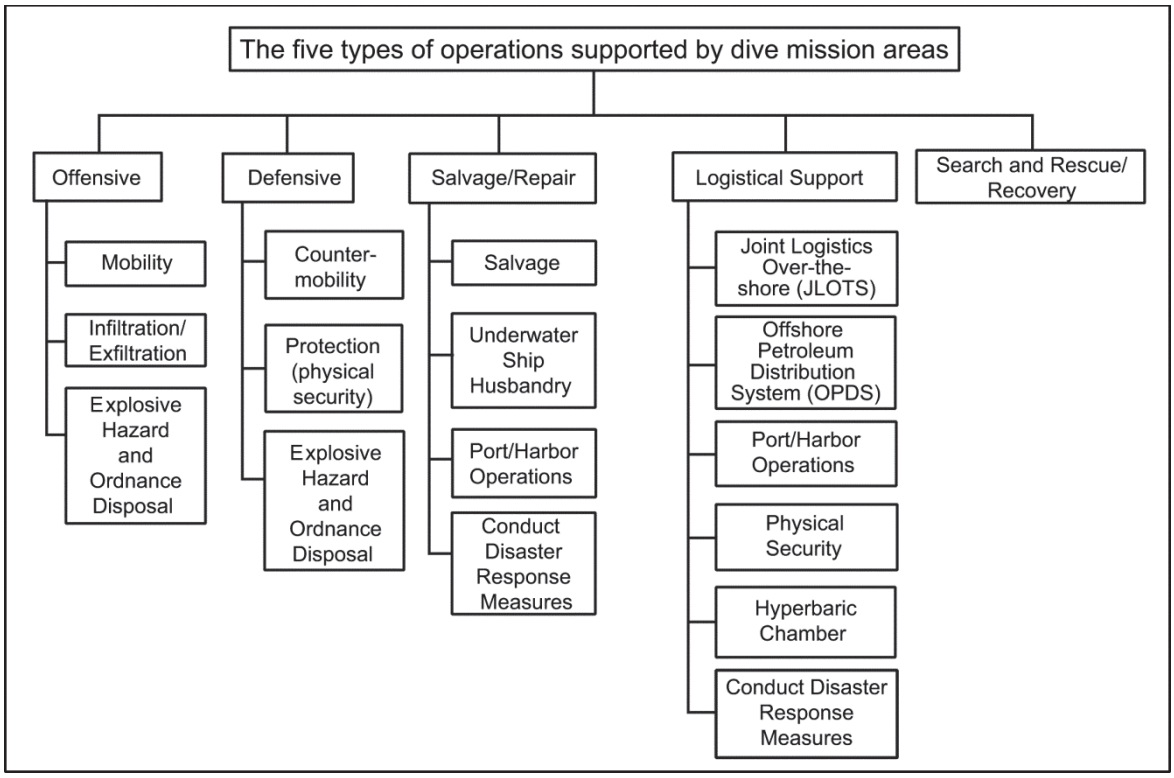

Figure 2. DMA Decision Aid

c. The DMA subcategory breakout (figure 3) further assists the planner in logically determining the DMAs appropriate for the operation. After a required DMA is identified, planners should use the DMA subcategory breakout to further refine specific requirements. For example, divers may be called upon to support a river crossing (mobility) by conducting an underwater survey to find suitable crossing sites and to reduce natural or man-made obstacles. Once mission-specific requirements are determined, planners should use the DMA Unit Capability Chart at appendix A to match required capabilities to available types of dive units. This step is critical because not all dive units are capable of all DMAs or subcategories.

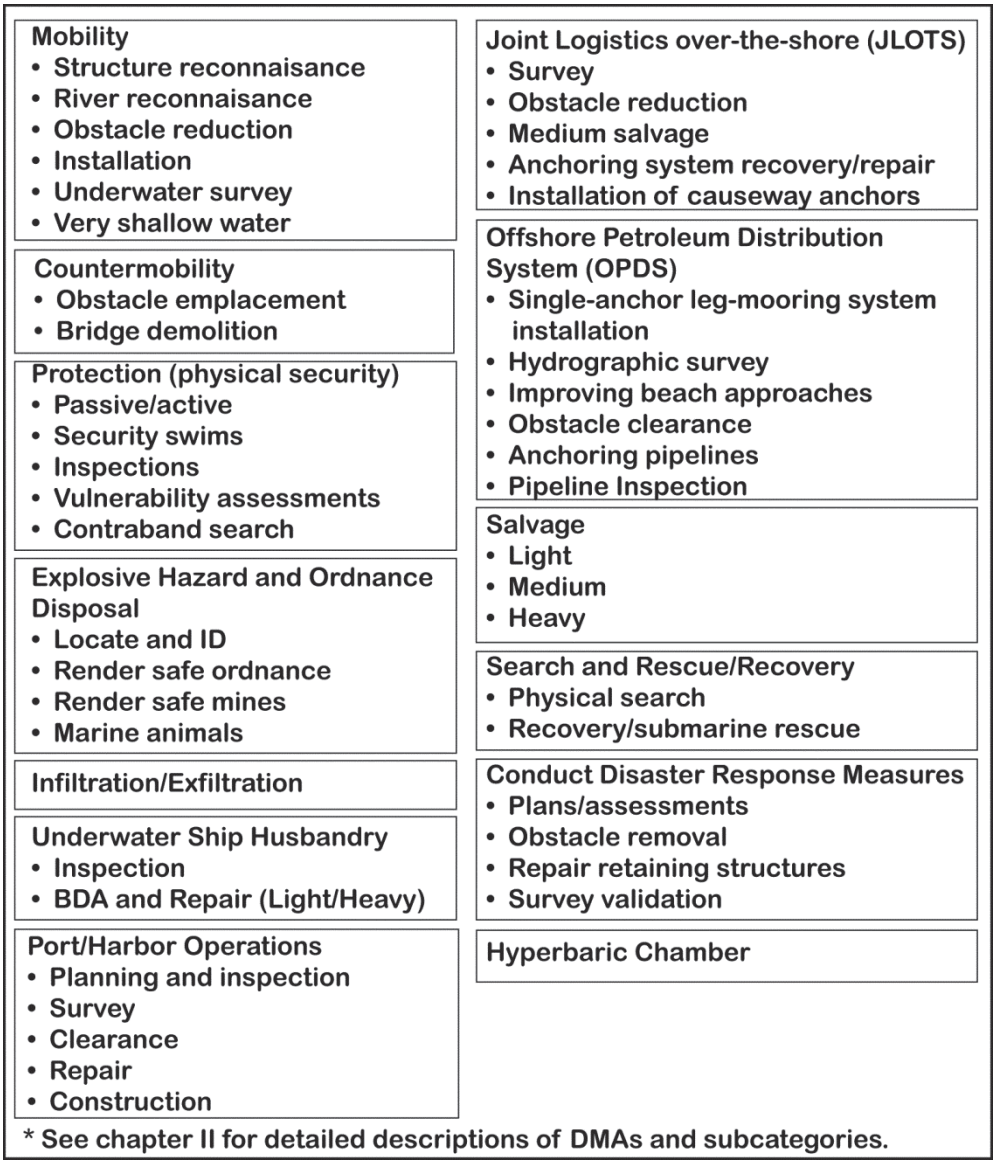

Figure 3. DMA Subcategory Breakout

d. After determining required DMAs and available dive units, staff planners should initiate contact with the dive units as soon as possible. This will allow dive teams to plan technical aspects of the mission, begin preparing equipment and personnel, and begin moving to the dive site.

e. In addition to the normal planning considerations, dive operations have specific logistical, environmental, and interagency considerations which must be addressed during planning. These considerations will determine the manning, equipment, qualifications, and time required to accomplishment the mission. Planners should gather as much of this information as possible and pass it to the dive unit as soon as practical to help ensure dive mission success. Sources for this information will depend on the dive location, but should include personnel at the dive site, weather observations, forecasters, and the Internet. Table 2 provides a checklist to assist staff planners with this process.

Table 2. Dive Unit Initial Coordination	
This checklist is a quick reference for initial coordination with dive units for their missions. Timely dive unit notification, with as much of the basic information listed below as possible, will increase the degree of mission success. Use weather observers and forecasters, on-scene personnel, the Internet, and any other available sources to gather data.	
1. **Determine required capabilities.** • Refer to Figure 2, "Dive mission area (DMA) Decision Aid," and Figure 3, "DMA Subcategory Breakout." • Chapter II provides detailed DMA descriptions.	a) **DMA(s)**:_____ b) **Subcategories:**_____
2. **Identify and request available and capable units.** • Contact combatant command or joint force commander staff dive representative. ➢ Rescue center point-of-contact (POC). ➢ Diver POC. • Refer to appendix A, "DMA Unit Capability Chart."	a) **Higher headquarters POC**:_____ Contact #:_____ b) **Dive unit POC**:_____ Contact #:_____ c) **Dive unit POC**:_____ Contact #:_____
3. **Contact assigned dive unit.** • Provide as available: ➢ Combative or non-combative dive site. ➢ Water contamination. ➢ Air and water temperature. ➢ Water depth. ➢ Current. ➢ Tide charts. ➢ Underwater visibility. • Coordinate logistics for these prior to dive team arrival: ➢ Hazardous materials transportation. ➢ Compressed gas. ➢ Explosives. ➢ Generators and motors. ➢ Transportation requirements. ➢ Site security. ➢ Fuel (gas or diesel). ➢ Dive platform ➢ Other.	a) **Site, water, and weather conditions:** Combative dive: Y/N Water contaminates:_____ Air and water temperatures:_____ Water depth:_____ Current:_____ Tides:_____ Underwater visibility:_____ b) **Logistics support required:** Passenger and equipment transportation:_____ Fuel:_____ Platform and generators: _____ Explosives:_____ Site security:_____ Compressed gas:_____
Coordination Notes:	

(1) Logistics.

(a) Transporting and Storing Compressed Air. Full dive tanks are typically not allowed on aircraft without appropriate hazardous material declarations. If the dive team is transported by air, the tanks may have to be refilled at the destination.

(b) Diver and Equipment Transportation Requirements. Not all dive teams have integral transportation capability. Planners may be required to task units to provide transportation.

(c) Dive Site Security. Most dive teams have a limited self-defense capability. The dive mission may be negatively impacted if dive teams are required to provide their own security.

(d) Fuel Requirements (Gasoline and Diesel). Dive team support equipment varies and may require gasoline, diesel, or both.

(e) Diving Platform (Available or Required). Divers operate from a wide variety of platforms, including piers, shores, barges, boats, and ships and vessels of opportunity. The platform required depends on the mission. Teams may be able to provide their own platform.

(2) Environmental Conditions.

(a) Water Contamination. Fuel, biological, or chemical contaminants may be damaging to dive equipment and hazardous to divers. Additional equipment or post-dive medical assistance may be required if these conditions exist.

(b) Water Temperature. Cold water will reduce submerged times for divers and may require additional equipment or manning.

(c) Water Depth. Deeper dive operations reduce submerged times for divers. Maximum operating depths depend, in part, on equipment.

(d) Currents. Currents greater than 1 knot may require additional planning or equipment.

(e) Tide Charts. Tidal phases may influence water depth and currents at the dive site.

(f) Underwater Visibility. Low visibility may increase time required to accomplish a task. For example, if searching an area for a piece of equipment, low visibility may require a denser search pattern or alternate search technique.

(g) UXO. The presence of UXO may require additional considerations for the type of diving being conducted.

4. Interservice, Interagency, and Combined Operations

All Service divers graduate from a Department of Defense approved dive school. However, there are differences in procedures, training, and equipment among Services, agencies, and nations. Dive teams consisting of personnel from different Services, agencies, and nations are possible but require additional coordination.

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Appendix A
DIVE MISSION AREA UNIT CAPABILITY CHART

Unit capabilities in table 3 are described as full (F) and limited (L).

a. F Capability. The dive mission area (DMA) is a primary task this unit is trained and equipped to conduct.

b. L Capability. The DMA is a secondary task this unit may be able to perform based on skill sets inherent in the primary tasks.

Table 3. DMA Unit Capability Reference Chart

	Air Force Special Tactics	Air Force Personnel Recovery	Special Forces	Sea-air-lands (SEALs)	Marine Combat Diver	Army Engineer Diver	Navy Mobile Diving and Salvage Unit (MDSU)	Navy Underwater Construction Team (UCT)	Regional Maintenance Centers	Navy Explosive Ordnance Disposal (EOD)	NAVSEA/SUPSALV 00C	Coast Guard	Deep Submergence Unit
MOBILITY													
Reconnaissance	L	L	L	L	L	F	L	F		L			
River Reconnaissance	L	L	F	F	F	F	L	F		L			
Obstacle Reduction	L	L	L	L	L	F	F	F		L		L	
Installation			L	L		F	L	L		L			
Underwater Survey			L	L	L	F	F	F	F	L	F	L	
- High Resolution						F	L	L	L	L	F		
- Medium Resolution						F	F	F	L	F	F	L	
- Low Resolution				F	F	F	F	F	L	F	F	L	
Very Shallow Water				F		L	L		L	F	F	L	
COUNTERMOBILITY													
Obstacle Emplacement			L	F		F		F					
Demolition of Bridge Structures			F	F	L	F	L	F		L			
PROTECTION (PHYSICAL SECURITY)													
Passive or Active	L	L	L	F	L	F	L	F	F				
Security Swims	L	L	L	L	F	F	F	F	F	F		F	
Physical Security Inspections	L	L	L	L	L	L	F	F	F	F		F	
Vulnerability Assessments			L	L		L	F	L	F	L		L	
Contraband Search	L	L	L	L	L	F	L	L	F	F		F	

Table 3. DMA Unit Capability Reference Chart (Cont'd)													
	Air Force Special Tactics	Air Force Personnel Recovery	Special Forces	SEALs	Marine Combat Diver	Army Engineer Diver	Navy MDSU	Navy UCT	Regional Maintenance Centers	Navy EOD	NAVSEA/SUPSALV 00C	Coast Guard	Deep Submergence Unit
EXPLOSIVE HAZARD AND ORDNANCE DISPOSAL													
Locate and Identify	L	L	L	F	L	F	F	F	F	F		L	
Render Safe (Ordnance)										F			
Render Safe (Mines)										F			
Marine Mammals										F			
INFILTRATION AND EXFILTRATION													
Infiltration/Exfiltration	F	L	F	F	F					L			
UNDERWATER SHIP HUSBANDRY													
Inspection						F	F	L	F	L	F	L	
Battle Damage Assessment and Repair						F	F		F	L	L		
- Light Repair						F	F		F	L	F	L	
- Heavy Repair						L	L		F		L		
PORT and HARBOR OPERATIONS													
Planning and Inspection						F		F	F	F	F		
Hydrographic/Bathymetric Survey				F	L	F	F	F	L	F	L		
Clearance				F	L	F	F	F	L	F	L		
Repair						F		F	F		L		
Construction						F		F	L		L		
JOINT LOGISTICS OVER-THE-SHORE (JLOTS)													
Survey						F	F	F			F		
Obstacle Reduction						F	F	F	L		L	L	
Medium Salvage						F	F	L	L		L		
Anchoring System Recovery and Repair						F	F	F	L		L		
Installation of Causeway Anchors						F	L	F			L		
OFFSHORE PETROLEUM DISTRIBUTION SYSTEMS (OPDS)													
Single-anchor, Leg-mooring System Installation						L	L	F					
Hydrographic Surveys						F	L	F			L		
Improving Beach Approaches							L	F			L		
Clearing Obstacles						F	L	F					
Anchoring Pipelines to Sea Floor						F	L	F					
Pipeline Inspection						F	L	F	L		L		

Table 3. DMA Unit Capability Reference Chart (Cont'd)													
	Air Force Special Tactics	Air Force Personnel Recovery	Special Forces	SEALs	Marine Combat Diver	Army Engineer Diver	Navy MDSU	Navy UCT	Regional Maintenance Centers	Navy EOD	NAVSEA/SUPSALV 00C	Coast Guard	Deep Submergence Unit
SALVAGE													
Light						F	F	L	F		L	L	
Medium						F	F	L	L		L		
Heavy						L	F		L		L		
SEARCH AND RESCUE/RECOVERY													
Physical Searches	F	F	L	L	L	F	F	F	F	F	L	F	F
Recovery	F	F	L	L	L	F	F	F	F	F	L	L	F
Submarine Rescue							L				L		F
CONDUCT DISASTER RESPONSE MEASURES													
Plans and Assessments						F	F	F	F		F		
Obstacle Removal	L	L			L	F	F	F	L		L	L	
Repair Retaining Structures						F		F	L		L		
Hydrographic Survey Validation					L	F		F	L		L	L	
HYPERBARIC CHAMBER													
Hyperbaric Chamber			L	L	L	F	F	F	F		F		

Notes:
- United States (US) Air Force special tactics units that have assigned pararescue jumpers have full search and rescue capability. Units without pararescue jumpers have limited search and rescue capability.
- The US Marine Corps has a limited capability (under the hyperbaric chamber section) with the Expeditionary Hyperbaric Chamber and Transportable Recompression Chamber Systems. Not all Marine expeditionary units deploy with this capability, but the capability exists.
- Some Army units perform lifeguard duties under the Protection dive mission area.

Legend:
NAVSEA/SUPSALV 00C—Naval Sea Systems Command Supervisor of Salvage and Diving/Director of Ocean Engineering

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Appendix B
UNITED STATES NAVY DIVING

1. Overview

The Navy has five types of divers: explosive ordnance disposal (EOD), Navy diver (ND), underwater construction team (UCT), submarine security, and sea-air-land (SEAL). (See appendix A for dive mission area capabilities.)

Note: For a detailed description of Navy diving capabilities, see SS521-AG-PRO-010, *US Navy Diving Manual,* Revision 6 dated 15 April 2008.

2. EOD

a. Mission. EOD personnel provide detect, identify, render safe, recover, evaluate, and dispose of explosive ordnance which has been fired, dropped, launched, projected, or placed to constitute a hazard to operations, installations, personnel, or material. The mission extends to all explosive hazards (EH) and ordnance, particularly in those areas which are the responsibility of the Navy or ordnance discovered within oceans, inlets, bays, and harbors.

b. Capabilities. Navy EOD units integrate into fleet battle groups to support special operations forces (SOF) and conduct mine countermeasures (MCM) operations. Specific units also maintain and operate various marine mammal systems (MMSs) to conduct MCM, port security, and underwater object location operations.

(1) EOD MCM Platoon.

(a) EOD MCM platoons are dedicated to support the mine warfare (MIW) mission and are functionally organized to locate, identify, neutralize, recover, exploit, and dispose of underwater ordnance and EH impeding maneuver. MCM platoons normally support other MIW platforms and units, but are capable of limited independent MCM operations.

(b) MCM platoons also provide diving and demolition support, intelligence collection, range clearance, underwater clearance, shore detachment augmentation, riverine operations, Chief of Naval Operations (CNO) project support, contingency, and special operational support. They also can be a force multiplier to support aircraft and ordnance recovery.

(2) MMS Platoon. All MMS platoons are mobile systems that can rapidly deploy to most areas of the world on short notice. Systems can utilize fixed-wing aircraft, helicopters, trucks, boats, amphibious ship well decks, or command ships. These highly mobile, reliable, and effective systems provide a trained contingency response capability in several mission areas. MK 4 and MK 7 MMSs provide post-assault mine hunting from 10 to 200 feet. This system is capable of mine localization and neutralization. MK8 MMSs provide pre-assault mine hunting from 10 to 40 feet. This system is capable of mine localization and marking only. MK6 MMSs provide swimmer detection and defense capabilities.

(3) Area Search Platoons (ASPs). ASPs are deployable teams who operate side-scan sonar and precise navigation equipment to detect, locate, mark, and

reacquire underwater objects. ASPs are frequently employed in support of salvage and search operations, but have a limited mine detection capability. ASPs are employed to detect and/or reacquire underwater objects and non-influence ordnance proud of (resting on) the bottom using side-scan sonar and remotely operated vehicles (ROVs). ASPs also are deployed in hydrographic and Q-route survey operations, but are not used as a mine hunting assets.

(4) Very Shallow Water (VSW) Company. VSW companies conduct advanced-force and pre-assault MCM exploratory and reconnaissance operations in the VSW zone (i.e., from 10- to 40-foot water depths) to locate and clear potential landing sites in support of joint littoral power-projection operations.

c. EOD Task Organization. Naval EOD capabilities are organized under Commander, EOD Group ONE, headquartered in San Diego, California, and Commander, EOD Group TWO, headquartered in Virginia Beach, Virginia. Each EOD Group is responsible for three continental US EOD Mobile Units, one forward deployed naval force mobile unit, one expeditionary support unit, one mobile diving salvage unit (MDSU) and one training and evaluation unit. The following units are assigned to and support EOD mobile unit operations:

(1) EOD Mobile Platoon. EOD mobile platoons deploy with fleet battle groups or independently within various assigned areas of responsibility. EOD mobile platoons provide general EOD support to operational and tactical commanders. Each platoon is manned with one officer in charge (OIC) and seven EOD technicians.

(2) EOD Naval Special Operations Forces (NAVSOF) Platoon. EOD NAVSOF Platoons are assigned to and deploy with naval special warfare (NSW) task units. EOD NAVSOF platoons provide general EOD and unconventional warfare support to the NSW operational and tactical commanders. Each Platoon is manned with one OIC and eight EOD technicians.

(3) EOD SOF Platoon. EOD SOF platoons are assigned to and deploy with US Army Special Forces Operational Detachments. EOD SOF platoons provide specialized EOD support to the operational and tactical commanders. Each Platoon is manned with one OIC and three EOD technicians.

(4) EOD MCM Platoon. EOD MCM platoons deploy, as required, to support the MIW mission. MCM platoons are normally tasked as support to surface mine countermeasures (SMCM) platforms, airborne mine countermeasures (AMCM) platforms, and MMS platoons. Each platoon is manned with one OIC and seven EOD technicians.

(5) ASP. ASPs are assigned to MDSU TWO and EOD Mobile Unit ONE, but may be tasked to support EOD units. The ASPs provide specialized marine search capabilities. Each ASP is manned with one OIC and seven enlisted personal of varying rates.

(6) VSW Platoon. The VSW platoons are comprised of US Navy EOD and US Marine Corps personnel providing VSW search, location, and clearance capacities to the operational and tactical commanders. Each platoon is manned with one OIC and seven EOD technicians.

(7) MMS Platoons. The Navy's current marine mammal program has one fleet operational site and one fleet support facility, both are located in San Diego, California.

(8) MDSU. In addition to their assigned EOD units, the commanders of EOD Group ONE and EOD Group TWO have administrative control over MDSU ONE and MDSU TWO, respectively.

(a) The MDSU ONE headquarters (HQ) element provides operational control and administrative support for five mobile diving and salvage companies.

(b) The MDSU TWO HQ element provides operational control and administrative support for five MDS companies.

(c) EOD Mobile Unit THREE and ELEVEN provide operational control and administrative support for one MDS company, each.

3. Navy Fleet Diving

a. Mission. NDs operate across the entire spectrum of the water column; but specialize in salvage, ocean search and recovery, ship husbandry, harbor clearance, special operations support, and deep diving operations. NDs are deployable world-wide and fall into two categories: MDSUs and Regional Maintenance Centers (RMCs).

b. MDSU.

(1) Mission. MDSUs provide combat ready and rapidly deployable capabilities including a command and control cell, specialized diving and salvage teams, and MDS companies to conduct harbor and waterway clearance, salvage, underwater search and recovery, underwater ship husbandry, and emergency underwater ship repairs.

(2) Capabilities. MDSUs are equipped with a diverse range of diving and salvage equipment deployable, scalable, and tailorable according to mission objectives. MDSUs can operate from ports, US Navy and Military Sealift Command vessels, or commercial contract salvage or repair vessels. Their capabilities include the following.

(a) Enabling Area Access. This is a proactive means to ensure forces can deploy and freely enter the theater of operations. This is done by enhancing entry capabilities and infrastructure, mitigating adverse effects of the environment, and protecting and facilitating multiple points of departure, lines of communication, and theater entry points. (Adverse effects of the environment include terrain, weather, enemy action, infrastructure, hazards, and local population.) Sub-capabilities to enable area access include:

- Port/harbor, riverine, and waterways assessment and clearance.
- De-beaching operations.
- Hydrographic surveys.
- Manned and unmanned underwater inspection, search, location, and detection.
- Aids to navigation operations.

- Beach clearance and salvage.
- Explosives employment.

(b) Rescue, Salvage and Recovery. Expeditionary salvage and diving operations are conducted primarily by MDS forces. These operations encompass the entire spectrum of diving and salvage operations, from providing humanitarian assistance to supporting combat operations. They enable friendly forces increased access and freedom of movement throughout the maritime and riverine operating environments. The primary focus of expeditionary salvage and diving is to provide a force capable of operating independently or semi-independently in a semi-permissive or hostile environment. MDS forces provide rescue, salvage, and recovery capabilities including:

- Damage assessment.
- Port recovery and harbor clearance.
- Emergency underwater ship husbandry.
- Diving services.
- Shallow water search and recovery (<300 feet of salt water).
- Submarine search and limited rescue.
- High-value object recovery.
- Rigging and crane related services.
- Rigging for and augmented towing.
- Explosives employment in underwater ship husbandry (e.g., screw removal) and salvage.
- Manned and unmanned underwater inspection, search, location, and detection.
- De-beaching.
- Aircraft recovery.
- Prisoner of war and missing in action underwater identification and support.

(c) Force Protection. MDSUs have limited self-defense capability. MDS forces can conduct preventative actions to mitigate hostile actions against Department of Defense personnel, resources, facilities, and critical information. For MDS forces, force protection does not include direct action against the enemy or protecting against accidents, weather, or disease. Sub-capabilities of MDS forces in providing force protection include the following:

- Manned and unmanned underwater inspection, search, location, and detection.
- Conventional self-defense.
- Chemical, biological, and radiological self-defense.
- Emission control management and execution of operations security.

(d) Task Organization. MDSUs employ a commanding officer, an executive officer, one operations officer, and one supply officer. The HQ element supports seven MDS companies at MDSU ONE and five MDS companies at MDSU TWO. Each company is manned with 17 divers including 1 diving officer and 1 master diver (MDV). Figure 4 depicts MDS company organization and capabilities.

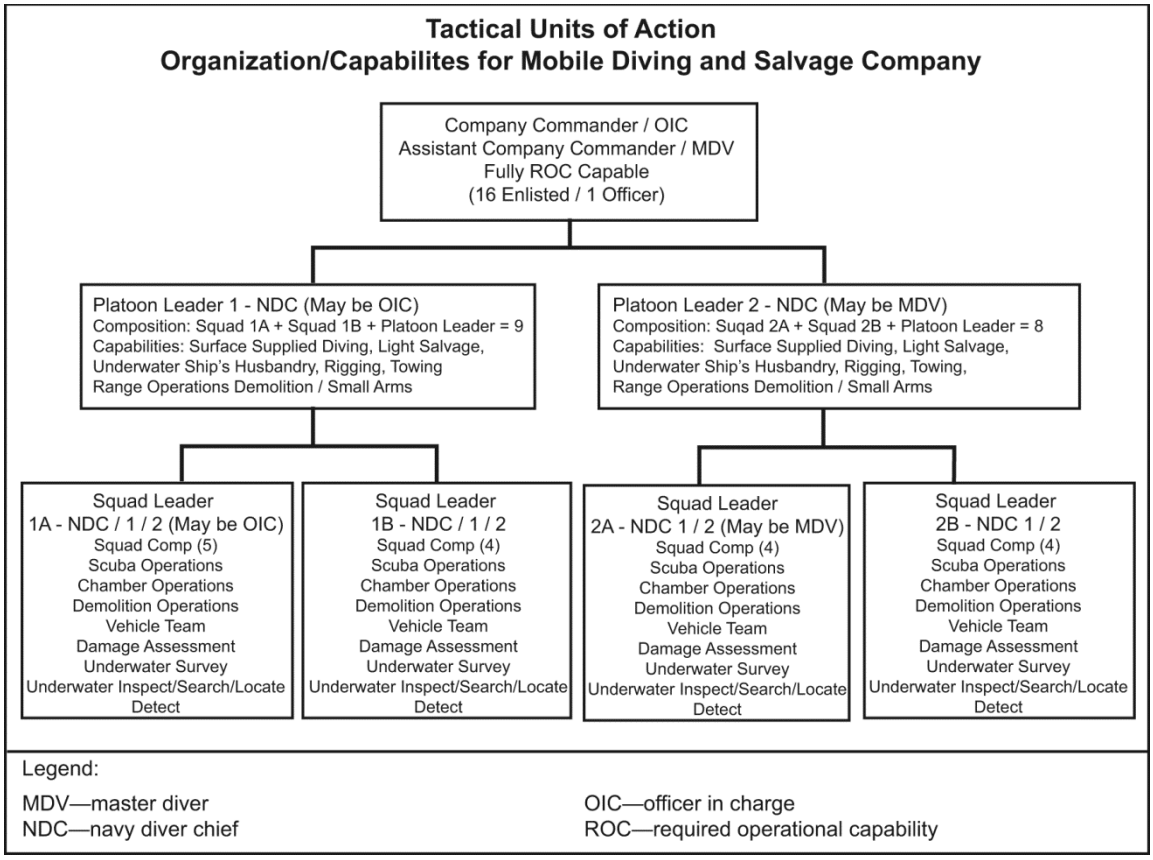

Figure 4. MDS Company Organization

(3) Concept of Employment. MDSUs deploy MDS companies and ASPs, as required, to support salvage operations. They are capable of deploying multiple MDS companies simultaneously to support larger operations. In these cases, deploying units can be augmented with a deployable command and control cell to provide control and direction for a task group commander exercising control over larger expeditionary salvage operations.

(a) MDS Company. MDS companies provide expeditionary salvage, clearance reconnaissance, battle damage assessment (BDA), underwater explosive demolitions, site survey, lightweight towing, and aircraft recovery with a craft of opportunity. An MDS company is also capable of exploiting available retrograde or abandoned opposition-force craft and assets to augment the mission. An MDS company has an organic capability of air dives to depths of 190 feet using MK 16 underwater breathing apparatus and surface supplied diving systems. Dives to the 300-foot depth require using a helium-oxygen (HeO2) flyaway mixed gas system (FMGS). Heavier salvage

capability is represented in the emergency ship salvage materials (ESSM) equipment pool. Typically, this equipment is provided by the MDS parent command or through the in-theater ESSM pool. Due to their size, MDS companies are limited in their ability to provide self-protection and may require nonorganic force protection when in a nonpermissive environment.

(b) ASP. The primary mission of the ASPs is to provide a capability to detect and localize submerged objects in support of salvage operations. These units are equipped with side-scan sonar, ROVs with a variety of sensors, and expeditionary equipment to conduct area search operations via organic small craft. Due to their small size, ASPs are limited in their ability to provide force protection and require nonorganic, waterborne force protection when in a nonpermissive environment.

c. RMC.

(1) Mission. RMC divers provide the theater maintenance coordinator with the following: underwater ship husbandry (UWSH), battle and terrorist damage waterborne inspections, evaluations, and repairs to return the combatant to the fight.

(2) Capabilities. The following are RMC capabilities.

(a) Repairs.

(b) Security swims (submarine) and antiterrorism/force protection hull searches (ship) to locate and mark limpet mines or improvised explosive devices (IEDs).

(c) Countermeasure set acoustic pod inspection, repair, and replacement (submarine).

(d) Predeployment noise inspection and sound silencing (submarine).

(e) Special installs (sea-view) (submarine).

(f) Main sea water or auxiliary sea water hydro blast and repair (submarine).

(g) Cathodic protection, inspection, cleaning, repair, and replacement.

(h) Bridal air and main ballast tank cofferdams (submarine).

(i) Towed array inspection preventive maintenance services (PMS) and repair; component replacement (submarine).

(j) Range and special pinger installation and removal (submarine).

(k) Rudder inspection, sounding, repair, measuring, wrap, and replacement.

(l) All underwater inspections (manned and unmanned).

(m) Auxiliary power unit (APU) repair and replace.

(n) Fixed pitch and control pitch blade replacement.

(o) Propeller repair and replacement.

(p) Secondary propulsion motor (SPM) inspections, PMS, repair, and replacement (submarine).

(q) All cofferdams, patches, plugs, and hull blanks and seals installation and removal.

(r) Sonar dome inspection (wet and dry) and repair.

(s) Shaft re-lamination and repair.

(t) Prairie air system inspection, cleaning, and repair.

(u) Stave bearing inspection, measurement, repair, and replacement.

(v) Shallow–water, antisubmarine warfare target installation and removal (submarine).

(w) Sound hull tile (SHT) repairs (submarine).

(x) Various radiological control (RADCON) services to include primary affluent tank hook-up and removal (submarine); hull survey swipes (ships, carriers, and submarines).

(y) Naval Sea Systems Command (NAVSEA) certified underwater welding and nondestructive, ultrasonic, visual, and magnetic testing services (Southwest RMC).

(z) Transducer and hydrophone repair and replacement with associated cable.

(aa) Bow plane cofferdams.

(bb) Outboard transducer acoustic array assembly repair and replacement (submarine).

(cc) Torpedo tube and variable launch system repair and component replacement with associated cable.

(dd) Anchor and associated handling equipment inspection, PMS, repair, and component replacement (submarine).

(ee) Light and medium salvage.

(ff) Dry-docking (ship and submarine) and bearing block inspection.

(gg) Fin stabilizer inspection, repair, and replacement.

(hh) Shaft seal and wrap (ship and submarine).

(ii) Pitsword and speedlog clean, repair, and replace (ship and submarine).

(jj) Rope guard line removal and repair or replace (bolted or welded).

(kk) Underwater photography, video, and boroscope.

(ll) ROV inspection with broadband global area network and viewcast satellite uplink.

(3) Task Organization. RMCs and intermediate maintenance facilities (IMFs) are under the cognizance of NAVSEA Supervisor of Salvage and Diving/Director of Ocean Engineering (SUPSALV) 00C (www.supsalv.org). Table 4 lists maintenance facility locations and areas of responsibility.

Table 4. RMC/IMF Diving Assigned Area of Responsibility	
Area Regional Maintenance Center (RMC)/Intermediate Maintenance Facility (IMF)	**Area of Responsibility (AOR)**
Southwest RMC San Diego, California (CA)	Ships, submarines [attack submarine, nuclear (SSN) class], aircraft carriers, and craft in port or operating off the West Coast of the United States (US) from the San Francisco Bay area to the southern point of South America. Battle damage assessment (BDA) and repair teams support all areas in the US Seventh Fleet AOR.
Puget Sound Naval Shipyard and IMF Bremerton, Washington	Ships, submarines [SSN class], aircraft carriers, and craft in port or operating in the Pacific Northwest area from north of San Francisco, CA, to the Northern Pacific and Alaska areas, and all US Pacific Fleet ballistic-missile submarine, nuclear (SSBNs) and guided-missile submarine, nuclear (SSGN) units.
Pearl Harbor Naval Shipyard and IMF Pearl Harbor, Hawaii	Ships, submarines [excluding SSBN and SSGN assets], aircraft carriers, and craft in port or operating in the Mid-Pacific area.
Ship Repair Facility and Japan RMC Yokosuka, Japan	Ships, aircraft carriers, and craft in port or operating in the US Seventh Fleet AOR.
Norfolk Naval Shipyard Portsmouth, Virginia (VA) Norfolk Naval Shipyard Divers Norfolk, VA	Ships, aircraft carriers, and craft in port or operating in the Atlantic Ocean from Charleston, South Carolina (SC), northward. Submarines in port and all non-SSGN submarines operating in the Atlantic Ocean to the southern tip of South America excluding those in port or operating in New London/Groton, Connecticut (CT), regional waters.
Regional Support Group New London, CT	Submarines in port or operating in the New London/Groton, CT regional waters.
TRIDENT Refit Facility Kings Bay, Georgia	All US Atlantic Fleet SSBN/SSGN units.
Southeast RMC Mayport, Florida	Ships, aircraft carriers, and craft (excluding mine warfare craft in port or operating along the Texas Gulf Coast) in port or operating south of the Charleston, SC, in the Atlantic Ocean to the southern tip of South America.
USS Emory S. Land (AS-39) USS Frank Cable (AS-40)	Repairs to deployed submarines and deployed ships on an as-available basis in Seventh Fleet AOR.

d. BDA and Repair.

(1) Mission. The mission of the United States Navy's (USN's) BDA and repair is the same as under ship husbandry, to provide immediate assistance to a vessel in distress. BDA and repair personnel inspect and assess areas of damage with ROVs, providing real-time video feed to repair facilities via satellite. Repairs are temporary in their application and are meant to keep the vessel afloat until permanent repairs are made. BDA and repair is normally conducted in a remote, semi-permissive or permissive environment.

(2) Capabilities. The USN BDA and repair capabilities are more specific to type of vessel and extent of repairs needed. They are separated into two categories listed below;

(a) Surface ship capabilities:

- All underwater inspections.
- APU repair and replacement.
- Fixed pitch and control pitch blade replacement.
- Propeller repair and replacement.
- Install and remove all cofferdams, patches, and plugs.
- Sonar dome inspection (wet and dry) and repair.
- Shaft re-lamination and repair.
- Prairie air system inspection, cleaning, repair.
- Fin stabilizer inspection, repair, and replacement.
- Shaft seal and wrap.
- Rope guard remove line and repair or replace (welded or bolted).
- Pitsword clean, repair, and replace.

(b) Submarine capabilities:

- All underwater inspections.
- SPM inspection, PMS, repair or replace.
- Propeller repair and replacement.
- Stave bearing inspection and measurement.
- Towed array inspection, PMS, and repair.
- Range and special pinger install and removal.
- Shaft seal and wrap.
- Security swims to locate and mark limpet mines or IEDs.
- SHT repairs.
- RADCON hull swipes.
- Install and remove all cofferdams, patches, plugs, and hull blanks and seals.

(3) Task Organization. The BDA and repair consists of one officer and 15 enlisted. It is organized into two dive teams, each with 7 divers and an OIC or MDV, for a total of 8 in each team. Each 8-man team can further be broken down into two smaller 4-man teams. The organization and capabilities are depicted in figure 5.

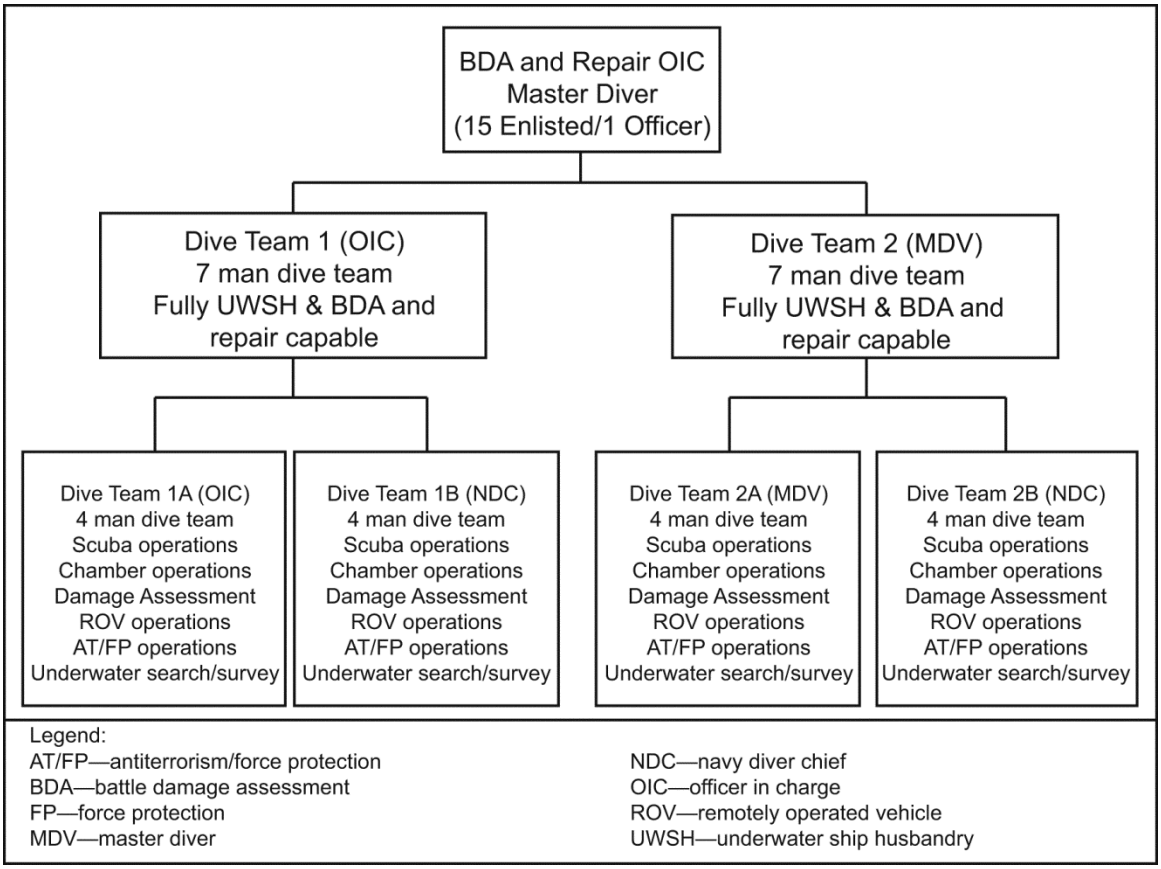

Figure 5. BDA and Repair Organization

4. NAVSEA SUPSALV 00C

a. Mission. NAVSEA SUPSALV 00C is the executive agent for NAVSEA and the Secretary of the Navy in all matters of salvage, emergency towing, search and recovery, open sea oil and hazardous substance spill response, and ocean engineering.

b. Capabilities.

(1) Provides technical direction and guidance for the salvage, recovery, and open sea spill response programs.

(2) Serves as the Navy technical agent for all matters pertaining to the employment of salvage, towing, search and recovery, open sea oil and hazardous substance spill response systems, and equipment.

(3) Acts as the representative of Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) on any technical advisory group formed to deal with salvage, search, or recovery matters, with authority to commit the resources of NAVSEA.

(4) Acts as the Navy representative for salvage, search and recovery, and open sea spill response technical matters with the Department of Defense and other federal agencies.

(a) Provides the CNO with information which has an impact on Navy programs.

(b) Consults with the CNO on all matters which vary from established Navy policy.

(5) Coordinates the efforts of all COMNAVSEASYSCOM organizations in support of salvage, towing, search and recovery, open sea spill response, and ocean engineering operations.

(6) Assumes responsibility for conducting salvage, search and recovery, and ocean engineering operations upon agreement with the cognizant fleet commander or when directed by the CNO.

(7) Coordinates salvage and salvage-related towing, search and recovery, and spill response services. Provides information, liaison, and financial advice to the organization requiring the services, whether the operations are undertaken by the Navy or are under contract.

(8) Prepares budgets and budget justification for all salvage related matters including:

(a) Salvage operations for which NAVSEA has mission funding responsibilities.

(b) Procuring salvage and spill response equipment for the ESSM system.

(c) Managing and maintaining the ESSM system.

(d) Developing and introducing specialized salvage, towing, search and recovery, open-sea spill response, and ocean engineering equipment.

c. Task Organization.

(1) The Director of Ocean Engineering staff consists of 10 to 15 military personnel, 35 civilian personnel, and several foreign exchange personnel.

(2) NAVSEA SUPSALV 00C consists of a directorate staff, five functional divisions, a field activity, and two reserve components. The HQ includes a diving medical officer (to manage the Navy's deep submergence biomedical research and development program) and the Navy's Admiralty Attorney. The five functional divisions and two other activities within SUPSALV are described as follows.

(a) The Management Support Division prepares and tracks contractual and financial documents for the other divisions in NAVSEA SUPSALV 00C.

(b) The Salvage Operations Division handles ship salvage and towing, deep ocean search and recovery, and oil spill control and recovery operations.

(c) The Diving Program Division sets diving policy, approves US Navy diving equipment, and acquires diver life support equipment for the fleet.

(d) The Diving Certification Division is the system certification authority for shipboard and portable hyperbaric systems.

(e) The UWSH Division develops techniques, procedures, and equipment to perform waterborne ship repairs.

(f) The Navy Experimental Diving Unit is a SUPSALV field activity that provides diving research and development capability.

(g) Reserve components provide critical support to SUPSALV in the areas of diving, salvage, towing, underwater ship husbandry, and ship heavy lift.

5. Navy Construction Engineer (Seabee) UCTs

a. Mission. Seabee UCTs conduct inshore and deep ocean facility underwater construction, inspection, repair, and maintenance operations. and conduct amphibious landing support of joint logistics over-the-shore operations, including foreign humanitarian assistance (FHA), defense support of civil authorities (DSCA), and recovery operations. The UCT conducts:

(1) Responsive underwater engineering and construction, inspection, repair, maintenance, and demolition of ocean and waterfront facilities. This is in support of Navy, Marine Corps, and combatant command operations in permissive and combat environments. When assigned by fleet commanders, UCTs accomplish additional underwater construction projects for other naval commands, laboratories, and offices.

(2) Diving operations to provide underwater construction in support of other naval construction force units, amphibious operations for naval beach groups, operating forces, sealift support facilities, and other fleet units, as directed.

(3) Installation, inspection, maintenance, and repair of undersea range facilities and inshore cables for undersea surveillance systems.

(4) FHA, DSCA, and military civic action activities.

b. Capabilities. UCTs are capable of self-contained underwater breathing apparatus and surface supplied diving operations in nearly all environmental conditions. These include zero visibility, contamination, day or night operations, under-ice diving, and in rivers, harbors, and open ocean. UCT capabilities and functional tasks include the following.

(1) Underwater Engineering and Construction, Repair, and Maintenance. This includes shallow- and deep-water structures, mooring systems, underwater instrumentation, light salvage, and blasting.

(2) Inspection. The UCT conducts hydrographic surveys using the differential Global Positioning System and hydrographic survey systems. Survey teams can quickly perform field data collection, edit data, prepare survey plans, and present data on a small-boat deployable mobile workstation. Advanced underwater reconnaissance techniques include bathymetric surveys, side-scan imagery, still photography, and full-motion video. The UCT operates 500 foot, electrically-powered ROVs, capable of deploying vertically or horizontally. Hydrographic survey data can be geo-rectified and post-processed in the field by the UCT construction diving detachment and sent to HQ via high frequency radio, ultrahigh frequency radio, or satellite communications. This information assists commanders in assessing battle damage, avoiding navigational hazards, recovering lost equipment, and selecting locations for installing underwater facilities such as pilings, moorings, and cable landings.

(3) Data Collection. The UCT collects water-crossing data for bridging operations.

(4) Blasting and Demolition. The UCT performs precision terrestrial and underwater blasting using military or commercial explosives.

c. Task Organization. Commanded by an ND civil engineering officer, the UCT is a permanently structured unit. The UCT plans, coordinates, and supervises general engineering and construction diving operations. The UCTs are organized into sea duty and shore duty components. Figure 6 depicts the UCT organization.

(1) The shore duty component consists of the operations and support departments. The operations department oversees tasking construction diving and employing construction diving detachments. The support department consists of administration, intelligence, supply, equipment, communications, and training sections.

(2) The sea duty component is organized into three independent, worldwide deployable construction diving detachments, comprised of 16 personnel who conduct diving operations. The construction diving detachments can be task-organized to support a mission or operation.

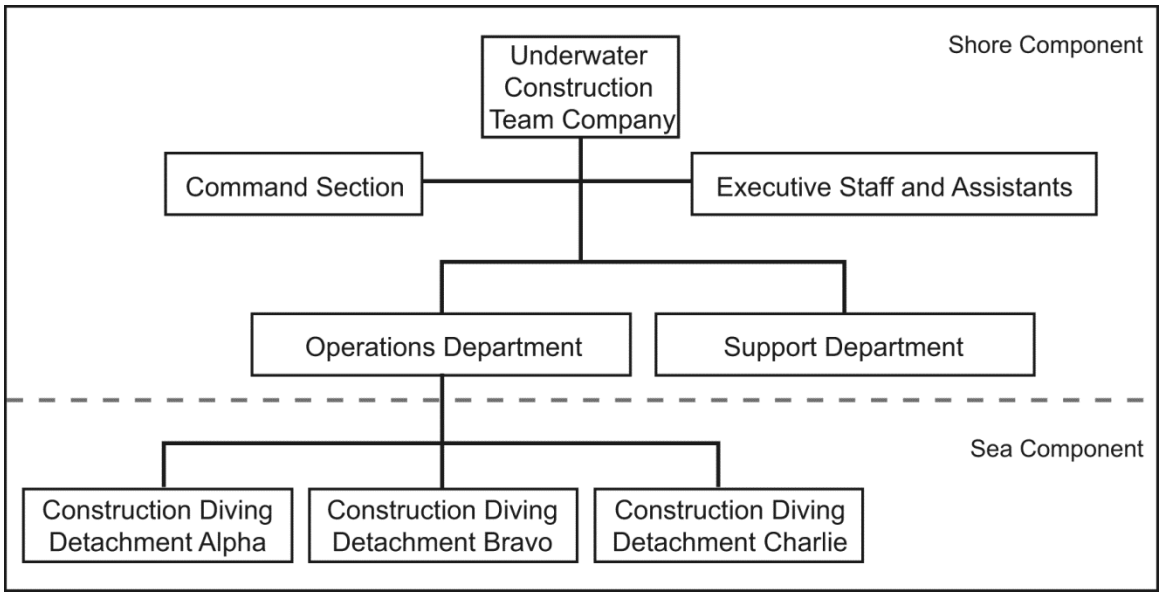

Figure 6. Seabee UCT Organization

d. Concept of Employment. The UCT functions independently and as an integral unit of the Seabee Naval Construction Regiment. It operates with decentralized control providing specialized underwater and general engineering to the supported unit. The UCT is employed as independently deployed construction diving detachment. It is equipped and trained for self-sufficiency in underwater construction to respond to emergencies within 48 hours for inspection and repair of essential fleet waterfront systems. The UCT also provides:

(1) Deployment of a task-organized construction diving detachment of 16 personnel and required equipment within 48 hours, a second construction diving detachment of 16 personnel within 6 days, and a third construction diving detachment of 16 personnel within 30 days.

(2) Trained and equipped construction diving detachments to conduct defensive combat tactics. It receives additional training to conduct force protection operations on open water and urban terrain. Due to the UCT's small unit size, specialized equipment, and expertise, it employs these tactics in direct support of construction diving operations only. The UCT requires assistance from the supported unit in convoy operations, perimeter security support, and waterfront security operations at UCT job sites in nonpermissive environments.

(3) Construction diving operations in permissive and nonpermissive environments and in climates ranging from extreme cold weather to tropical or desert environments. It conducts operations in unsecured and isolated locations with prior coordination of the operations area commander or supported unit. Since security requirements diminish direct labor assets, the preference is to have supported commands assume security and other nontechnical tasking to maximize the UCT's core construction competencies.

6. Submarine Security Dive Teams

a. Mission. Submarine security dive teams can inspect the underwater body of a submarine for foreign objects placed on the hull.

b. Capabilities.

(1) Conduct foreign object search.

(2) Conduct minor underwater maintenance actions.

(3) Unfoul a ship's propeller from foreign material.

(4) Clear a ship from net entanglement.

(5) Perform an initial damage assessment.

(6) Recover light-weight objects.

(7) Perform an underwater inspection.

c. Task Organization: A submarine security dive team is organized as a four-man Scuba dive team from the crew of each submarine and does not comprise their own unit. The scuba team is headed by the command diving officer from the submarine. The Commanders, Submarine Force US Pacific and Atlantic Fleets are responsible for the US submarine fleet and its submarine security dive teams.

d. Concept of Employment. Submarine security dive teams are tasked with locating and identifying foreign objects by performing underwater hull inspection on their own submarines.

7. US Navy SEALs

Naval Special Warfare Command specializes in maritime special operations and oversees, trains, and equips SEALS. SEAL combat swimming and diving capabilities are covered in detail in appendix F.

Appendix C
UNITED STATES ARMY (USA) DIVING

1. Overview

The USA has two types of divers: engineer and special operations. The engineer divers specialize in conducting diving operations in a maritime environment in support of combat, general, and geospatial engineering. Engineer dive detachments have a diverse range of capabilities and provide underwater maintenance, inspections, and repairs of waterfront facilities and vessels. They also conduct hydrographic surveys, port reconstruction, river reconnaissance, demolitions, underwater salvage, force protection, security swims, personnel-human remains recovery, safety lifeguard, and searching operations. Special operations divers are members of a special forces (SF) team, trained in the use of basic scuba and closed-circuit re-breathers. This group uses diving as a mode of transportation to infiltrate enemy areas. See appendix A for dive mission area (DMA) capabilities.

2. USA Engineer Divers

a. Mission. Engineer divers provide support to assure mobility for the forward movement of troops and equipment. Divers also provide support to disaster response, general engineering, and geospatial engineering operations in and around water. Supporting assets range from three small scuba teams to two surface-supplied dive teams with a diverse range of capabilities. Divers enhance protection by conducting force protection swims and emplacing underwater obstacles and barriers. Divers also enable expeditionary logistics by providing accurate waterway datum, surveys, and repair of existing waterfront facilities. Engineer diving missions assist in building capacity through infrastructure support and sustainment operations. Dive detachment capabilities are tailored to the mission allowing the use of surface-supplied diving apparatus, scuba, and remotely operated vehicles. They work closely with heavy equipment operators for large scale operations.

b. Capabilities. Engineer divers maintain the capability to perform scuba diving and surface-supplied diving in nearly all environmental conditions: swift water, zero visibility, contamination, day or night operations, under-ice diving, and in rivers, harbors, or open ocean. The Army has identified 12 DMAs for its engineer divers. They are the following.

Note: For detailed description on Army engineer diver capabilities, see Technical Manual 3-34.83, *Engineer Diving Operations*, August 2013.

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(1) Mobility.

(2) Countermobility.

(3) Protection (physical security, some Army units perform lifeguard duties as part of this dive mission area).

(4) Explosive hazard and ordnance disposal (locate and mark only).

(5) Underwater ship husbandry.

(6) Port/harbor operations.

(7) Joint logistics over-the-shore.

(8) Offshore petroleum distribution system (limited).

(9) Salvage.

(10) Search and rescue/recovery.

(11) Conducting disaster response measures.

(12) Hyperbaric chamber.

c. Task Organization. Engineer dive detachments consist of 25 personnel and a full complement of diving equipment to support the Army engineer diver capabilities. Engineer dive detachments are relatively small, specialized organizations assigned as theater assets and may be assigned or attached to supported units anywhere within the area of operations (AO). Each detachment can be split and is flexible enough to conduct small dive operations while providing multiple commanders with diving support. Figure 7 depicts the typical engineer dive detachment organization.

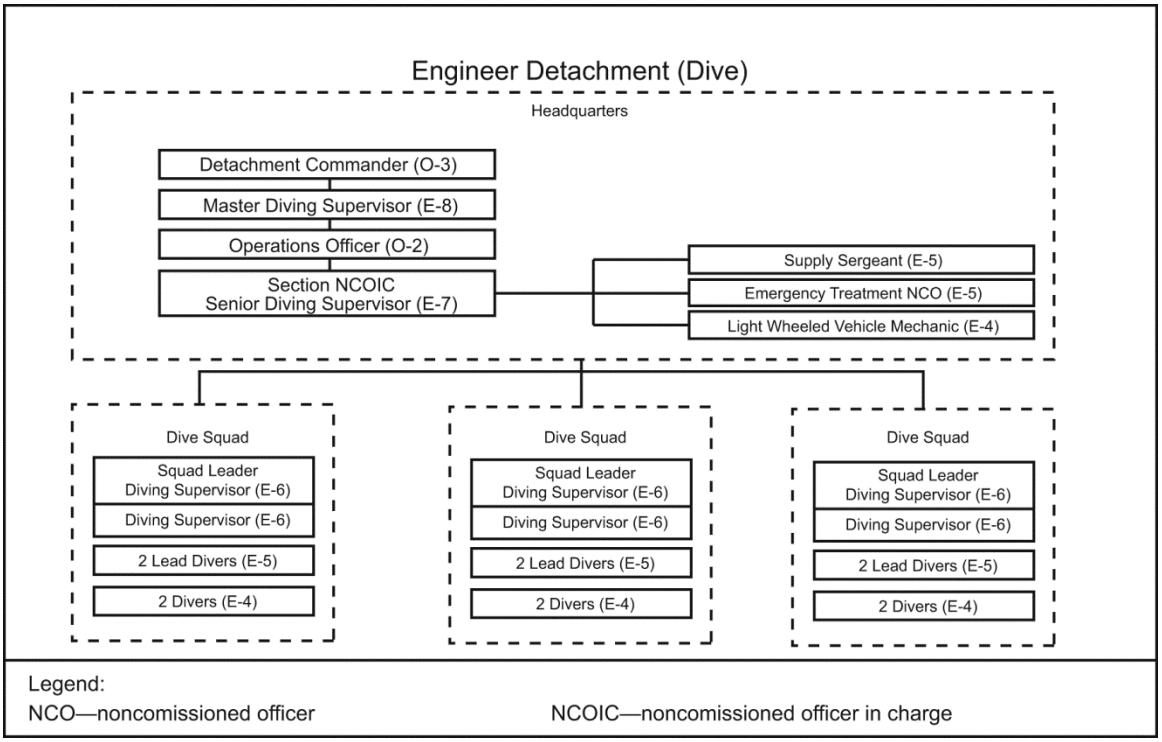

Figure 7. Engineer Dive Detachment Organization

d. Concept of Employment. The primary objective of engineer diving operations is to conduct underwater engineering and disaster response operations. Engineer divers are also an integral part of a task organization that supports the movement in or around any wet-gap crossing to include ports, harbors, beachfronts, and rivers. If an organization requires diving assets, the requests are forwarded through normal channels to the combatant command headquarters. The combatant command forwards requests to the engineer command. For short-term missions, diving assets are assigned in direct support through command channels to the area support group or local mission command. For long-term or complex missions, divers are normally attached to a company- or battalion-sized unit.

e. Employment Considerations and Limitations. In addition to the inherent limitations and risks common to all military dive operations, US Army engineer divers have additional considerations for their employment. US Army engineer divers do not possess organic transportation assets, so planners must make arrangements for support. USA engineer divers are not manned or equipped to provide their own perimeter security while conducting dive operations and will require a security detail when operating in nonpermissive environments. Also, USA diving units have organic equipment to support diving operations to a 190 foot depth at sea level. As altitude increases, depth limitations will decrease, in accordance with the *US Navy Dive Manual,* Revision 6, Change A.

3. USA Special Forces

SF maritime operations are one of the many options available to a commander to infiltrate and exfiltrate a detachment into (or out of) a designated AO for the purpose of executing SF missions. Other missions for SF combat divers include tactical reconnaissance, demolition raids against bridges and other maritime structures, and underwater searches for security and recovery. SF divers are covered in more detail in appendix F.

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Appendix D
UNITED STATES MARINE CORPS (USMC) COMBATANT DIVING

1. Overview

The USMC has one type of diver, the Marine combatant diver (MCD). MCDs are trained in basic scuba and MK-25 re-breather operations. The primary purpose of the MCD program is to provide a clandestine infiltration and exfiltration means for USMC ground reconnaissance elements which facilitates the full range of amphibious reconnaissance and ground reconnaissance operations. The USMC underwater reconnaissance capability (URC) provides the supported unit commander with a capability to conduct clandestine subsurface operations in support of the force. Combatant diving is one of numerous specialized insertion and extraction methods used by Marine ground reconnaissance units to infiltrate and exfiltrate mission areas. See appendix A for dive mission area capabilities.

Note: For a detailed description of USMC diver program management, see Marine Corps Order 3150.4, *Marine Corps Diving Policy and Program Administration,* 4 May 2009.

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2. Marine Combatant Divers

a. Mission. MCDs conduct underwater operations to facilitate amphibious reconnaissance, ground reconnaissance, surveillance, and operational environment shaping in support of the Marine expeditionary force (MEF), other Marine air-ground task forces (MAGTFs), or the Marine component of a joint force.

b. Capabilities. Task organized USMC ground reconnaissance elements plan, coordinate, and execute over–the-horizon, clandestine, subsurface dive operations via naval ships (surface and subsurface) or aircraft to conduct full-spectrum amphibious and ground reconnaissance missions. USMC ground reconnaissance elements are manned, trained, and equipped for combatant dive operations in the following mission areas. They:

(1) Conduct amphibious reconnaissance to collect and report information about the activities and resources of an enemy or information concerning the hydrographic characteristics of a particular area well in advance of an amphibious landing force.

(2) Conduct subsurface hydrographic surveys in support of all United States Navy landing craft and amphibious assault vehicles (AAVs).

(3) Conduct initial and confirmatory beach reconnaissance.

(4) Conduct initial terminal guidance of AAVs, tactical boats, amphibious ships, landing craft, and aircraft.

(5) Conduct subsurface insertion and extraction of combatant dive teams to clandestinely infiltrate and exfiltrate designated ground reconnaissance mission areas.

(6) Conduct subsurface infiltration and exfiltration in support of specialized reconnaissance of littoral and coastal areas and defenses, to include ports, harbors, piers, and estuaries; and fords and bridges.

(7) Conduct subsurface limited search and recovery of sensitive equipment or personnel.

(8) Conduct search operations for the amphibious ready group (ARG), expeditionary strike group (ESG), and maritime preposition squadron (MPS) shipping in support of ARG, ESG, and MPS force protection to locate and mark limpet mines and improvised explosive devices. These operations include ship's hull, piers, harbors, and ports; and to surrounding area fords and bridges.

c. Task Organization.

(1) The USMC combatant dive capability resides within the active and reserve reconnaissance battalions and force reconnaissance companies. A complete list of all USMC units with an organic dive capability and their geographic location is provided at appendix H.

(2) USMC ground reconnaissance units are task organized for conducting the full range of ground reconnaissance missions to include combatant diving. The commander of deployed USMC ground reconnaissance elements and the supported unit will plan, direct, and coordinate the actions of USMC combatant dive teams. General organization of the MCD capability within task organized reconnaissance elements is as follows.

(a) Reconnaissance battalion: 12 dive teams each.

(b) Reconnaissance company: 4 dive teams each.

(c) Force reconnaissance company: 4 dive teams each.

d. Concept of Employment. An assigned Marine ground reconnaissance unit typically employs six-man teams to conduct reconnaissance. This unit can be employed in general support of the MEF or in direct support or attached to a subordinate unit of the MEF or a joint force. Marine reconnaissance platoons are routinely assigned to the ground combat element of each forward deployed Marine expeditionary unit (MEU). If a company sized element, the company headquarters will establish and maintain a reconnaissance operation center in support of the MEF or supported unit's combat operations center (COC) to conduct command and control functions of subordinate units conducting ground and/or amphibious reconnaissance missions (including combatant dive operations). USMC reconnaissance platoons can be task organized and attached to subordinate units of the MEF or a joint force. Under such employment, the platoon headquarters will establish and maintain a reconnaissance operations center in support of the supported unit's COC. Figure 8 depicts a notional MCD profile.

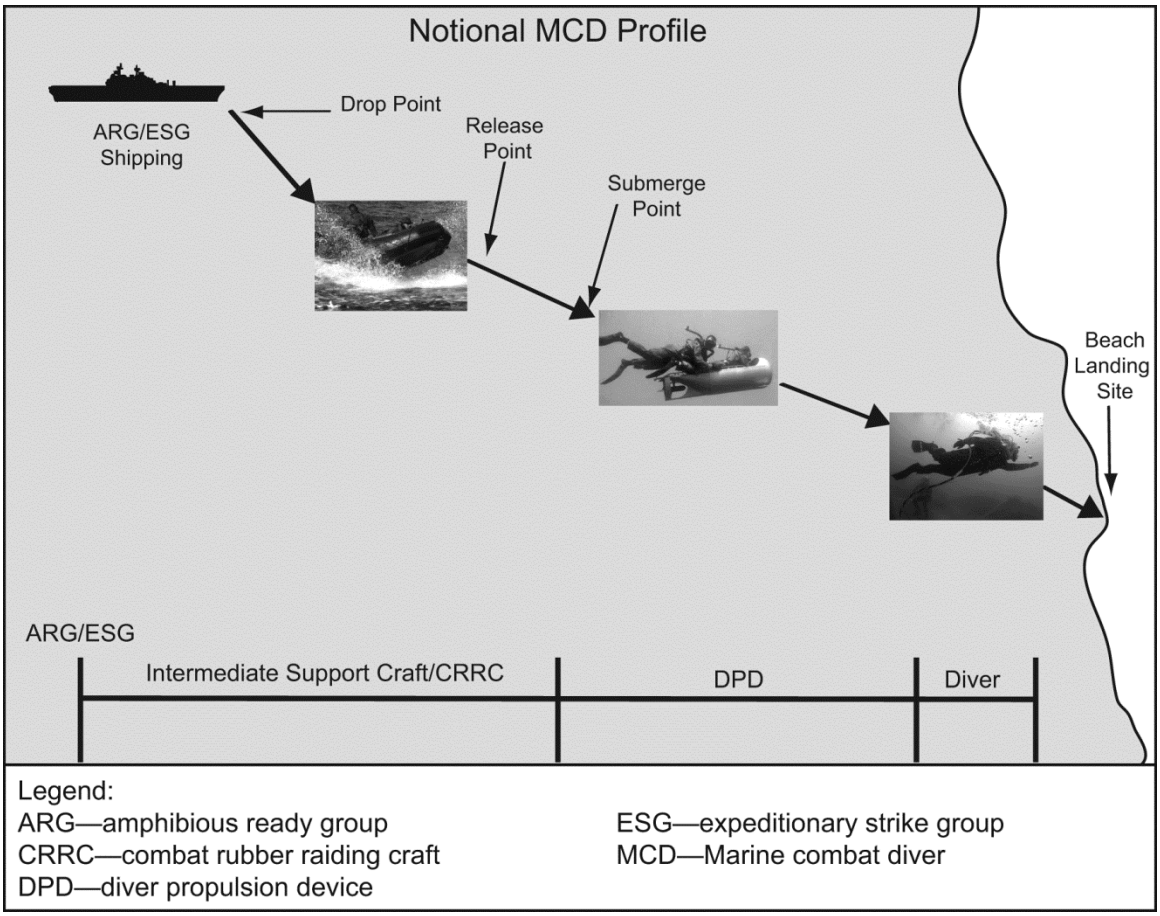

Figure 8. A Sample of a Marine Combat Diver Profile

e. Employment Considerations and Limitations. In addition to the inherent limitations and risks common to all military dive operations (i.e., time, depth limits, and subsurface temperature), MCDs have unique considerations for their employment. The following must be considered when employing MCDs.

(1) MEUs possess the organic tactical boat assets to conduct over–the-horizon, surface movement to a dive insertion point. Continental United States-based MEUs deploy with 11m Navy Special Warfare rigid hull inflatable boats for maritime interdiction operations. Another option of an USMC tactical boat asset is the combat rubber raiding craft, which has very limited applicability in this mission area. Currently, these are the only options for the nation's forward-deployed ARG or MEU.

(2) For planning purposes the average speed for surface and subsurface swimming for MCDs is 1.0 knot, unassisted. This translates into a maximum distance of 1 nautical mile subsurface under ideal conditions. Assisted by the diver propulsion device (DPD), the average motorized speed is 1.2 knots. Due to less expended energy, the DPD increases the distance a dive team is able to travel.

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Appendix E
UNITED STATES AIR FORCE (USAF) DIVING

1. Overview

The USAF employs two types of combat divers: personnel recovery (PR) and special tactics (ST) divers. PR divers are comprised of pararescue jumpers (PJs) and combat rescue officers (CROs). They use scuba and specialize in conducting underwater search and rescue/recovery of personnel and equipment as part of the joint force air component PR capability. Special tactics squadrons (STS) comprised of combat controllers, special tactics officers, CROs, PJs, and special operations weather teams (SOWTs) operate in the joint arena and conduct dive operations as an infiltration/exfiltration function. ST forces train and maintain combat divers to conduct maritime operations worldwide in support of US policy and objectives while maximizing interoperability. See appendix A for dive mission area capabilities.

Note: For detailed description of USAF diver program management, see Air Force Instruction 10-3501, *Air Force Diving Program*, 9 February 2009.

2. USAF Personnel Recovery Divers

a. Mission. PR divers provide dedicated search and rescue/recovery teams and equipment to perform 24-hour, world-wide PR operations to include report, locate, support, and recover and phase-1 reintegration of isolated personnel. USAF search and rescue/recovery teams are equipped to provide mission planning and operations management in tactical operations centers and alert response transportation. They provide rapid day or night response in adverse geographic and urban environments and employ from vertical lift, fixed-wing aircraft, or as stand-alone surface or subsurface teams to recover personnel and materiel from denied and sensitive areas. They provide air-to-ground interface, extrication, emergency trauma medicine, survivor contact and authentication, assisted evasion, movement, and security to friendly control. Additional capabilities include staging and evacuation, maritime, mounted or dismounted, confined space and collapsed structure, high altitude, and technical rescue. If a team is deployed to a forward operating base without base operating support, additional equipment is required.

b. Capabilities. PR divers are equipped with diver hand-held sonar; tactical satellite communications; high-frequency radios; Global Positioning Systems; medical kits; individual weapons; night-vision devices; scuba equipment; advanced rescue craft; and small, inflatable watercraft. Immediate incident response actions include:

(1) Locating and rescuing/recovering personnel and equipment from surface and subsurface areas of water to include entanglements and entrapments.

(2) Collecting biometrics, (i.e., deoxyribonucleic acid [DNA], facial photographs, fingerprints) or objects for identification.

(3) Zeroizing and/or destroying sensitive equipment.

(4) Providing emergency medical treatment. PJs are certified paramedics and receive specialized training in diving medical emergencies.

(5) Conducting parachute insertion of personnel and equipment to perform dive rescue operations to provide additional rescue and recovery when access is limited by time or geography.

c. Task Organization.

(1) The USAF PR dive rescue and recovery capability resides within the active and reserve components' Guardian Angel Rescue squadrons. Rescue squadrons deploy with individual and team dive equipment, watercraft, and aerial delivery equipment to provide commanders with a dive search and rescue capability.

(2) Theater USAF PR dive rescue and recovery capability is embedded in expeditionary rescue squadrons and may be collocated with rescue specialized fixed- and rotary-wing aircraft. These squadrons are task organized to provide full-spectrum PR missions, including recovery of personnel and sensitive equipment. The commander of the expeditionary rescue squadron will plan, direct, and coordinate the actions of dive teams.

(3) PR dive capabilities are contained in the 7PR series unit type codes (UTCs) and are generally organized as follows:

(a) Air Combat Command: Three squadrons with 18 dive teams per squadron.

(b) US Pacific Air Forces:1 squadron of 6 dive teams.

(c) US Air Forces Europe: 1 squadron of 3 dive teams.

(d) Air National Guard: 3 squadrons with 9 dive teams per squadron.

(e) Air Force Reserve Command: 3 squadrons with 12 dive teams per squadron.

(f) Expeditionary Rescue Squadron: 3 dive teams assigned.

d. Concept of Employment.

(1) The USAF has PR units that employ combatant divers. These units employ as part of the combatant commander's PR capability and provide a rapid response (first responder) search and rescue/recovery capability. USAF PR forces are designed to penetrate hostile areas to rescue/recover isolated personnel or sensitive equipment. PR divers are open circuit scuba divers and skilled in shallow water (i.e., a maximum depth of 190 feet of salt water) search and rescue/recovery operations. They maintain the capability to conduct dives from shore or surface craft in bodies of water at elevations up to 10,000 feet mean sea level.

(2) Once assigned to a combatant commander, PR divers are part of the joint force air component commander's PR force. In this capacity, they normally maintain an on-call alert with USAF fixed- and rotary-wing aircraft to provide a quick response, in-land PR capability for combatant commanders.

3. USAF Special Tactics Divers

USAF ST units employ dive teams as part of the special operations component commander's forces. Once assigned to a combatant commander, STS units are part of the joint special operations component. In this capacity, STS combatant divers may be attached to other components or conduct PR in support of the joint special operations component. This capability resides within the active and reserve component STSs and are part of 81 series UTCs. Special tactics combat dive capability is covered in more detail in appendix F.

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Appendix F
SPECIAL OPERATIONS FORCES (SOF) DIVING

1. Overview

SOF maritime operations are options available to a commander to infiltrate and exfiltrate a detachment into (or out of) a designated area of operations (AO) to execute SOF missions. Other missions for SOF combat divers include tactical reconnaissance, demolition raids against bridges or other maritime structures, and underwater searches for security and recovery. SOF combat divers are task organized in accordance with the assigned mission, and are normally aligned under a joint special operations task force. See appendix A for dive mission area capabilities.

2. Navy Sea-Air-Lands (SEALs)

a. Mission. Navy Special Warfare Command (NAVSPECWARCOM) is the United States (US) Special Operations Command (USSOCOM) lead component for maritime special operations conducted in all maritime environments. NAVSPECWARCOM trains, equips, organizes, provides resources for, deploys, and sustains Navy special warfare (NSW) forces. This is in support of the Commander USSOCOM (CDRUSSOCOM) and other combatant commander requirements, including maritime direct action, special reconnaissance, security force assistance, and foreign internal defense.

b. Capabilities. NSW forces are tasked with maritime missions that require sophisticated combat diving skills which facilitate the clandestine approach and assault on targets by swimmers beneath, at, and from the waterline. NSW-unique combat swimming operations include:

(1) Combat swimmer ship attack.

(2) Underwater demolition raids.

(3) Harbor reconnaissance.

(4) Submerged hydrographic reconnaissance.

(5) Underwater obstacle demolition.

c. Task Organization.

(1) The NAVSPECWARCOM headquarters is located in San Diego, California (CA). Deployed SEAL squadron coordination, training, and tasking are functions of four NSW groups. NSW Groups ONE and THREE, also are located in San Diego, CA; and NSW Groups TWO and FOUR are located in Norfolk, Virginia (VA). The SEAL delivery vehicle (SDV) teams are attached to NSW Group THREE but are located in Pearl Harbor, Hawaii.

(2) NSW SEALS are task organized into eight NSW teams or squadrons; four in Norfolk, VA, and four in San Diego, CA.

(3) SEAL squadrons are task organized into task units comprised of two troops each. Each troop is comprised of 16 SEALs and can operate as a full troop or two individual platoons. Each troop can be task organized down to a squad of four personnel. Also, individual SEALs can be used to perform supporting roles (such

as trainer or advisors, snipers, or joint tactical air controllers). In any of these configurations, SEALs can operate as an integrated cell within a larger amphibious or land-based force.

(4) SDV teams have a similar task, unit, and troop level configuration. But, at the troop level, the teams are split into SDV pilot or navigator positions and mission specialist elements. These troops conduct direct action and special reconnaissance missions from various subsurface platforms when augmented with specially trained Navy divers.

d. Concept of Employment. SEAL combat swimmers specialize in clandestine, direct action, and special reconnaissance missions in nonpermissive to hostile environments. NAVSPECWARCOM employs the MK-25 Mod 2 and MK-16 closed circuit underwater breathing apparatus.

3. Marine Corps Special Operations Command (MARSOC)

a. Mission. MARSOC trains, equips, sustains, maintains combat readiness, and deploys task organized, scalable, and responsive Marine Corps special operations forces worldwide in support of CDRUSSOCOM and other combatant commander requirements.

b. Capabilities. In addition to infiltration and exfiltration, MARSOC divers can perform the following tasks:

(1) Harbor reconnaissance.

(2) Subsurface hydrographic reconnaissance.

(3) Beach landing site establishment.

(4) Initial terminal guidance for amphibious landing forces.

c. Task Organization. Headquarters MARSOC is located at Camp LeJeune, North Carolina (NC). Subordinate commands within MARSOC, that maintain a combatant dive capability, are the Marine special operations battalions (MSOB). The 1st MSOB is located at Camp Pendleton, CA. The 2nd and 3rd MSOBs are located at Camp Lejeune, NC. Each battalion has four Marine special operations companies (MSOCs). Each company has three, 14-man Marine special operations teams (MSOTs) with qualified combatant divers. Each MSOC has one MSOT designated as a combatant dive team.

d. Concept of Employment. MSOT dive teams employ scuba, MK-25, and the diver propulsion device for subsurface, clandestine entry into nonpermissive or hostile environments for missions that may include direct action or sensitive reconnaissance.

4. Air Force Special Tactics Forces

a. Special tactics divers consist of pararescue and combat control divers who are organized, trained, and equipped to operate unilaterally or as attachments to joint and combined SOF. They provide the air-ground interface in permissive and nonpermissive, austere environments. In addition to infiltration and exfiltration, special tactics divers can perform subsurface infiltration, search, rescue, and recovery operations. Their functions include the following.

(1) Assault zone reconnaissance and surveillance, establishment, and terminal control.

(2) Personnel recovery and technical rescue.

(3) Combat casualty care and evacuation staging.

(4) Special operations terminal attack.

(5) Tactical weather observations and forecasting.

b. Task Organization. The lead command for Air Force special operations is the Air Force Special Operations Command (AFSOC), Hurlburt Field, Florida.

(1) Special tactics combat dive capability resides within the active and reserve component special tactics squadrons in 81 series unit type codes. The commander of the expeditionary special tactics unit plans, directs, and coordinates the actions of dive teams. The 123 and 125 Special Tactics Squadron Air National Guard units augment the 720th Special Tactics Group in supporting national security objectives, humanitarian efforts, and training.

(2) General organization of special tactics units is shown in figure 9.

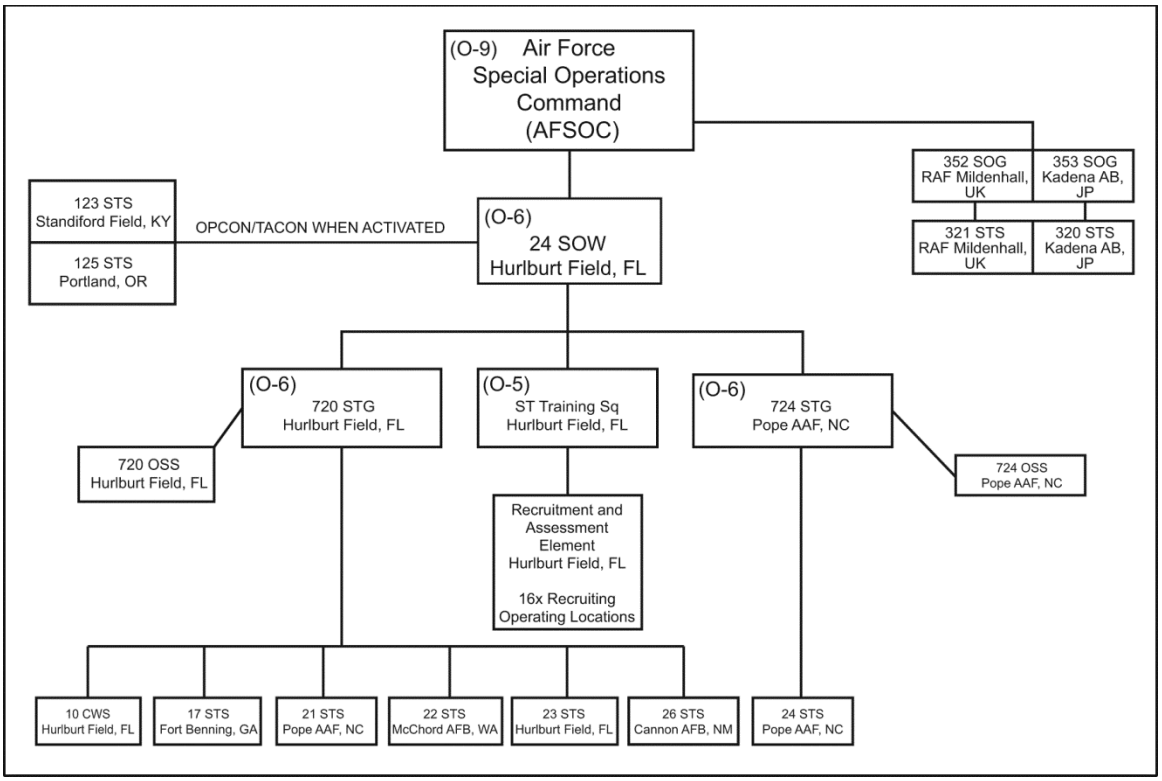

Figure 9. Special Tactics Organization

c. Concept of Employment. Air Force special tactics units employ scuba and MK-25 capable dive teams as part of the special operations component commander's forces. The lead command for special tactics units is AFSOC. Once assigned to a combatant commander, special tactics units are part of the joint special operations component. In this capacity, special tactics divers may be attached to other components or conduct personnel recovery in support of the joint special operations component.

5. US Army (USA) Special Forces

a. Mission. USA special forces (SF) use dive operations when required to execute any SF missions, including infiltrating and exfiltrating into (or out of) a designated AO. Other missions for SF combat divers include tactical reconnaissance, demolition raids against bridges and other maritime structures, and underwater searches for security and recovery.

b. Capabilities. SF combat divers use closed-circuit oxygen re-breathers to make covert underwater approaches to land or maritime targets. These approaches are usually the last legs of longer infiltration routes that may use air, surface, submarine, or a combination of movement assets. Open-circuit scuba diving is used for non-tactical search and recovery. The following six dive mission areas are identified for SF combat divers.

Note: For detailed descriptions, see Field Manual 3-05.212, *Special Forces Waterborne Operations*, September 2009.

(1) Mobility.

(2) Countermobility.

(3) Protection (physical security).

(4) Infiltration and exfiltration.

(5) Search and rescue/recovery.

(6) Hyperbaric chamber operations.

c. Task Organization. Each SF battalion is comprised of three SF companies. Each company has six SF operational detachments. One detachment per company is designated as a combat dive team. Therefore, each SF battalion typically has three combat diving teams.

d. Concept of Employment. The primary objective of SF diving operations is to conduct stealthy final approaches to preselected beach landing sites where the assault force transitions environments to conduct missions ashore. This may be the most advantageous avenue of approach, and combined with other movement techniques, extends infiltration and exfiltration ranges.

Appendix G
NON-DEPARTMENT OF DEFENSE DIVING

1. United States Coast Guard (USCG) Diver

a. Overview. The USCG has one type of diver. This diver is trained in scuba, surface supplied, underwater tools; and search and recovery, ice, and aids to navigation (ATON) diving. See appendix A for dive mission area capabilities.

b. Mission. The USCG diver's mission is to fulfill USCG first responder responsibilities. Seven of these span the USCG's 11 statutory missions, including:

(1) Security searches of vessels and piers.

(2) Maintenance, repairs, and inspections of navigational aids.

(3) Damage control and engineering support for the USCG's Polar-class icebreakers and other vessels.

(4) Disaster response and marine debris recovery.

(5) Environmental surveys and collections.

(6) Law enforcement and investigative support.

(7) General maritime search and recovery.

c. Capabilities. USCG divers are trained and equipped to perform the following missions.

(1) Ports, Waterways, and Coastal Security. USCG dive teams conduct subsurface inspections of piers, vessels, and adjacent shorelines to detect, identify, and mark underwater threats. These include mines, parasitic devices, improvised explosive devices, hazards to navigation, or other conditions that may hazard a vessel or critical infrastructure.

(2) ATON. Divers provide the ability to conduct extensive, independent ATON operations requiring minimal support. Divers can inspect moorings, change out buoys and chains, salvage sunken buoys, and lift buoy sinkers. Most ATON diving is conducted from small boats allowing the dive team to work ATON in shallow water that is not accessible by buoy tenders. The ability to conduct fly-away ATON missions in the aftermath of tropical storms affords an immediate response in the event a buoy tender cannot arrive on scene in sufficient time to re-establish commerce.

(3) Damage Control and Engineering Support. Dive teams perform engineering support inspection and limited underwater repair, specifically in remote geographic locations (e.g., Pacific Islands and high latitudes). All USCG diving units possess the capability to perform basic underwater tasks including running gear and hull inspections, propeller cleanings, and propeller pitch calibrations.

(4) Law Enforcement and Investigative Support. Divers conduct search and recovery of evidence in support of federal, state, and local agencies to assist in the enforcement of federal laws.

(5) Underwater Search and Recovery. USCG diving units are capable of sonar and tactile search and recovery of objects up to the light salvage threshold.

(6) Rescue Diving. While USCG divers are not specifically trained to perform rescue diving operations, especially those involving capsized hulls, they may attempt a rescue in some circumstances.

d. Task Organization.

(1) The USCG has two primary duty regional dive lockers (RDLs). Each dive locker consists of three teams of six divers plus a diving officer in charge of the locker (total 19 divers at each dive locker). The dive lockers are apportioned according to a three-tiered mission priority matrix. This includes security diving, disaster response, ice operations, underwater ship husbandry, ATON, law enforcement and investigative support, environmental survey, and marine debris recovery.

(2) The USCG maintains 6-person collateral duty dive teams aboard each of three 225 foot buoy tenders in the Hawaiian Islands and Guam to service ATON. Ship's divers are crew members and perform vital ship's duties in addition to diving duties. All operational USCG divers are under the control of the Pacific Area Commander.

e. Concept of Employment. USCG divers operate in conventional teams from small-craft and pier-side applications. ATON divers can deploy in teams to locations without cutter support. RDL divers deploy to major US ports primarily by commercial air, supported by prepositioned equipment trailers containing compressors, tanks, weights, and other support gear, to minimize air freight considerations. Local operations (within practical traveling time) are conducted using vehicles and equipment trailers located at the dive lockers.

f. Employment Considerations and Limitations. In addition to the inherent limitations and risks associated with all dive operations, the following considerations apply to USCG divers:

(1) USCG divers shall not be employed as combatants, but have the right to self-defense at all times.

(2) USCG divers do not possess any explosive ordnance disposal (EOD) capabilities and are not trained or equipped to perform render-safe procedures on ordnance. If ordnance is found, EOD divers will be contacted for assistance.

2. Contract Divers

The Department of Defense has a large capacity to contract diving operations. Contracted divers are normally employed in permissive environments and are governed by Occupational Safety and Health Administration regulations. Contracted divers may have different standards of operations and are not suitable for pooled dive teams. Civilian capacity often exceeds military capabilities for specific tasks.

3. Law Enforcement Divers

a. Divers from sheriff and police organizations may occasionally work alongside military divers, particularly during disaster response and emergency operations. Law enforcement divers shall not be employed as combatants. However, civil law

enforcement officials can provide arresting authority for antiterrorism and antidrug operations.

b. Situations may arise where military divers are providing support to an investigation, such as after the attack on the USS Cole (DDG 67) in October 2000. In this type of case, law enforcement personnel may provide technical assistance to military divers to meet legal requirements.

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Appendix H
DIVE POINT OF CONTACT LIST

Table 5. Dive Point of Contact List	
United States (US) Army	
Unit	**Location and Contact Data**
US Forces Command: 74th, 86th, 511th, 544th, and 569th US Army Engineer Dive Detachments	Joint Base Langley-Eustis, Virginia (VA) Phone: (Commercial) 757-878(-1365 for 74th), (-2805 for 86th),(-2433 for 511th), (-5658 for 544th). (-3500 for 569th), (Defense Switched Network [DSN]) 826
US Pacific Command: 7th Engineer Dive Detachment	Joint Base Pearl Harbor-Hickam, Hawaii (HI) Phone: (Commercial) 808-448-2500/2501/2502; (DSN) 315
US Central Command: Theater Dive Detachment	Kuwaiti Navy Base, Kuwait Phone: (Commercial) 9-011-965-975-8573/9-011-964-7128; (DSN) 318-839-1066/1067
US Southern Command US Army National Guard 232nd Engineer Dive Detachment	Ceiba, Puerto Rico Phone: (Commercial) 787-586-9946
US Army National Guard 627th Engineer Dive Detachment	Corpus Christi, Texas (TX) Phone: (Commercial) 512-782-4103
Army Special Operations: Headquarters, US Army Special Operations Command, Bldg E-2929 ATTN: AOOP-TRS	Fort Bragg, North Carolina (NC) Phone: (Commercial) 910-432-2069
US Marine Corps	
Unit	**Location and Contact Data**
I Marine Expeditionary Force (I MEF): 1st Force Reconnaissance (Recon) Company (Co)	Camp Pendleton, California (CA) Phone: (Commercial) 760-725-9690
I MEF: 1st Recon Battalion	Camp Pendleton, CA Phone: (Commercial) 760-763-6043
II MEF: 2nd Force Recon Co	Camp LeJeune, NC Phone: (Commercial) 910-450-7802
II MEF: 2nd Recon Battalion:	Camp LeJeune, NC Phone: (Commercial) 910-450-7802
III MEF: 3rd Recon Battalion	Okinawa, Japan Phone: (Commercial) 081-611-725-2527

Table 5. Dive Point of Contact List (Cont'd)	
US Marine Corps	
Unit	**Location and Contact Data**
Marine Special Operations Command	Camp LeJeune, NC Phone: (Commercial) 910-451-3575
1st Marine Special Operations Battalion	Camp Pendleton, CA Phone: (Commercial) 760-725-2126
2nd Marine Special Operations Battalion	Camp LeJeune, NC Phone: (Commercial) 910-450-7246
Headquarters Marine Corps, Ground Combat Element Branch for plans, policy, and operations (POG/PP&G).	Washington, DC Phone: (Commercial) 703-692-4306
Marine Combatant Dive Detachment	Naval Diving and Salvage Training Center (NDSTC) Panama City, Florida Phone: (Commercial) 850-230-7051
US Navy	
Unit	**Location and Contact Data**
Naval Sea Systems Command Supervisor of Salvage and Diving/ Director of Ocean Engineering (NAVSEA/SUPSALV 00C)	Washington Navy Yard, Washington, DC 20376-1073 Phone: (Commercial) 202-781-1731/ 3453; Fax: (Commercial) 202-781-4588 Emergency contact: (Commercial) 202-781-3889 (This number is for the NAVSEA duty officer, who will contact key SUPSALV personnel.) Website: www.supsalv.org
Navy Explosive Ordnance Disposal (EOD): Commander, Explosive Ordnance Disposal Group (COMEODGRU) ONE	San Diego, CA 92155 Website: www.NECC.navy.mil
Navy EOD: COMEODGRU TWO	Virginia Beach, VA. 23459 Website: www.NECC.Navy.Mil
Navy Regional Maintenance Center (RMC) and Intermediate Maintenance Facility (IMF): Commander Norfolk Naval Shipyard	Portsmouth, VA 23709
Navy RMC and IMF: Norfolk Naval Shipyard Divers	Norfolk, VA 23511-2393 Phone: (Commercial) 757-444-9632 (Diving Officer)
RMC and IMF: Commander Southeast RMC Office of Counsel (Code 100C)	Mayport, FL 32228-0057 Phone: (Commercial) 904-270-5126 Ext. 3179 (Diving Officer)

Table 5. Dive Point of Contact List (Cont'd)	
RMC and IMF: Commander Southwest Regional Maintenance Center	San Diego, CA 92136-5105 Phone: (Commercial) 619-556-1501 (Quarterdeck)
RMC and IMF: Commander Northwest Regional Maintenance Center Puget Sound Naval Shipyard & IMF	Bremerton, Washington 98314-5001
Navy RMC and IMF: Commander, Pearl Harbor Naval Shipyard and IMF	Pearl Harbor, HI 96860-5033 Phone: (Commercial) 808-368-0304 (Command Duty Officer)
RMC and IMF: Commander US Naval Ship Repair Facility and Japan-RMC	Yokosuka, Japan FPO AP 96349-0008 Phone: (Commercial) 011-81-46-816-4578/4579 (Dive Locker)
Navy Seabee: Underwater Construction Team ONE	Virginia Beach, VA 23459 Phone: (Commercial) 757-462-3984 Website: www.NECC.navy.mil
Navy Seabee: Underwater Construction Team TWO	Port Hueneme, CA 93041 Phone: (Commercial) 805-982-5948 Website: www.NECC.navy.mil
Mobile Diving and Salvage Units: Mobile Diving and Salvage Unit ONE	Pearl Harbor, HI 96860 Phone: (Commercial) 808-471-9292 Website: www.NECC.navy.mil
Mobile Diving and Salvage Units: Mobile Diving and Salvage Unit TWO	Joint Base Little Creek-Fort Story, Virginia Beach, VA Phone: (Commercial) 757-462-8801 Website: www.NECC.navy.mi
US Air Force	
Unit	**Location and Contact Data**
Headquarters Air Force, Air Force Operations and Training Division, DCS Operations, Plans, & Requirements (AF/A3O): Special Operations and Personnel Recovery Division (AF/A3O-AS)	Pentagon, Washington DC Phone: (Commercial) 703-695-4522, (DSN) 225-4522 Email: usaf.pentagon.af-a3-5.mbx.a3o-as-workflow@mail.mil
Air Combat Command (ACC)–Personnel Recovery Divers: Air Combat Command, Personnel Recovery Division (ACC/A3J)	Joint Base Langley-Eustis, VA Phone: (Commercial) 757-225-8171, (DSN) 575-8171 Email: ACC/A3J.Personnel.Recovery-02@us.af.mil

Table 5. Dive Point of Contact List (Cont'd)	
Air Force Special Operations Command (AFSOC)–Special Operations (Special Tactics) Divers: AFSOC, Operations and Training Division (A3T)	Hurlburt Field, FL Phone: (Commercial) 850-884-0476, (DSN) 579-0476 Email: AFSOC.A3T@hurlburt.af.mil
Air Force Material Command Diving Equipment/Material: 669th Aeronautical Support Squadron	Wright Patterson Air Force Base (AFB), Ohio Phone: (Commercial) 937-225-5478, (DSN) 785-2245 Email: 669AESS.THP@wpafb.af.mil
Air Force Education and Training Command (A3T): Detachment 2, 342nd Training Squadron	Randolph AFB, TX Phone: (Commercial) 210-652-9464, (DSN) 487-9464 Email: aetc.a3t.workflow@randolph.af.mil
US Coast Guard	
Unit	**Location and Contact Data**
Coast Guard Diving Program: Commandant (CG-7212) ATTN: Chief Dive Capabilities Division	Washington, DC Phone: (Commercial) 202-372-1294

Appendix I
COMMON EQUIPMENT AND RESTRICTIONS

1. Description of Common Equipment

Note: Dive units usually have multiple equipment packages based on the type of mission and term of deployment. Contact units for transportation considerations as most packages are scalable to meet mission requirements.

a. Combat Rubber Raiding Craft. Inflatable rubber boat that can support outboard motors up to 55 horsepower. Also referred to as a Zodiac.

b. Lift-bags. Open-bottom bags capable of being attached to submerged objects and inflated with air to float submerged objects to the surface

c. Re-breather. Re-breathers are closed circuit oxygen or mixed-gas underwater breathing apparatuses primarily used by the United States Special Operations Command community. This equipment combines the mobility of a free-swimming diver with the depth advantages of mixed gas. The term closed circuit refers to the recirculation of 100 percent of the mixed-gas breathing medium and results in bubble-free operations.

d. Salvage Pontoons. Inflatable rubber pontoons that can be attached to submerged objects to create artificial buoyancy.

e. Scuba. Divers do not need to be tethered to a surface ship or personnel. A scuba diver is limited in the amount of air stored in the scuba tanks and by currents up to 1 knot.

f. Surface Supplied Diving (SSD). Divers are tethered by an umbilical which provides surface stored air to the diver. Surface supplied equipment gives a diver relatively unlimited air and allows dives to depths of 190 feet of saltwater (FSW) using air or 300 FSW using mixed gas. A diver using SSD equipment can work in currents up to 2.5 knots without the aid of additional weight and equipment. Surface supplied divers have limited mobility based on the length of their air supply hose (typically 300 or 600 feet).

g. Umbilical. The umbilical is a group of hoses and communications cables that provide breathing air and voice communications to a surface supplied diver.

2. Common Equipment and Restrictions Table

Table 6. Common Equipment and Restrictions			
Agency	**Diving Apparatus**	**Depth (FSW)**	**Minimum Manning**
Air Force			
Special Tactics	Scuba	190	4
	MK 25	50	5
Personnel Recovery	Scuba	190	4
Army			
Engineer Diver	Scuba	190	4
	Surface Supplied	190	5
Special Forces	Scuba	190	4
	MK 25	50	5
Coast Guard			
Diver	Scuba	190	4
	Surface Supplied	190	6
Marine Corps			
Combat Diver	Scuba	190	4
	MK 25	50	6
Navy			
Navy Diver	Scuba	190	4
	MK 16	300	4
	Surface Supplied	190 Air	5
		300 HeO2	12
Underwater Construction Team	Scuba	190	4
	Surface Supplied	190 Air	5
Explosive Ordnance Disposal	Scuba	190	4
	MK 16	300	4
	Viper	50	4
Sea-Air-Land (SEAL)	Scuba	190	4
	MK 16	300	5
	MK 25	50	5
Operational Considerations: • A hyperbaric chamber is required for surface supplied HeO2 diving. • A hyperbaric chamber is required on-site for MK 16 dives greater than 200 FSW. • All diving is limited to 10,000 feet above sea level.			
Legend: FSW—feet of salt water HeO2—helium-oxygen			

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GLOSSARY

PART I – ABBREVIATIONS AND ACRONYMS

A

AAV	amphibious assault vehicle
ACC	Air Combat Command
AFB	Air Force Base
AFSOC	Air Force Special Operations Command
AFTTP	Air Force Tactics, Techniques, and Procedures
ALSA	Air Land Sea Application [Center]
AMCM	airborne mine countermeasures
AO	area of operations
AOR	area of responsibility
APU	auxiliary power unit
ARG	amphibious ready group
ASP	area search platoon
ATON	aid to navigation

B

BDA	battle damage assessment

C

CA	California
CDRUSSOCOM	Commander, United States Special Operations Command
CNO	Chief of Naval Operations
Co	company
COC	combat operations center
COMEODGRU	Commander, Explosive Ordnance Disposal Group
COMNAVSEASYSCOM	Commander, Naval Sea Systems Command
CRO	combat rescue officer
CRRC	combat rubber raiding craft
CT	Connecticut

D

DMA	dive mission area
DNA	deoxyribonucleic acid
DOD	Department of Defense
DPD	diver propulsion device
DSCA	defense support of civil authorities
DSN	Defense Switched Network

E

EH	explosive hazard
EOD	explosive ordnance disposal
ESG	expeditionary strike group
ESSM	emergency ship salvage material

F, G

F	full
FHA	foreign humanitarian assistance

FM	field manual
FMGS	fly-away mixed gas system
FSW	feet of seawater
	H
HeO2	helium-oxygen
HI	Hawaii
HMMWV	high mobility multipurpose wheeled vehicle
HQ	headquarters
	I
IED	improvised explosive device
IMF	intermediate maintenance facility
	J, K
JFC	joint force commander
JLOTS	joint logistics over-the-shore
	L
L	limited
LeMay Center	Curtis E. LeMay Center for Doctrine Development and Education
LOTS	logistics over-the-shore
	M
MAGTF	Marine air-ground task force
MARSOC	Marine Corps Special Operations Command
MCD	Marine combatant diver
MCM	mine countermeasures
MCRP	Marine Corps Reference Publication
MDO	military diving operations
MDS	mobile diving and salvage
MDSU	mobile diving and salvage unit
MDV	master diver
MEF	Marine expeditionary force
MEU	Marine expeditionary unit
MIW	mine warfare
MMS	marine mammal system
MPS	maritime preposition squadron
MSOB	Marine special operations battalion
MSOC	Marine special operations company
MSOT	Marine special operations team
MTTP	multi-Service tactics, techniques, and procedures
	N
NAVSEA	Naval Sea Systems Command
NAVSOF	naval special operations forces
NAVSPECWARCOM	Naval Special Warfare Command
NC	North Carolina
ND	Navy diver
NDC	Navy diver chief
NSW	naval special warfare

NTTP	Navy tactics, techniques, and procedures
NWDC	Navy Warfare Development Command
	O
OIC	officer in charge
OPDS	offshore petroleum distribution system (Navy)
	P, Q
PJ	pararescue jumper
PMS	preventive maintenance services
POC	point of contact
PR	personnel recovery
	R
RADCON	radiological control team
RDL	regional dive locker
recon	reconnaissance
RMC	regional maintenance center
ROC	required operational capability
ROV	remotely operated vehicle
	S
SALM	single-anchor leg-mooring
SC	South Carolina
SDV	SEAL team delivery vehicle
Seabee	Navy construction engineer
SEAL	sea-air-land
SF	special forces
SHT	sound hull tile
SMCM	surface mine countermeasures
SOF	special operations forces
SOWT	special operations weather team
SPM	secondary propulsion motor
SSBN	fleet ballistic-missile submarine, nuclear
SSD	surface-supplied diving
SSGN	guided-missile submarine, nuclear
SSN	attack submarine, nuclear
ST	special tactics
STS	special tactics squadron
SUPSALV	Supervisor of Salvage and Diving
	T
TRADOC	United States Army Training and Doctrine Command
TX	Texas
	U
UCT	underwater construction team
UJTL	Universal Joint Task List
URC	underwater reconnaissance capability
US	United States
USA	United States Army
USAF	United States Air Force

USCG	United States Coast Guard
USMC	United States Marine Corps
USN	United States Navy
USSOCOM	United States Special Operations Command
UTC	unit type code
UWSH	underwater ship husbandry
UXO	unexploded ordnance

V, W, X, Y, Z

VA	Virginia
VSW	very shallow water

PART II – TERMS AND DEFINITIONS

combatant command—A unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Combatant commands typically have geographic or functional responsibilities. (JP 1-02. SOURCE: JP 5-0)

combatant command (command authority)—Nontransferable command authority established by Title 10 (“Armed Forces”), United States Code, Section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM. (JP 1-02. SOURCE: JP 1)

joint force air component commander—The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for recommending the proper employment of assigned, attached, and/or made available for tasking air forces; planning and coordinating air operations; or accomplishing such operational missions as may be assigned. Also called JFACC. (JP 1-02. SOURCE: JP 3-0)

joint force commander—A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (JP 1-02. Source JP 1)

joint logistics over-the-shore operations—Operations in which Navy and Army logistics over-the-shore forces conduct logistics over-the-shore operations together under a joint force commander. Also called JLOTS operations. (JP 1-02. SOURCE: JP 4-01.6)

joint special operations task force—A joint task force composed of special operations units from more than one Service, formed to carry out a specific special operation or prosecute special operations in support of a theater campaign or other operations. Also called JSOTF. (JP 1-02. SOURCE: JP 3-05)

logistics over-the-shore operations—The loading and unloading of ships without the benefit of deep draft-capable, fixed port facilities; or as a means of moving forces closer to tactical assembly areas dependent on threat force capabilities. Also called LOTS operations. (JP 1-02. SOURCE: JP 4-01.6)

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NTTP 3-07.7
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