MILITARY FREEFALL AND UNDERWATER OPERATIONS: RECOMMENDATIONS TO IMPROVE ROLES AND CAPABILITIES

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by
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B.A., Christopher Newport College,
Newport News, Virginia, 1982

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This study reviews the current roles and capabilities of U.S. Army Military Freefall (MFF) and Underwater Operations(UWO) teams in the Special Forces Groups (Airborne), the Ranger Regiment and Battalions, and the Corps and Divisional Long Range Surveillance Units(LRSU). It also provides a historical background to demonstrate successful employment of these infiltration techniques and to generate ideas for their future use. Next, it looks at the U.S. Army's ability to respond to possible future situations with its limited number of MFF and UWO capable teams. Finally, it recommends various techniques to increase the number of MFF and UWO qualified personnel in the U.S. Army without creating a burden on current training institutions. Recommendations for alternative techniques of infiltration which are as effective as MFF or UWO, in most cases, are provided. The overall purpose of this research was to provide the U.S. Army with ideas to increase its ability to infiltrate forces into an area accurately and intact, day or night, in order to increase its combat multiplier ability.

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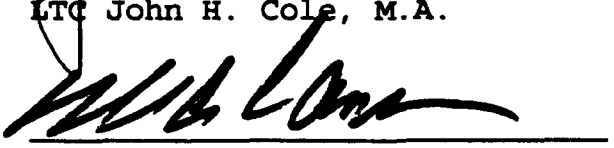

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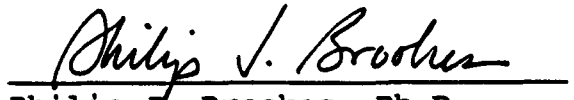

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

MILITARY FREEFALL AND UNDERWATER OPERATIONS:
RECOMMENDATIONS TO IMPROVE ROLES AND CAPABILITIES by
CPT Edward B. Daly, USA, 99 pages.

This study reviews the current roles and capabilities of U.S. Army Military Freefall (MFF) and Underwater Operations (UWO) teams in the Special Forces Groups (Airborne), the Ranger Regiment and Battalions, and the Corps and Divisional Long Range Surveillance Units (LRSU). It also provides a historical background to demonstrate successful employment of these infiltration techniques and to generate ideas for their future use. Next, it looks at the U.S. Army's ability to respond to possible near-future situations with its limited number of MFF and UWO capable teams. Finally, it recommends various techniques to increase the number of MFF and UWO qualified personnel in the U.S. Army without creating a burden on current training institutions. Recommendations for alternative techniques of infiltration which, in most cases, are as effective as MFF or UWO are provided.

This study explains the rationale for suggestion of these alternative techniques. Available school allocations, changing unit priorities, limited assets and resources, and unit missions are some of the factors which led to such recommendations. The overall purpose of this research was to provide the U.S. Army with ideas to increase its ability to infiltrate forces into an area accurately and intact, day or night, in order to increase its combat multiplier ability.

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CHAPTER 1

INTRODUCTION

This project is designed to determine how critical the Military Freefall (MFF) and Underwater Operations (UWO) capabilities are to certain units being able to accomplish their assigned missions. It will examine MFF and UWO operations conducted during and since World War II. It will show the procedures in which these techniques have been used. It will also assess current and future missions where these techniques may be used. In so doing, it will determine several best-case scenarios which, coupled with current technology, can provide commanders a significant combat multiplier.

This study identified problems that units experience when maintaining these proficiencies and when conducting missions. It was not able to address the solutions to all of these problems, but the conclusion can support some techniques for either reallocating resources or implementing different training programs. This research also looked at the current organization of units which use MFF and UWO infiltration to determine if these units need to maintain or modify these capabilities. It is intended to assess what these units can be expected to accomplish when considering

capabilities (both friendly and enemy) and resources available (in particular, training facilities). As a result of this analysis, commanders can establish priorities for training school allocations and aircraft availability for those units most likely to employ these specific techniques. Furthermore, this project provided some historical references.

Thesis Questions

Does the U.S. Army need to maintain the current organization of MFF and UWO teams? If not, how should these MFF and UWO teams be reorganized and which units should maintain these capabilities? Also, are there alternative techniques or variations of MFF or UWO training that can be maintained by units which conduct these infiltration techniques so they can still meet their mission requirements?

Thesis Background

Today, the U.S. Army maintains various Military Freefall (MFF) and Underwater Operations (UWO) teams in many units. Referred to as HALO and SCUBA teams, respectively, these units must train frequently to maintain a high degree of readiness. HALO is an acronym for High-Altitude Low Opening. In this research, the term HALO will refer to all aspects of Military Freefall (MFF) operations which also include medium- and high-altitude opening jumps. SCUBA is

an acronym for Self Contained Underwater Breathing Apparatus. In this research, the term will refer to all aspects of military Underwater Operations (UWO). This training requires extensive individual preparation and unit resources to ensure safety, realism, and the attainment of standards.

There are currently five active-duty Special Forces Groups which collectively man, equip, and train over 45 MFF and 45 UWO teams of up to 12 men each. The Ranger Regiment maintains a MFF/UWO reconnaissance detachment of 15 men plus an additional 24 MFF and 24 UWO billets for each of its three Ranger battalions. Each Ranger battalion also maintains one MFF/UWO combination billet by Table of Organization and Equipment (TOE), giving the Ranger Regiment 72 MFF, 72 UWO, and 18 MFF/UWO billets. Some Corps Long Range Surveillance Units (LRSU) maintain various numbers of MFF billets, as do some rigger units.

A Special Forces Underwater Operations (UWO) team is a twelve man Operational Detachment A (ODA), which is sometimes referred to as a SCUBA team. The Special Forces Groups maintain UWO teams for many reasons. It is an infiltration means to reach a target. The mission requiring this means of infiltration would most likely be a direct action raid, ambush or reconnaissance of a specific target. These Special Forces UWO teams train with the other services

but have the capability to conduct these missions with their own assets.

The Ranger Regiment uses its UWO personnel differently. These personnel are not formed into teams as in a Special Forces Group; instead, 24 team leaders are assigned UWO duties as an additional skill. Therefore, the Ranger battalions do not group their UWO qualified personnel together into teams as do the Special Forces Groups. This configuration would strip various squads of one of their team leaders. When divers are needed to conduct a dive mission, they are assembled from the various companies and formed into a team to accomplish the task. In the Ranger battalions, these tasks are generally limited to conducting underwater searches for lost equipment or personnel.

Today the Army employs two types of diving techniques: open-circuit and closed-circuit. Open-circuit UWO may be used for any operation not requiring secrecy or when underwater detection capabilities are limited and distances to swim underwater are not greater than 1500 meters. Open-circuit UWO is used in the following situations: for initial diver training, underwater search and recovery, ship bottom searches, and salvage operations where depths will not exceed 130 feet sea water (FSW) in training or 190 FSW (if absolutely necessary) in exceptional circumstances. Guidance for operational depths may be found in Naval Sea Systems Instruction (NAVSEAINST) 10560.2.[1]

Open-circuit diving consists of using commercially available SCUBA equipment. (See Figure 1.) Components unique to open-circuit diving are the high-pressure compressed breathing air cylinders and the breathing air regulator.[2]

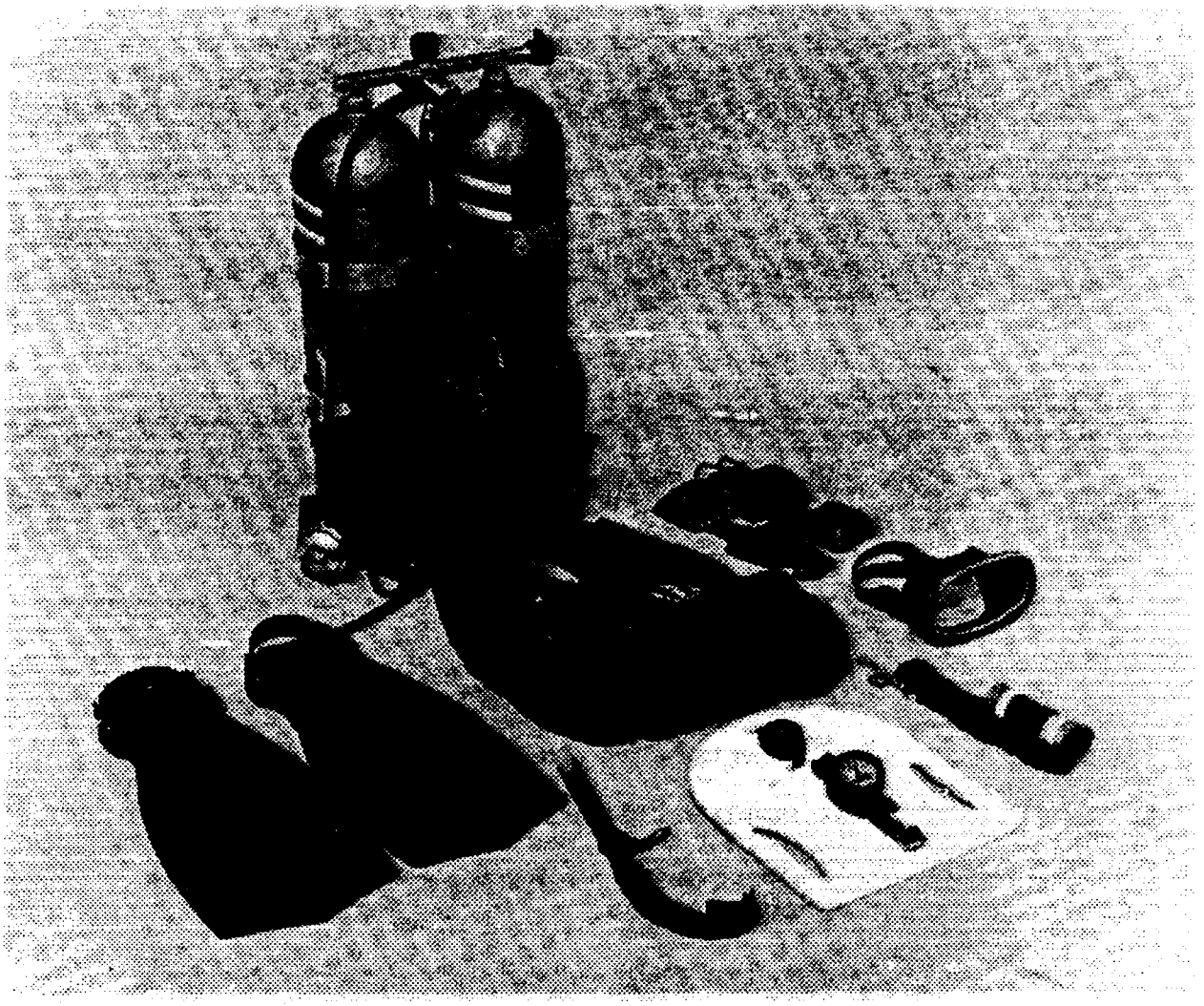

Figure 1. Open-Circuit SCUBA Equipment[3]

Although various types of UWO cylinders are available, the two types used by the military are steel 72-cubic-foot (cu-ft) cylinders rated at 2250 pounds per square inch gauge (psig), and the 80-cu-ft aluminum cylinders rated at 3000 psig pressure.[4] These two types of cylinders can be coupled together with a connecting manifold into twin 72-cu-ft sets (144-cu-ft) or into twin 80-cu-ft sets (160-cu-ft).[5]

Military UWO divers currently use the single hose, two-stage regulator. It is fitted with an additional low-pressure buoyancy compensator military (BCM) inflator for buoyancy control and a high-pressure air gauge to monitor remaining psig in the UWO cylinders. This type of regulator is used for training and is adequate for most missions.[6]

The diver's mask, weight belt, compass, depth gauge, snorkel and fins are standard civilian equipment and are generally black in color. In most cases, divers purchase their own swimmer sets (mask, fins and snorkel).

Open-circuit diving emits bubbles when the diver exhales; closed-circuit diving does not. In closed-circuit diving, the diver uses a German hand-made underwater breathing apparatus (UBA) made by Draeger called the Limited Air Re-breather, Model V (Draeger LAR V). It is called a closed system because the diver breathes pure oxygen and when he exhales, the gas flows through a soda-sorb compound element that absorbs the carbon dioxide and allows the oxygen to be re-breathed by the diver.

The gas flow of the Dreagar LAR V is shown in Figure 2. The gas is exhaled by the diver and directed by one-way valves into the exhaust hose. From there, it enters the carbon dioxide absorbant cannister (CO2 scrubber) where the carbon dioxide is removed. Upon leaving the cannister,

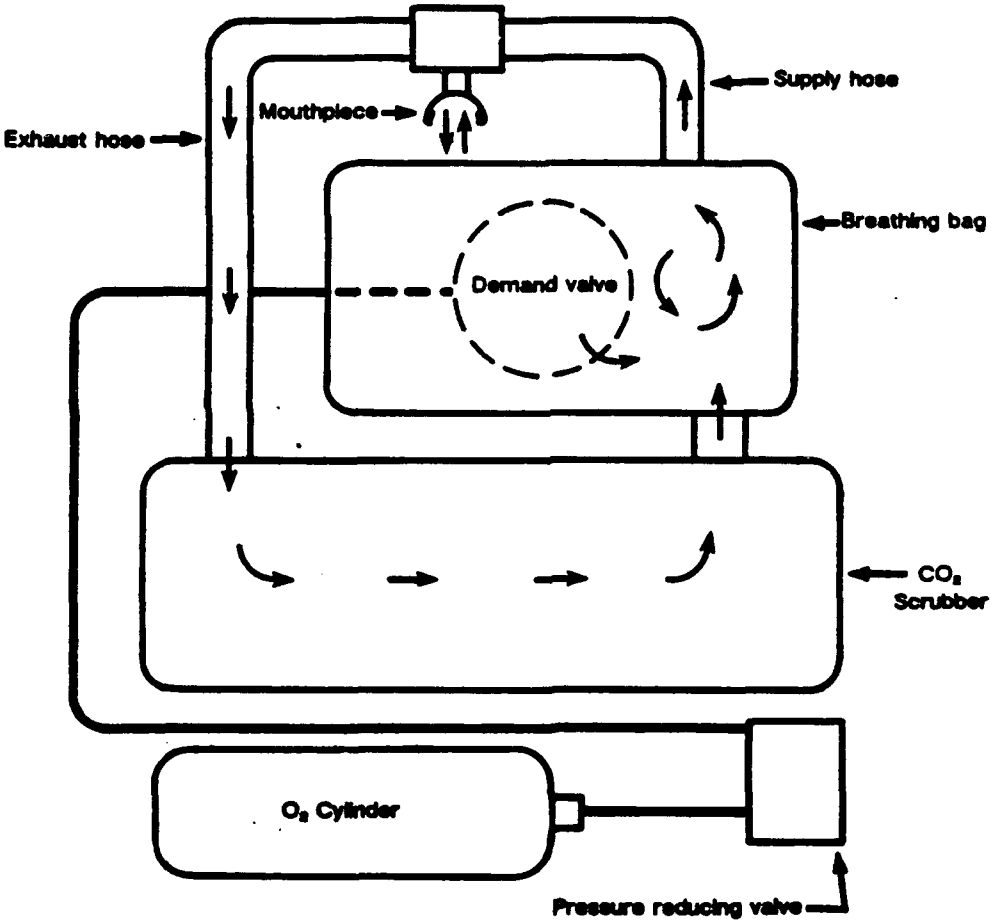

Figure 2. Gas flow path of the Draeger LAR V[7]

the gas enters the breathing bag where it travels via the inhalation hose (supply hose) to the diver's lungs when he inhales. The gas flow is powered entirely by the diver's breathing efforts. As the diver exhales, the gas in the UBA is pushed forward by the exhaled gas; upon inhalation, the one-way valves in the hoses cause gas to be pulled into the diver's lungs from the breathing bag.[8]

This process can function for a maximum of four hours. To avoid oxygen poisoning, the diver must limit his dive to shallow depths; however, this depth is sufficient for an infiltration. The open-circuit diver is not limited to shallow depths because he uses compressed air. To prevent over-saturation of nitrogen which can lead to narcosis, embolism, or death, the diver must follow the guidance of the U.S. Navy Dive Tables.

The U.S. Navy is the proponent agency for all matters concerning military diving. It established, among other things, a guidance matrix called the U.S. Navy Dive Tables which determines how long a diver can stay underwater at various depths. When conducting dive operations, nitrogen absorption is directly related to the increased partial pressure of an inspired inert gas (in this case nitrogen) during descent or while at the bottom. During normal ascent, this process is reversed and gas comes out of the body via the lungs. If the ascent is too rapid, nitrogen bubbles can form in the blood and tissues, which

can result in a form of decompression sickness. The U.S. Navy Dive Tables were established to prevent the development of decompression sickness. These tables take into consideration the amount of nitrogen absorbed for any given depth and time period and allow for the elimination of these inert gases through normal processes.[9]

The Special Forces organize and train to use their MFF teams much the same way as their UWO teams. It is a means of infiltration. There is a strong likelihood of Special Forces units having to parachute into a remote location, to set up an indigenious training site, or to conduct strategic reconnaissance. Hence, this need justifies the requirement for some number of Special Forces MFF teams. This thesis looked at some of the possible near-future conflicts to determine if we have enough of these teams.

The Ranger Regiment also uses its MFF jumpers differently than Special Forces. Again, the Ranger Regiment does not maintain MFF teams except for the Regimental Reconnaissance Detachment (RRD). Qualified individuals perform MFF jumps as an additional duty. The Regiment's MTOE authorizes six Staff Sergeant (E-6) and eighteen Specialist (E-4) MFF billets. If the Rangers put their MFF jumpers together for a mission, it could take six squad leaders away from their squads. However, the Rangers consider these jumpers a combat multiplier. For example,

the mission may require some or all of these jumpers to conduct a target reconnaissance; they are capable of performing that mission. The use of these men obviously depends on the mission, but the Regiment needs this flexibility. One of the issues addressed in this thesis was to look at some alternatives which may be of significant use to the Ranger Regiment.

The U.S. Army spends enormous amounts of money and time qualifying personnel in MFF and UWO skills. Individuals must also prepare themselves physically and mentally before they can become qualified. Those attending the U.S. Army Special Forces Underwater Operations Course at Key West, Florida, must significantly prepare themselves before they go to the school. A review of what a person must do to become a Combat Diver shows how much the individual and the unit invest in time and physical resources for this training.

First, the individual must attend and graduate from a unit-run "pre-SCUBA" course which is generally two-weeks duration. A full UWO team is required to conduct this training. In addition to the time and resources the UWO team requires to prepare for the training, the course is very involved and is designed to imitate the qualification course at Key West.

The only task a "pre-SCUBA" candidate does not perform is underwater training while breathing from his UWO

equipment. That training is conducted only at the qualification course. During the "pre-SCUBA" course, all other training conducted is to the same standard as those of the qualification course.

The "pre-SCUBA" course begins early in the morning: intensive physical fitness training develops upper-body strength and quick-paced long distance runs develop stamina. Later in the morning, the students spend up to three hours conducting pool trainings. One of the purposes of pool training is to develop those skills necessary to gain confidence while working underwater. Students conduct underwater relays, bobbing drills while wearing UWO equipment, underwater knot tying exercises, equipment recovery drills, and various stress-related exercises. Another purpose of pool training is to prepare the student in those skills on which he will be evaluated at the qualification course. Those skills are as follows: tred water for five minutes (two minutes without use of hands); bob for two minutes with fins on hands while wearing full UWO equipment; tie a series of knots underwater; swim 20 meters underwater; and swim 3000 meters on the surface in ninety minutes or less.

The afternoon begins with two to three hours of dive physiology classes. This area of study is very detailed; a student must understand these subjects so he is not overwhelmed at Key West. The students are taught such

subjects as the different types of dive injuries, dive physics, dive tables, and emergency first-aid procedures. Finally, the training day ends with a 1000-, 2000-, or 3000-meter surface swim to develop the students' long distance swim endurance and style. This schedule lasts for two weeks and requires a full UWO team of twelve men to accomplish the training and support requirements. Once a student successfully completes pre-UWO training, he can then attend the four-week course at Key West. In summary, it takes six weeks of scheduled training, and whatever individual physical and mental training time is necessary, to qualify a soldier in underwater infiltration.

Army Regulation (AR) 675-11 specifies the annual requirements a diver must satisfactorily complete to maintain his diving currency. It also outlines what a diver must do to regain diving currency, and it specifies the equipment and personnel to be present when making dives. In general, a Dive Medical Technician (DMT), Dive Supervisor (DS), Dive Officer (DO), and a Safety Diver to assist in emergencies are required. Emergency equipment must also be on hand. AR 675-11 does not require a diver to maintain closed-circuit proficiency. All dives conducted in accordance with (IAW) AR 675-11 are open-circuit dives. Unit training is conducted with closed-circuit equipment in units which have that equipment.

The Military Freefall Course

The Military Freefall course, called MFF school, is located at Fort Bragg, North Carolina. It is also approximately six weeks in duration and, though not as physically demanding, it is resource intensive: the student-to-teacher ratio is about three-to-one and the cost of aviation fuel alone is staggering. However, the U.S. Army will pay those necessary costs to ensure the training is safe, realistic, and conducted to standard.

MFF students make an average of 28 freefall jumps during qualification.[10] Students start their training with their first jump at over 12,000 feet above ground level (AGL) and advance to 18,000 feet AGL near the end of the course. Students first learn to conduct stable and controlled (no tumbling) freefall jumps during daylight with no combat equipment or oxygen. When the student graduates, he will be able to make night high-altitude jumps with combat equipment. Once a person is qualified, he continues to maintain that proficiency through unit training.

MFF jumpers maintain proficiency in accordance with (IAW) various unit Standard Operating Procedures (SOPs). U.S. Army Special Operations Command (USASOC) Regulation 350-2 (Airborne SOP) standardizes the levels of MFF proficiency across the USASOC community. This regulation specifies what MFF jumpers must do to maintain one of three levels of MFF proficiency. Level One is the highest level

of proficiency. At this level, a jumper with equipment and oxygen is qualified to make night MFF jumps up to 25,000 feet AGL into a specific location. Level Two and Level Three are less proficient where a jumper has not made the requisite number of night or equipment jumps in the last quarter to maintain Level One proficiency.[11]

One can see how involved it is to qualify a person and then to maintain the proficiency of that individual and his team. In order to maintain proficiency and meet hazardous pay requirements, MFF jumpers must conduct freefall jumps quarterly, and combat divers must conduct dives monthly.

This study will accomplish the following tasks:

1. It will look at historical examples which have led to the development and employment of current MFF and UWO teams.

2. It will discuss some world situations which could use the infiltration techniques of MFF and UWO.

3. It will also discuss some problems facing commanders when employing these teams.

4. Finally, it will make several recommendations toward improving and updating the roles of these techniques.

Thesis Assumption

Particular organizations, constraints, patterns, and techniques repeat themselves in history.

In the near future, all corps Long Range Surveillance Unit (LRSU) personnel will become MFF qualified and these units will become fully equipped to conduct MFF operations. Not all corps LRSU units have MFF qualified teams, but modification requests to current TOEs of these units indicate attempts to warrant MFF status.

The model for Corps and Division LRSU units will be the current TOE of the XVIII Airborne Corps Long Range Surveillance Unit (LRSU).

This study assumes that the U.S. Army does have significant reasons to maintain MFF and UWO units in other than specialized covert units. The ability to infiltrate personnel via MFF or UWO is more prevalent now than ever before due to increased detection capabilities of most nations and the potential threat.

Thesis Limitations

This study will not discuss any classified use of MFF or UWO. It will also not discuss, insinuate, or even suggest possible uses for specific covert units in the Department of Defense. These units have unique requirements; they use their capabilities accordingly.

Endnotes

[1]U.S. Army, Training Circular (TC) 31-25, Special Forces Waterborne Operations (Washington: Department of the Army, 1988) p. 13-4.

[2]Training Circular (TC) 31-25 (1988), p. 13-4.

[3]TC 31-25 (1988), p. 13-5.

[4]TC 31-25 (1988), p. 13-4.

[5]TC 31-25 (1988), p. 13-4.

[6]TC 31-25 (1988), p. 13-6.

[7]TC 31-25 (1988), p. 14-10.

[8]TC 31-25 (1988), p. 14-10.

[9]TC 31-25 (1988), p. 11-1.

[10]Phone conversation with Captain Russel Wyler, Commander, MFF Qualification Course, Fort Bragg, N.C.

[11]U.S. Army Special Operations Command (USASOC) 350-2 (1989), para 15-4.

CHAPTER 2

HISTORICAL REVIEW

There is very little literature available on this subject with which to conduct a literature review. This thesis is a single-source document which provides source material for further study. There were, however, limited examples in literature which were beneficial to the study. Generally, they provided background material on the subject and were not in the form of studies. A review of the uses of MFF and UWO techniques in recent history better serve this thesis. First I shall discuss combat divers; then, military freefall.

Combat Diving

Combat diving began during the Second World War. In particular, the Italian 10th Light Flotilla made significant use of combat divers in the Mediterranean.[1] Called the "Sea Devils," these divers would exit from submerged Italian submarines and mount special two-man torpedoes located on the decks of the submarines. With only the divers' heads above the surface, they would then drive the torpedoes toward their targets at speeds of 2.5 knots. When close to their target, they would take a compass bearing, completely submerge themselves, and drive the torpedoes to the target.

They would then attach the torpedoes' 660-pound explosive warheads to the target vessel, set a time-delayed fuze, and drive their craft away.[2] Using these divers, midget one- and two-man submarines, and small racing boats, the 10th Light Flotilla sank or damaged 28 Allied ships; these included the battleships H.M.S. QUEEN ELIZABETH and H.M.S. VALIANT, and the cruiser H.M.S. YORK, as well as 111,527 tons of merchant shipping.[3]

Also, the Italian combat divers attacked British shipping berthed in the heavily guarded waters of Gibraltar. They ingeniously attacked by using a battered Italian merchant ship docked two miles away in a neutral Spanish coastal area across from the Gibraltar Bay. The 4,995 ton OLTERRA was a "floating Trojan horse."[4] The Italians replaced most of the OLTERRA's crew with divers and naval technicians. Two-man submarines and explosives were hidden aboard the vessel. The Italians cut a doorway into the side of the ship six feet below the water level so divers and two-man submarines could come and go undetected. Crews were assembled inside the ship and lowered into the water inside the vessel. Once submerged, they exited through the door and proceeded to their targets across the bay. In total, these combat divers sank or damaged more then 42,000 tons of Allied shipping in the Gibraltar Bay. The British never discovered where these attacks came from nor where the attackers went after an attack.[5]

Combat divers in the U.S. Army derive their lineage from the U.S. Navy of World War II. A formal program trained swimmers to mark and destroy maritime and beach obstacles faced by amphibious forces. This program was established in the summer of 1943 at Fort Pierce, Florida. The Navy realized that teams were needed to establish lanes onto a beachhead, and the bloody ordeal at Tarawa placed new emphasis on the problem. Volunteers from Navy Seabees (Construction Battalions - CB) and Marine Corps Raiders became expert swimmers and small-boat handlers, as well as explosive experts. Called Naval Combat Dive Units (NCDU), these teams were used during the invasions of Normandy and southern France. Other teams were sent to the Pacific, forming new 100-man units called Underwater Demolition Teams (UDTs). These teams served with distinction from the time of the invasion of Saipan until the end of the war.[6]

During the Korean War, the U.S. Army relied on the U.S. Navy to provide beach reconnaissance, just as it did during World War II. In 1961, President Kennedy expanded the role of U.S. Army Special Forces and the need for Army divers grew. The Army's combat-diver role was to conduct clandestine infiltration in support of covert operations. The U.S. Army now had its own combat diver requirement. The Army established its SCUBA school at Key West, Florida. The mission of Army combat diver has not changed and

developments in diving technology have significantly improved the Army's capability.

The Navy has proponent responsibility for sub-surface infiltration for the U.S. Armed Forces. However, because the Army has a need for this capability and the Navy has limited assets, the Army maintains its own capability. Both services demonstrated their usefulness in recent combat operations. The U.S. Army conducted combat dive operations beginning in 1967 in Vietnam[7] and the U.S. Navy conducted them during Operation Just Cause in Panama.[8]

Combat diving is a very hazardous business and divers need to dive regularly to maintain proficiency in this perishable skill. While some in the Army feel this should be strictly a Navy mission, the Army needs combat divers. Combat divers conduct the dangerous business of body and equipment recoveries from accidents. Furthermore, they give the Army a joint capability to conduct dive missions with all the other services. (The U.S. Marine Corps and the U.S. Air Force also have trained combat divers.)

Currently, the U.S. Army Special Forces Underwater Operations School at Key West trains eight classes each year, graduating approximately 180 students annually. This school also trains Dive Medical Technicians (DMTs) who are special operations forces medics specifically trained to identify and treat dive related injuries.

Military Freefall

In order to study the evolution of military freefall operations, one must start with the Army's static-line parachute operations to understand why such a requirement arose. Much is known about the Army's airborne missions during World War II, Korea, Vietnam, Grenada and Panama. These airborne operations were characterized by parachuting hundreds to thousands of troops into a combat area. The only accuracy required was the ability for a mass of men to land in a relatively large area during the day or night. Precise accuracy, however, was not required. In theory, this idea worked well but in actual combat, the terrain and enemy disposition required a more precise accuracy.

Combat operations in the Pacific were characterized by operations into very small drop zones. In September 1943, the 503d Parachute Infantry Regiment conducted a mass tactical jump into Nadzab Airfield at Lae, New Guinea. In spite of the poorly maneuverable canopies of the time, it was an extremely accurate jump.[9] Airborne planners in the Pacific realized unorthodox means would be required to continue to land paratroopers on target. The 11th Airborne Division was famous for unorthodox means. The 11th Airborne made countless use of its small scout airplanes to drop men and equipment into drop zones or clearings hacked out of the jungle in the Philippines.[10]

On the other side of the world, the drop of the 509th Airborne Infantry Battalion at Avellino, with its resultant catastrophies, identified a need for highly maneuverable parachutes. The mission of the 509th was to block a critical mountain pass road network located approximately ten miles inland from the Salerno invasion.[11] The paratroopers ended up scattered all over the mountains and were an ineffective combat force.

Nothing during the Second World War highlighted the need for an extremely accurate canopy which could allow a parachutist to jump above anti-aircraft weapons as did Special Operation Forces. Agents and soldiers of the Special Operation Executive (SOE) and the Office of Strategic Studies (OSS), infiltrating as individuals or as small teams, parachuted behind enemy lines, usually at night. Airplanes flew generally at low altitudes, within effective enemy anti-aircraft range, and mission success required an accurate drop in order to rendezvous with a reception committee. This type of night, low-level, static-line parachute infiltration required the drop zone to be well lighted and guarded.[12] It soon became obvious that a whole new parachuting technology was required.

During World War II, there were parachutes capable of manual opening, but they were principally designed for aircrew members who had to jump from disabled aircraft. (Lieutenant Colonel (LTC) Jim Gavin, Regimental Commander of

the 505th Parachute Infantry Regiment in 1943, was known for conducting freefall jumps while his unit conducted static line jumps.[13] This technique was very rare and was never used by the SOE or the OSS.)

Korean Conflict airborne operations involved two mass jump operations at Munsan-Ri and Sukchon.[14] There was no particular necessity during the Korean Conflict requiring the employment of special operation teams by parachute against the enemy. However, some technological advancements were made.

Sport parachutists began to develop various freefall techniques which allowed a person to maintain a stable body position while falling. They also developed ways to literally fly together in groups as they descended. Most importantly, their experiments in parachute design and control increased accuracy and dependability.

The U.S. Army did not initially support the freefall parachuting idea. Not until 1959, when the Strategic Army Corps Parachuting Team was formed at Fort Bragg, did the Army take a serious interest in freefall parachuting.[15] This team, renamed the U.S. Army Parachute Team in 1962 (and better known as the Golden Knights) would set the standard for freefall parachuting throughout the world.[16] More importantly, freefall parachuting had tactical applications which seemed limited only by one's imagination.

The Vietnam Conflict did identify the need to infiltrate Special Forces teams into the enemy territory by parachute. Relatively small drop zones, coupled with extensive anti-aircraft coverage, made high-altitude parachuting at night a necessity.

Today, various Army reconnaissance, Ranger and Special Forces units maintain MFF teams. This thesis examined these units to determine if there are enough of these units. Also, this thesis examined the recent combat operations of Just Cause and Desert Storm to evaluate useful employment techniques for future military operations.

Endnotes

[1]A.B.C. Whipple, The Mediterranean (Alexandria: Time-Life Books, Inc., 1981) p. 118.

[2]Whipple, p. 124.

[3]Whipple, p. 126.

[4]Whipple, p. 137.

[5]Whipple, p. 137.

[6]T. L. Bosiljevac, SEALS: UDT/SEAL Operations in Vietnam (New York: Ivy Books, 1990) pp. 6,7.

[7]Phone conversation with Joe Alderman, who referenced AARs CCN/CCC OP 35 and OP 36 and AAR BLACKJACK 504 which describes declassified HALO and SCUBA combat mission by U.S. Special Forces personnel during the Vietnam War.

[8]Thomas Donnelly, Margaret Roth, and Caleb Baker, Operation Just Cause, The Storming of Panama (New York: Lexington Books, 1991) pp. 120,121.

[9]Gerard M. Devlin, Paratrooper! (New York: St. Martins' Press, 1979) p. 262.

[10]Lt. Gen. E. M. Flanagan, Jr. USA(Ret), The Angels, A History of the 11th Airborne Division (Novato: Presidio Press, 1989) p. 123.

[11]Devlin, p. 326.

[12]M. R. D. Foot, S.O.E. in France (London: Her Majesty's Stationary Office, 1966) p. 24.

[13]Clay Blair, Ridgeway's Paratroopers, The American Airborne in World War II (Garden City: The Dial Press, 1985) p. 50.

[14]Clay Blair, The Forgotten War, America In Korea 1950-1953 (New York: Anchor Press, 1987) p. 358, 762.

[15]Charles W. Ryan, Sport Parachuting (Chicago: Henry Regency Company, 1975) p. 9.

[16]Ryan, p. 9.

CHAPTER 3

METHODOLOGY

There are several useful research methodologies for this study: cause and effect, comparison and contrast, chronological order, interviews and questionnaire.

This thesis relied heavily upon a combination of cause and effect to measure the results of each course of action. It looked at the current capabilities of MFF and UWO teams to determine what effect the Army's downsizing policy could have on unit readiness. Could changes to unit manning and qualification courses require units to establish their own training and qualification facilities?

This project then compared and contrasted several alternative training techniques to determine what some units have done to correct their unit's problems with qualification course allocation shortages. It also compared and contrasted a new parachute qualification technique and a surface swim infiltration training program which may be beneficial to special operations and reconnaissance units.

This project also focused heavily upon history, because techniques used in the past have a significant impact upon their future employment. The chronological order of events demonstrated how new ideas were a result of

resources available to accomplish the mission. This project examined new ideas in light of current and possible future missions of the future Army.

During the historical analysis, certain questions arose which helped extrapolate significant results. Is there a pattern of successful MFF and UWO missions? Are there any changes we can accomplish immediately to better support future employment of these techniques? Are we better prepared now for the last battle or the next battle? Are alternative techniques necessary in light of limited resources and increased need? If so, are these alternative techniques easily available or do we need to make drastic changes? These are some of the questions which were used for the conduct of this study.

Historical research required a thorough review of documents, such as after action reports (AARs), text reading, and personal interviews. For the historical review, primary sources are the best sources. Unfortunately, there is not much written about this subject. Therefore, this study closely examined the current MTOE and capabilities of selected units compared against resources available and most likely mission requirements. It looked at each unit's organization to determine if they have teams manned specifically to conduct these mission or if teams are formed on an "ad hoc" basis. This study also examined the issue of qualified manning. Do these units habitually

maintain their MFF billets with qualified personnel or do they show a history of significant shortages?

The historical data was more a matter of illustrating successful and unsuccessful operations which used MFF and/or UWO infiltration. The author noted that very few people who are or were assigned to MFF and/or UWO units know much about their actual combat use. Only unclassified material was used for this thesis in all areas.

The interview process was somewhat challenging. Personnel who have actual combat experiences in MFF or UWO operations are few, but they do exist. To date, the author has only been able to conduct such interviews by telephone. The interviews were not done in person.

The purpose of these interviews was two-fold. First, combat veterans have personal experience which can be shared with the community. They can highlight strengths and weaknesses that may be incorporated into our training and organization. Secondly, the others who were interviewed also had much to offer this thesis. There are some great ideas in the field, some improvisations, and some concerns and problems that need to be highlighted. This thesis put all these issues and concerns, with possible solutions, into a single document.

Some of the raw data for this thesis came from identifying which units in the U.S. Army have which of these capabilities. The author looked at available MFF and UWO

delivery platforms the Army uses. This data was used to determine if there are sufficient platforms available to insert special operations and conventional teams in various levels of conflict. This information also supported some suggestions for change which could benefit the Army.

Lastly, this study looked at MFF school student allocation priorities to evaluate the school fill priority. Are the same problems found in UWO teams? Is the need for UWO teams still significant? Are there alternative techniques available or ways to expand current sub-surface infiltration teams and units?

This study was not able to conduct an appropriate examination of all U.S. Army MFF and UWO units. A small representation had to be found. A suitable microcosm was selected units from Fort Lewis, Washington and Fort Bragg, North Carolina. Each post has MFF and UWO units. There is also an adjacent U.S. Air Force base next to each post which supports U.S. Army MFF and, when necessary, UWO missions.

The 1st Special Forces Group (Airborne) (1SFG(A)), the 2d Battalion, 75th Ranger Regiment (2/75 Rgr), XVIII Airborne Corps, and 82d Airborne Division each maintain MFF billets. Each post has unit or installation riggers qualified to pack and maintain MFF parachutes and equipment as well as oxygen technicians who service and maintain high altitude breathing equipment.

For the purpose of this methodology, this research used the following unit organizations and equipment structure. These structures are common throughout the Army and where differences exist they are generally slight.

The Special Forces Group (Airborne)

The Special Forces Group (Airborne) includes a headquarter and headquarters company, three Special Forces battalions, a service company, a signal company, and a military intelligence company.[1] Each Special Forces battalion consists of a battalion headquarters and three Special Forces companies; each company has a company headquarters and six operational detachments. There is an MFF detachment and a UWO detachment in each of these Special Forces companies.[2] Each detachment, called a Special Forces A Detachment (A-Team), consists of twelve men.[3] This study was concerned with just the MFF and UWO detachments of the Special Forces Group (Airborne). Given a total of nine MFF and nine UWO detachments in each of the Special Forces battalions, there are 108 MFF and 108 UWO positions in the Special Forces Group (Airborne). This number does not include ancillary MFF or UWO billets in the group such as S-3 Air NCO or Group Dive Officer, for example, but this study recognizes the existence of other positions requiring persons qualified in these skills.

The Ranger Regiment and Battalions

The Ranger Regiment has 15 MFF/UWO billets in the Regimental Reconnaissance Detachment (RRD). The Ranger battalion, as discussed in Chapter 1, maintains 24 MFF, 24 UWO, and one MFF/UWO billet in each of its three battalions.[4] This study used the 2d Ranger Battalion stationed at Fort Lewis, Washington as a model for evaluation.

Long Range Surveillance Units and Detachments

The XVIII Airborne Corps Long Range Surveillance Unit (LRSU), at Fort Bragg, North Carolina, currently maintains forty MFF billets. It has six teams of six men each plus an additional four communication billets.[5] Also at Fort Bragg, North Carolina, the 82d Airborne Division has three MFF teams of six men each for a total of 18 MFF billets in its long Range Surveillance Detachment (LRSD).[6]

Endnotes

[1]U.S. Army, Field Manual (FM) 31-20, p. 4-12.

[2]U.S. Army, FM 31-20, Figure 4-7.

[3]U.S. Army, FM 31-20, p. 4-12.

[4]MTOE 07085LSP01.

[5]Questionnaire response answer by Commander, XVIII Airborne Corps LRSU, Fort Bragg, North Carolina.

[6]Questionnaire response answer by Commander, 82d Airborne Division LRSD, Fort Bragg, North Carolina.

CHAPTER 4

MISSIONS, TECHNIQUES AND ISSUES

Introduction

As the Army reduces it forces in the 1990s, international situations demand that we maintain the ability to respond to any situation required of the U.S. military. The key to this success is the ability of the U.S. to infiltrate quickly and undetected, anywhere, day or night, with a high degree of accuracy and complete unit integrity. Using the UWO and MFF capabilities inherent among certain units, the Army can increase its chances of success. Not all of these missions are combat missions, but an increased demand for UWO and MFF capabilities is needed for certain future missions. Starting with the MFF capability, a look at some of these missions illustrates these needs.

The Special Forces Group (Airborne)

The airdrop of relief bundles to Muslims into Bosnia-Hercegovina (former Yugoslavia) by the U.S. Air Force highlights the need for Special Operations Forces (SOF) having a high-altitude, standoff parachute capability. To date, no U.S. forces have been put on the ground to assist in these bundle drops. However, the need for relief continues to grow and the requirement for much more accurate

airdrops may increase. Therefore, there is a possibility that U.S. forces could be used on the ground to assist the airdrop mission. These personnel would give the necessary wind direction and velocity reports as well as ground condition and post-airdrop reports which are extremely valuable to further successful airdrops. Because these teams would be working for the United Nations, a certain degree of security for these personnel may be guaranteed. However, there is certainly much risk in getting those personnel into required areas. It is likely that if the U.N. continues to request U.S. assistance with airdrops, and if ground personnel are needed to assist in very accurate drops, then a night MFF operation via High Altitude Low Opening (HALO) or High Altitude High Opening (HAHO) seems quite logical.

MFF qualified teams could conduct these night infiltrations with a high degree of accuracy while maintaining team integrity. Once on the ground, they would establish communication with the U.N. and the airdrop unit. If needed immediately, they would send in the required reports for the airdrop. However, enough time should be allocated for them to establish all communication nets and to set up the drop zone. Because of their U.N. status, they would be entitled to certain privileges which would enable them to move about without interference from any opposing units. These teams would also be able to report on the

proper conduct of distribution of relief supplies by sending those reports directly to the U.N.

It would be critical for these personnel to infiltrate at night from altitudes high above anti-aircraft range and to quickly assemble as a team. This requirement would increase the demand for MFF qualified SOF teams. These SOF teams must have the parachuting training and communications equipment and skills necessary to accomplish this task. These teams would provide necessary reports for subsequent ground or airborne relief missions that may include their own exfiltration.

The Special Forces Groups have other near future missions requiring an increase in their MFF capability. Many allied countries have requested U.S. Army mobile training teams (MTT) assistance in teaching military skills to their units. Various countries have requested military freefall (MFF) training.[1] The BADGE PACK series of military exercises and joint/combined training conducted by the 1st Special Forces Group in the Philippine Islands offers a perfect example of the importance of MFF capabilities.[2]

MFF qualified teams conducted various levels of individual and unit collective skills training as well as combined MFF infiltration training. Because of the limited availability of U.S. MFF teams, not as many foreign personnel were trained as desired, but the MFF training did enhance U.S./Philippine combined training and capabilities.

There is an increased interest by foreign countries in receiving MFF training by U.S. Special Forces units.[3]

As discussed in Chapter 2, current Special Forces Groups maintain MFF teams which can conduct inter-service MFF training. However, there are a limited number of MFF teams available. Mission requirements within the Special Forces Groups Area of Responsibility (AOR) limit the availability of all of these teams. Subsequent augmentations by MFF teams from other Groups would certainly benefit the needs of one AOR but decrease the capability in other AORs. Thus, with the current limited numbers of MFF teams available, a Special Forces Group must closely scrutinize which missions it will assign its MFF qualified teams.

The Ranger Regiment and Battalions

The Rangers could also use the high-altitude, stand-off parachute capability in direct action missions. In a forced entry mission, the Rangers would conduct mass airborne assaults onto an objective to secure it. During Operation Just Cause, the 75th Ranger Regiment conducted simultaneous night airborne assaults onto both Rio Hato and Torrijos-Tocumen International Airports. In this case, there was no need for any MFF infiltration. However, not all possible missions may be so fortunate as to allow the Rangers to assault relatively large targets. More

importantly, in a remote jungle or mountainous environment, a mass tactical jump may not be possible.

Platoon size Jump Clearing Teams (JCTs), which may precede a major air landing or air assault operation to ensure runways are clear, may have to infiltrate into relatively small areas. There may even be the requirement to infiltrate a platoon size element into a remote area to secure it as a Forward Arming and Refueling Point (FARP) for an air assault. It is in these types of mission that an increase in MFF qualified personnel would benefit the unit.

Joint Operations

Another mission which significantly impacts upon both Special Forces and Rangers is their ability to conduct joint operations with the special operations forces of other U.S. services. MFF infiltration is conducted by all the services and in many cases is the preferred technique of initial infiltrations for joint service exercises. Depending upon the tactical situation, the use of the MFF infiltration may be preferred for infiltrating small teams into an operationsl area. A perfect example would be to infiltrate the Ranger Reconnaissance (RRD) with U.S. Air Force Special Operations air traffic controllers 24 to 48 hours before an air asault raid. Their mission would be to provide intelligence, and then to mark landing zones and conduct air traffic control during the attack. The MFF

infiltration is necessary to infiltrate these personnel without compromising their location or mission. An increased number of MFF positions is a combat multiplier commanders could have to their advantage, giving flexibility to mission planning and execution.

These personnel could exit aircraft at altitudes that would not allow the enemy to detect them. They could then group together under canopy and conduct a stand-off infiltration onto their target. The same procedure could be used by the command and control teams that may have to position themselves between multiple targets. Much like the Special Forces Groups, more MFF course allocations for these units would be required.

Corps and Division LRSU Teams

In order to provide information 24 to 48 hours in advance of an operation, the Corps and Division Long Range Surveillance Units (LRSU) must be infiltrated far ahead of Corps and Division units. Desert Storm clearly demonstrated the amount of distance covered by friendly units during offensive operations. The effective employment of these LRSU units during such operations will require them to be inserted far into the Corps deep area, much further than the normal 30 kilometers found in current doctrine.

To do this effectively, the ability to conduct MFF operations increases a Corp's or Division's ability to get

these teams out into the deep area. Some Corps and Divisional LRSU teams are MFF qualified but there are not many, and certainly the entire LRSU is not MFF qualified. Currently, most LRSU teams are infiltrated by helicopter.

The MFF capability would lessen the team's chance of compromise and would not involve the employment of Corp's limited rotary-wing assets. Furthermore, in order to fly behind enemy lines, U.S. Air Force aircraft have a much better ability to conduct various Electronic Counterwarfare (ECW) measures with equipment not available on standard Corps rotary wing aircraft. Also, the MFF ability to conduct stand-off parachute operations further enhances the security of these LRSU teams.

The MFF Qualification Course

All Special Forces, Ranger, and select LRSU/LRSD units are competing for limited MFF school allocations in order to build and maintain their respective MFF capabilities. Each unit must also compete for priorities as to which get the most allocations in accordance with Department of the Army (DA) established priorities.

The U.S. Army MFF Qualification Course, run by the U.S. Army John F. Kennedy Special Warfare Center and Schools (USAJFKSWCS) trains approximately 545 students per year.[4] The U.S. Army has approximately 1010 authorized MFF positions in the Army.[5] Theoretically, then, it seems

possible to qualify all required positions over a two year period. Practically, that is not the case. Injuries, drop-outs, transfers, promotions, discharges, and attendance at other schools are but a few of the factors that prevent any teams from being fully qualified. Unfortunately, as the need for fully qualified MFF teams increases, school allocations will decrease. The MFF Qualification Course Commander explained that there is a strong possibility that the number of MFF courses per year and the number of cadre assigned to the MFF Qualification Course will decrease. Current plans to reduce units and budgetary restraints were the major reasons for this speculation. An alternate technique may be required to fulfill the needs of these not fully qualified teams.

Underwater Operations (UWO)

The increased role for UWO teams in future missions does not seem as significant as it does for MFF teams but their purpose is certainly not obsolete. The ability for the U.S. Army to infiltrate undetected by sea is still paramount and, in joint operations, is a very likely scenario. Also, similar to the MFF capability, not all missions involving UWO techniques are combat missions; a discussion of this capability will highlight a few.

In December 1989 during Operation Just Cause, U.S. Navy Sea, Air and Land (SEAL) teams, as part of Task Force

White, conducted underwater attacks against two Panamanian fast patrol boats used by the Panamanian Defense Force (PDF) to guard the Panama Canal near Fort Amador. Operating in two-man teams, the SEALs conducted the underwater swim on the night of December 19th and attached underwater mines to the propeller shafts of the two Panamanian boats. The mission was a success marking the first U.S. destruction of surface vessels using military divers since World War II.[6] Lt. Col. Bill Bennett, chief of contingency planning at SOUTHCOM, understood clearly the combat multiplier role provided by these divers: his limited resources to strike other valuable targets, such as the use of U.S. patrol boats or AC-130 gunships, were then dedicated for other missions.

Another less popular and very sensitive use of underwater attack was the raid in 1985 by French divers against the Greenpeace ship *Rainbow Warrior*, which was docked in New Zealand.[7] The *Rainbow Warrior* was scheduled to lead a protest flotilla into the French nuclear testing area in the South Pacific. Stopping the flotilla at sea would have been difficult for the French Navy to accomplish without firing. It was decided to destroy the *Rainbow Warrior* in Auchland Harbor before she left port.[8]

On July 10, 1985, French divers placed two bombs against the hull of the *Rainbow Warrior* and destroyed the boat. Unfortunately, a Portugese photographer was killed and two French agents were captured by New Zealand police.[9]

Both incidents demonstrated that the use of combat divers is not an obsolete technology. In fact, with so much attention focused on the Persian Gulf, the possibility of using divers in the future seems likely.

Special Forces and Ranger units have the ability to conduct joint service dive operations with some limitations. Special Forces units have the capability to conduct both open- and closed-circuit diving. However, the Rangers have the capability to conduct open-circuit diving only. The XVIII Airborne Corps at Fort Bragg has water infiltration teams, but they conduct surface infiltration only. (Special Forces and Ranger divers are also called upon to recover personnel or equipment lost during water operations.)

Waterborne operations, which include both surface and subsurface infiltrations, could use more emphasis in Special Operations Forces. This is because the possibilities of waterborne insertion are strong. The cost to train, equip, and maintain more dive teams could be expensive. However, the cost to maintain additional surface swim teams would be much less. Adding more surface swim teams to Special Operations Forces units enables them to accomplish some of their waterborne missions at a lower cost. Chapter Five will recommend various techniques that are low cost alternatives to having additional dive teams. These recommendations are intended to increase Special Operations Forces' abilities to conduct waterborne

operations and provide an additional combat multiplier to commanders.

Finding the Solution

In order to increase quickly the current number of MFF qualified teams and personnel in the Army today, it would take an enormous effort on behalf of the MFF Qualification Course and the units, themselves. Approximately six months time would be required for the MFF Qualification Course to augment its training cadre with a large number or temporary duty (TDY) MFF qualified jumpmasters. These additional instructors would undoubtedly come from units which need these personnel for other missions.

Also, the schedule for qualification would be changed to allow for more training time. In other words, the schedule would be a full week of training, including weekends and holidays, to get as many personnel qualified as possible in the time available. Furthermore, there would be an increased demand on support agencies and personnel (riggers, pilots, and crews to provide jump support) and aircraft to conduct the training.

This technique would most likely not be used. Its first major drawback is that the course requires MFF qualified jumpmasters from units to serve as instructors, thereby reducing unit readiness. In most cases, the person

who is an MFF qualified jumpmaster is also an officer or an NCO whose departure for six months significantly impacts on the unit's ability to accomplish all other missions.

Another problem is the length of the course. No unit can afford to stop what it is doing to send all of its unqualified MFF personnel away for up to five weeks in order to get them all qualified at once. The benefit is they would indeed become a fully qualified MFF team, but having all those personnel away at the same time for five weeks is not an acceptable solution.

Challenging the MFF Course

There is an alternative way for individuals to become MFF qualified. Soldiers who have a civilian United States Parachute Association (USPA) Class B license, who are assigned in an MFF required position, meet MFF physical requirements, and have their commander's approval, may qualify for the two-week long MFF qualification "short course." A USPA B license means that the individual has successfully completed a minimum of fifty sport parachute freefall jumps at a sport parachute club or activity. While conducting those jumps, the individual completed a series of freefall maneuvers, such as turns and rolls, which demonstrated the student's ability to maintain control during freefall. The student also conducted individual and buddy jumpmaster checks to learn more about the different

types of equipment. He also learned to calculate his own release point from the aircraft and then practiced to increase his awareness of canopy accuracy, control, and characteristics.[10] All of these skills are taught and observed by a USPA rated jumpmaster and instructor. This is not a military organization nor are the students taught any military freefall skills, such as jumping with a weapon and rucksack, jumping from U.S. Air Force aircraft, or military freefall jump commands.

In spite of not being taught any military freefall training, the student does learn to become a proficient freefall parachutist. In almost all cases, the cost for a student to receive their USPA B license is incumbent upon the individual. There are some cases where units have contracted with local sports parachute centers or made various arrangements with an on-post sport parachute club or activity to train their soldiers or to rent the club's aircraft.

In the case where the individual soldier incurs all his own costs, he usually pays $125.00 for the initial first jump course (regardless of whether or not he is airborne qualified). Subsequent jumps may range from ten to fifteen dollars each, depending upon the prices for jump altitude and equipment rental. In most cases, the student purchases his own equipment, which cuts down jump costs over a long period of time. Also, on a post that has a sports parachute

activity or club, the cost is low. In this case, the aircraft costs nothing and equipment rental fees may only be as much as five dollars for the entire day.

In the case where the unit contracts a local (civilian) sport parachute activity to train its soldiers and use its aircraft, the cost is obviously more. The money used comes from training funds. This technique has several strong advantages. First, the training is conducted close to home station. If the unit is alerted, the soldiers are still available to accomplish the mission. Arrangements for such a situation are made when negotiating the contract. Second, the individuals being trained are available to complete additional duties or other duties which require their attention while they are becoming freefall qualified. It may not seem popular, but in most cases the evenings and weekend are available for leaders to "catch up" on unfinished unit business. Third, because the training is in the local area, officers and especially non-commissioned officers (NCOs) can conduct the training. Commanders are not reluctant to send their officers and NCOs away to get special training, but there are times, either due to announced inspections or readiness preparations, when officers and NCOs are needed at their units. This program gives the commander the flexibility to simultaneously meet his unit requirements and individual training requirements.

The biggest disadvantage to this program is the cost. This cost depends on the number of personnel, the assets available, and the time alloted for training. In most cases, active duty military personnel who maintain USPA jumpmaster and instructor ratings either conduct or augment the freefall instruction. This means of instruction minimizes costs. There is a disadvantage: the instructors' or jumpmasters' involvement with the training and preparation for training makes them unavailable for their units (unless there is an alert).

Regardless of which of the two techniques is used, once a student has completed all required jumps and written tests and is awarded his B license, he must receive the military portion of his MFF freefall training. Either the student goes to Fort Bragg for the two week short MFF course or Fort Bragg sends a mobile training team (MTT) to the unit to test and certify the military portion of the freefall course.

In the case where the student goes to Fort Bragg, he must do so in an authorized school allocation. In most cases, the units know a year in advance the number of short course allocations available, and personnel are identified early enough so they can get their B licenses and physicals in time for the course. In other cases, the unit requests the short course allocations. The individual then goes to

Fort Bragg with his USPA B license and his current physical and is trained on the military aspects of MFF.

In the case where the MFF Qualification Course sends an MTT to the unit's home station, it is incumbent upon the unit to coordinate for the aircraft, drop zones, medical coverage and training facilities. The unit must also ensure adequate military parachutes and rigger support are available. Much coordination is required but if the unit is training a fairly large number of students, this coordination is well worth the effort.

In this case, once a group of students had been awarded their USPA B license, they would continue their training with the MTT. The students would then conduct all jumps from U.S. Air Force fixed wing aircraft using military equipment and jump procedures. The training would involve jumping with rucksacks, weapons and oxygen equipment during both day and night. They would also practice High Altitude High Opening (HAHO) jumps and team exits with grouping under canopy. They would use military drop zone markings and, in some cases, conduct a limited military exercise at the completion of later jumps.

The 1st Special Forces Group (Airborne) at Fort Lewis, Washington, has qualified its MFF teams using both techniques described above. They have contracted with a local civilian sports parachute center near Fort Lewis to train approximately 40 students to get their USPA B license.

In another class, they coordinated with the on-post sport parachute activity for parachute equipment and training facilities for approximately 25 students. They used U.S. Army helicopter support and had the MFF Qualification Course send an MTT to Fort Lewis to supervise and certify the military portion of the freefall training. In both cases, the 1st Special Forces Group (Airborne) was able to quickly qualify a large number of students to fill vacant MFF team positions. In both cases, qualified MFF jumpmasters augmented the training conducted by USPA rated jumpmasters. The training went generally without any significant problems. The only major drawback was the cost, but overall the unit spent less money on the TDY cost for the personnel coming from Fort Bragg, N.C., than if they sent their students to the Qualification Course. Aircraft availability, jump equipment, and rigger support were the big factors which significantly affected on-post freefall training.

While both of these programs worked well, the 1st Special Forces Group (Airborne) does not have the funding or the personnel available to conduct this type of training often. In one case, personnel from 2d Ranger Battalion and garrison riggers were able to qualify some personnel with the 1st Special Forces Group (Airborne).[11]

As discussed, the 1st Special Forces Group (Airborne) accomplished this particular training only twice,

but the benefits were outstanding. Approximately sixty-five personnel were qualified as MFF parachutists at a rather inexpensive cost.[12]

Underwater Operations

There is no short course equivalent for the Combat Diver Qualification Course (CDQC). One of the major reasons is the amount of physical and mental stress through which the U.S. Army puts its divers. Underwater drills, as discussed in Chapter One, are designed to teach a student not to panic while underwater. It is a teaching technique not used in the civilian sector.

However, as also discussed in Chapter One, underwater operations (UWO) dive teams conduct "pre-SCUBA" training at their units. These same teams, when deployed overseas as part of an MTT, can qualify foreign dive students as combat divers. They have all the equipment necessary to conduct open- and closed-circuit diving. Surface support requirements, especially a medical facility with a properly certified re-compression chamber and quick response medical evacuation assets, have to be available. However, while these U.S. Army teams can qualify foreign personnel as combat divers, they are prohibited by U.S. Army Training and Doctrine Command (TRADOC) from qualifying U.S. personnel. That is the responsibility of TRADOC.

ENDNOTES

[1]Questionnaire response from Operations Officer, 1st Special Forces Group (Airborne), Fort Lewis, Washington.

[2]The author participated as a SCUBA Detachment Commander in BADGE PACK 87 and BADGE PACK 88 at Fort Magsaysay, Luzon, Philippine Islands. MFF qualified teams did conduct MFF training with Philippine Special Forces units.

[3]Questionnaire response from Operations Officer, 1st Special Forces Group (Airborne), Fort Lewis, Washington.

[4]Phone conversation with Commander, MFF Qualification Course, USAJFKSWCS, Fort Bragg, North Carolina.

[5]Phone conversation with Commander, MFF Qualification Course, USAJFKSWCS, Fort Bragg, North Carolina.

[6]Thomas Donnelly, Margaret Roth, and Caleb Baker, Operation Just Cause, The Storming of Panama (New York: Lexington Books, 1991) pp. 120-121.

[7]The Los Angeles Times (Los Angeles, California) August 1986.

[8]The Los Angeles Times (Los Angeles, California) August 1986.

[9]The Los Angeles Times (Los Angeles, California) August 1986.

[10]United States Parachute Association Board of Directors, The 1988 Skydiver's Information Manual (Alexandria: United States Parachute Association, 1988) p. 26.

[11]During the summer of 1992, the author participated as an assistant instructor from the 2d Ranger Battalion to assist the 1st Special Forces Group (Airborne).

[12]Approximately forty personnel were qualified during the summer of 1986 and approximately twenty-five personnel were qualified during the summer of 1992.

CHAPTER 5

CONCLUSION AND SUMMARY

In Chapter 1, this study looked at the current number of MFF and UWO teams in the Army. It explained why different types of units such as Special Forces Groups, the Ranger Regiment and Battalions, and Corps and Division LRSU teams maintain various MFF or UWO capabilities. The study explained the different roles and missions of each of these units when employing MFF or UWO techniques. The study then explained how difficult it is to fully qualify individuals and, especially in UWO qualification, the amount of individual effort which is necessary to prepare one for the demanding Combat Diver Qualification Course (CDQC).

Chapter 2 of this study highlighted certain historical examples in the development and use of these infiltration techniques. The purpose was to show where successful employment in the past has some relevance to successful employment in the future.

Chapter 3 of this study explained the methods employed to conduct the research for this study. The units studied were as follows: a Special Forces Group, a Ranger battalion, and a Corps and Division LRSU team.

Chapter 4 of this study examined some future possibilities where an increase in these infiltration techniques can make significant positive changes in the overall unit readiness and capabilities of units which employ them. Chapter 4 also discussed various programs in the U.S. Army today which provide alternative ways to qualify personnel in MFF such as MFF MTTs or challenging the MFF course. It further discusses how the U.S. Army qualifies foreign soldiers overseas as combat divers.

Chapter 4 contains an important point: Special Forces have the capability to train unqualified MFF and UWO personnel to meet course qualification standards. The example of the 1st Special Forces Group (Airborne) at Fort Lewis, Washington, conducting freefall training on-post proves that there are ways to use locally available assets to qualify personnel. It explained that there is expertise available at the unit level to conduct quality freefall parachute training which is equal to the quality of instruction found at the MFF Qualification Course at Fort Bragg, North Carolina.

Chapter 4 also discussed how UWO teams have the ability and expertise to train foreign students as qualified combat divers, again demonstrating the capability of Special Operations Forces to train their own personnel at the unit level in UWO techniques.

The High Altitude Static-Line Opening (HASLO) Technique

Perhaps the time has come for the U.S. Army to institute a new parachuting technique. This technique would offer the high altitude standoff capability and accurate canopy handling of MFF operations coupled with a static-line deployment system. This technique could be called High Altitude Static Line Opening (HASLO). There would be immediate advantages to such a system: it takes a relatively short time to qualify personnel and teams, it offers otherwise unqualified personnel and teams the ability to accomplish combat infiltration requirements, it enables larger numbers of soldiers to be inserted more accurately for special missions, it can be taught at the unit level, and it can be fully integrated into combined and joint operations.

In essence, the HASLO technique would give teams the ability to parachute as a group (from altitudes ranging from 4000 feet to 9999 feet above mean sea level(MSL)) and to fly together under canopy to their target or drop zone(DZ). Teams could later conduct U.S. Air Force Physiological Chamber testing which would allow them to conduct parachute drops from 10,000 feet to 25,000 feet MSL with oxygen, depending upon the capabilities of the canopy used.

HASLO is not a free-fall parachuting technique. Instead, it is a less expensive alternative which would give teams with a low MFF priority, or no MFF priority, the

ability to conduct high altitude, accurate parachute infiltrations, maintaining team integrity. A discussion of HASLO uses will illustrate its merit.

Special Forces Groups

HASLO instruction and certification could be conducted in as little as one week of training (See Appendix C). An immediate advantage of HASLO is that it could be added, at some time, to the current Special Forces Qualification Course (SFQC), truly giving each SF team an added SOF infiltration capability. Those teams or personnel which are not HASLO qualified could be certified by unit-run programs taught by MFF teams. (It would be much like the idea of UWO teams conducting pre-SCUBA training or MFF teams assisting in USPA B license freefall training.) The combat multiplier capabilities HASLO provides to Special Forces Groups are impressive. It would enable all teams to conduct accurate parachute operations into relatively small drop zones, day or night, with a high degree of accuracy. Furthermore, Special Forces teams could target small mountainous, jungle, or other restrictive areas as drop zones which would conceal their infiltration.

Special Forces teams that are not MFF qualified but are HASLO qualified could conduct MTTs with foreign military forces to teach them the HASLO technique. Because this technique enables larger numbers of personnel to be trained

in a shorter time than the free-fall technique, it would have an appeal to many foreign countries. This would enable Special Forces Groups to harbor their MFF teams for specific missions, if necessary, or to insert a HASLO team instead if the MFF teams are being used elsewhere.

The Ranger Regiment

This technique has significant advantages for the Ranger Regiment. Not all personnel in the Ranger Reconnaissance Detachment (RRD) are MFF qualified, pending their attendance at the MFF Qualification Course. Regardless, the requirement remains for the RRD to be ready, at all times, to conduct an infiltration in support of Ranger missions. The HASLO capability may offer a solution to infiltrate the entire team into a target area. If, in order to conduct an infiltration, it was necessary to attach certain personnel to the RRD, these attached personnel could conduct a HASLO train-up at the Ranger Regiment (or with a Special Forces Group). Such attached personnel (e.g., linguists, guides, communications specialists, or demolitions specialists) would be necessary to attach to the RRD in order to accomplish a mission.

The use of HASLO technique in the Ranger Regiment is not limited to just the RRD. HASLO would have a significant impact at the battalion level when used in conjunction with Jump Clearing Teams (JCTs). As discussed in Chapter 4, JCTs

are platoon-sized elements that conduct an airborne assault onto a particular airfield or landing zone prior to the arrival of the main body. Their mission would be to clear the landing area of obstacles and enemy forces and to assist the arrival of the main body via aircraft or helicopter. This joint mission usually involves U.S. Air Force Special Operations Forces to control the airflow and to assist in medical handling and evacuation.

These JCT teams could conduct HASLO insertion capitalizing on the aircraft off-set approach. The off-set approach is a technique where the aircraft releases parachutists away from the target area, preventing detection of the aircraft and compromise of the mission. Parachutists take advantage of the wind and high altitude to maneuver their canopies to the target undetected. Using the off-set approach, the JCT could group together under canopy and land as a unit with a high degree of accuracy to secure or clear specific portions of the target. Because the aircraft conducted an off-set approach, the principle of surprise could be achieved. Subsequent JCT bundles, which may include bulldozers or motorcycles to assist in the clearing effort, could be called in once the JCT is on the ground. Command and control teams, which would otherwise not be MFF qualified, could infiltrate via HASLO with the JCT.

This technique would not be limited to the Ranger JCT. The Rangers would be able to insert a command and

control team, with a security element, into an area located between multiple targets. It would also be possible to infiltrate a security team into an area to be used as an infiltration location after a mission. The opportunities are limitless. HASLO would offer the Ranger Regiment the ability to conduct very accurate parachute infiltration for a large number of non-MFF qualified personnel, day or night, into relatively small areas.

Corps and Division LRSU Teams

Corps and Division Long Range Surveillance Units (LRSU) have the most to gain from employing the HASLO technique. The majority of MFF class allocations goes to Special Operations Forces (SOF) units. Therefore, Corps and Division units will require a very long time before they are fully MFF qualified. Also, not many LRSU teams are authorized MFF positions but are required to be inserted far ahead of the Corps or Division. It is for these reasons that the HASLO techniques could significantly benefit Corps and Division LRSU teams.

Making every U.S. Army Corps and Division LRSU team HASLO qualified could be done at their posts using Mobile Training Teams (MTTs) from the Special Forces Groups or perhaps from U.S. Army John F. Kennedy Special Warfare Center and Schools (USAJFKSWCS). Using the one-week training plan outlined in Appendix C, all teams would be

capable of conducting high altitude parachute infiltrations during the day or night, thus maintaining a high degree of team integrity and parachute accuracy. The HASLO parachute technique would enable LRSU teams to infiltrate much more accurately than with the current use of MC-1B and MC-1C round parachute canopies. Furthermore, Corps and Division LRSU teams could be infiltrated using organic rotary-wing aircraft which otherwise could not land these teams. Again, the uses of Corps and Division LRSU teams employing HASLO infiltrations are limitless and provide commanders a significant combat multiplier.

Joint Operations

The HASLO technique would also increase joint operations capabilities. As discussed in attaching various personnel to the Ranger Reconnaissance Detachment (RRD) with a HASLO train-up, the same could be done when conducting joint operations. All services maintain an MFF capability. However, when conducting joint operations, joint teams do not share the same levels of MFF qualification. The United States Special Operations Command (USSOCOM) headquartered at MacDill Air Force Base, Florida, could incorporate HASLO into their Airborne Standard Operating Procedures (ASOP) as a level of team proficiency much the same way as the U.S. Army Special Operations Command (USASOC) does for MFF personnel and team level proficiency.

USSOCOM could also set the standards for the special operations community for different levels of qualifications. U.S. Army Special Operation Command (USASOC), working in conjunction with the MFF Qualification Course, both stationed at Fort Bragg, N.C., would serve as the proponent agency responsible for the training plan to institute the HASLO programs (see Appendix C). An example of incorporating HASLO into the MFF capability level for teams is as follows:

LEVEL 1 PARACHUTIST: During the last quarter, the individual has completed four night MFF jumps, three of which were with full combat and oxygen equipment.

LEVEL 2 PARACHUTIST: During the last quarter, the individual has completed four MFF jumps, two of which were at night. At least three jumps were conducted with full combat and oxygen equipment.

LEVEL 3 PARACHUTIST: During the last quarter, the individual has completed four MFF jumps day or night. Not all jumps were conducted with combat or oxygen equipment.

LEVEL 4 PARACHUTIST: During the last quarter, the individual has made at least one MFF jump with or without full combat or oxygen equipment.

LEVEL 5 PARACHUTIST: During the last quarter, the individual has made at least one night HASLO jump with full combat equipment.

LEVEL 6 PARACHUTIST: During the last quarter, the individual has made at least one day or night HASLO jump without combat equipment.

A compilation of individual readiness levels would constitute the team's overall level. For example, if the team was made up of six people and four were LEVEL 5 current while the other two were only LEVEL 6 current, then the team would be LEVEL 6 current.

An advantage of using a static-line deployed ram-air type parachute would be when conducting an airborne Combat Rubber Raiding Craft (CRRC) infiltration, also known as a "rubber duck." Currently, SOF units conduct "rubber ducks" by extracting a CRRC via parachute from the aft end of a C-130 or C-141 and then personnel jump out of the aircraft using MC-1B or MC-1C parachutes. Jump altitude is generally from 1000 to 2000 feet AGL. Parachutists steer their canopies as close as possible to the CRRC. In most cases, the soldiers have to swim up to 500 meters or more to reach the CRRC due to the dispersion of jumpers and the inability of MC-1B and MC-1C parachutes to manuever close to the CRRC. The wind and sea state can add more distance to the swim. The HASLO technique would greatly benefit this type of infiltration.

The "rubber duck" could be conducted at an altitude of 4000 feet AGL. Once the CRRC bundle is extracted,

jumpers would exit and group under canopy or each could fly directly to the CRRC when it lands on the surface. HASLO would enable the jumpers to land closer to the CRRC, thus saving time and energy in swimming to and de-rigging the CRRC. This technique of conducting "rubber duck" infiltration with ram-air parachutes is very similar to the current technique of the U.S. Navy Sea. Air and Land (SEAL) teams. Current SOF units in the U.S. Army do not use ram-air parachutes when conducting "rubber ducks", but the HASLO could become the standard for all services, thus supporting a joint doctrine and capability.

Disadvantages of HASLO

The first major disadvantage of adapting the HASLO technique in units would be the cost of acquiring new equipment. Each of the units would have to buy new or additional parachute systems for their jumpers. There would be a need to increase unit funding to purchase the HASLO equipment. This initial investment could be steep. Therefore, the parachute systems purchased must be able to accomplish both free-fall and static-line operations, thus requiring the modification of current MC1-XX and MC-4 ram-air free-fall parachute systems to allow static-line operations.

Coincidental to the cost of acquiring new systems would be the cost of maintenance and repair at the

supporting rigger facility. In some cases, a larger facility to store the parachutes may be required. Part of this cost would be the requirement to train riggers to pack the parachutes, make the necessary conversions, and make the proper repairs. The increase in the number of these parachutes might, in some cases, require a table of organization and equipment (TOE) change for additional repair equipment and riggers.

During the time the unit is adding or converting to the HASLO technique, there would be a slight decrease in unit readiness capability because the riggers would be training and conducting the conversion which takes them away from their other unit duties.

Another disadvantage to HASLO would be the training of personnel to conduct HASLO parachuting. As discussed, Appendix C provides an example of a one-week training period to qualify personnel. Who would be qualified to conduct the training? TRADOC guidance would be required but some guidelines would be necessary. First, the training would need to be supervised by an MFF-qualified jumpmaster who is technically proficient in parachuting. This person would not have to be from the MFF Qualification Course but would have to be a certified HASLO instructor who has graduated from a HASLO instructor course conducted by USAJKFSWCS. The HASLO Instructor Course, taught by USAJFKSWCS, would ensure

a proper standard for all instruction throughout Army installations.

Next, prior to each course, the training plan and schedule should be forwarded to USAJFKSWCS for approval and verification. USAJFKSWCS would review the training plan, would schedule and, when approved, would certify the course. In this way, USAJFKSWCS would ensure the standards for each course are achieved in much the same way the Infantry Center at Fort Benning certifies each Expert Infantryman's Badge (EIB) test.

USAJFKSWCS would also be required to institute a HASLO Jumpmaster Course. This course would basically be the same as the current MFF Jumpmaster Course but without freefall parachuting. Units not authorized MFF positions could still conduct HASLO training and employment under the supervision of a certified HASLO Jumpmaster. MFF Jumpmasters, on the other hand, would be authorized to supervise HASLO operations because they are much like High Altitude High Opening (HAHO) infiltration. The jumpmaster safety briefing, equipment inspections, rigging inspections, calculation of aircraft exit point, and jump commands would all be the same. Some modification in exit precedures, ensuring proper static-line control, would be necessary.

Overall, the initial costs and training would be outweighed by the advantage provided when using the HASLO parachuting technique. Its ability to infiltrate undetected

more teams or larger units with a high degree of accuracy, day or night, and minimum exposure to friendly aircraft cannot be denied. It is a combat multiplier whose time has come.

Underwater Operations

The results of this study recommend no significant changes to the current way the Army trains and maintains its combat diver capability. What this study did find is that the waterborne infiltration of small teams in conjunction with a reconnaissance or a destruction mission is far from obsolete. Perhaps the U.S. Army should increase its waterborne infiltration capability in order to support more joint operations, thus freeing up the U.S. Navy to meet other waterborne requirements or possibilities. A way to do this is to incorporate surface swim infiltration training for many SOF teams and units. A suitable training plan would be the Scout Swimmer training plan used by the 75th Ranger Regiment. (See Appendix D)

This training could be conducted at the unit using training support from teams currently qualified to conduct surface or subsurface infiltration. These swim teams would not conduct underwater infiltration but would conduct surface swim infiltrations at night. Furthermore, increased training in the use of two man canoes would significantly

enhance a commander's ability to infiltrate soldiers over the surface from long distances.

The Special Forces Groups have both underwater and surface swim teams. The Ranger Regiment maintains divers who conduct open-circuit diving only. They also maintain a ten-man scout swimmer team per company.[1] These two units have the greatest likelihood of conducting a joint waterborne infiltration, more so the Special Forces Groups. For that reason, the Special Forces Groups should continue to be assigned the highest priority of school allocations to the UWO Qualification Course.

The Rangers need their divers to support primarily training with their underwater recovery capability. Twenty-four authorized positions[2] for combat divers in the Ranger battalions may be more than necessary. This study suggests that the Rangers reduce the number of authorized combat divers to between twelve and sixteen per battalion. This recommendation is based upon discussion in Chapter 1 which explained how the Rangers assign and use their combat divers. It discussed how combat divers in the Ranger battalions are team leader positions. Their priority for training is with their teams and squads. Because dive missions and dive training would take these team leaders away from their units, most divers would be unable to conduct dive missions or training when it conflicts with unit training. Also, due to limited school allocations and

the normal rotation and discharge of qualified soldiers, it is difficult in the Ranger battalions to maintain all 24 positions with qualified combat divers. Having twelve to sixteen combat divers reduces the impact of detailing so many team leaders away from their units, yet enables them to conduct their dive missions and training. Furthermore, this research recommends that the Ranger Reconaissance Detachment (RRD) has the priority of fill in the Ranger Regiment for UWO school allocations to ensure this unit has each man fully qualified in both UWO and MFF infiltration techniques.

Questionnaire Review

The questionnaire used for this study is enclosed as Appendix B. Its purpose was to obtain current information on manning and organization of units most likely to employ MFF or UWO techniques. It also introduced the idea of HASLO infiltration and asked for comment concerning the employment of this technique if used by these units. The questions were divided into areas of MFF, UWO, and HASLO infiltration.

This questionnaire was sent to a Special Forces Group, a Ranger Battalion, a Corps Long Range Surveillance Unit (LRSU) and a Divisional Long Range Survaillance Detachment (LRSD). It was addressed to Operations Officers of the Special Forces Group and the Ranger Battalion. Questionnaires sent to the LRSU and the LRSD were addressed to the team commanders.

One of the most important responses to this questionnaire was in reference to the adaptation of the HASLO technique. This study wanted to determine if any or all of the units questionned would benefit from this type of infiltration technique. The most positive responses came from the Corps and Divisional LRSU/D commanders.

Both of these commanders agreed that the HASLO technique would greatly enhance their ability to conduct their surveillance missions. The Special Forces Group and the Ranger Battalion Operations Officers did not feel as strongly in favor of HASLO. The Ranger Battalion Operations Officer believed that MFF types of infiltration were not as invisible to current airport and air defense radars as we would like and that these types of infiltration may become compromised. The Special Forces Group Operations Officer stated that this type of infiltration would not be beneficial unless the aircraft conducting the infiltration could fly high enough to escape visual and audio detection as well as small arms and shoulder-fired anti-aircraft weapons fire.

These opinions need to be examined during a course of action analysis. Some targets may have the ability to acquire and engage aircraft or parachutists infiltrating via HASLO, thereby eliminating this technique for those targets. An infiltration by helicopter of low-level parachute assault may be a better solution in those cases. However, this

study recommends the HASLO technique as a viable infiltration technique. Each situation is different and all factors must be considered when determining the best solution.

The Corps and Divisional LRSU/D commanders did not consider HASLO as a substitute for MFF. Instead, they regarded HASLO as a significant improvement over the current static-line parachute infiltration technique. The Divisional LRSD commander wants his unit to maintain its MFF billets and hopes all of his personnel attend and graduate from the MFF Qualification Course. He stated that at the time the questionnaire was sent to him, his team had their first soldier graduate from the MFF Qualification Couse in over two years. He further stated that if it were not for the "direct pressure" of the Division and Corps commanders, his unit would probably not have been able to send any personnel to the course.

Subsequent comments by the LRSD commander about the Army Training Requirements and Resource System (ATRRS) and DOD school contract procedures were valuable information and warrant additional research in another study. However, his comments and those from the Corps LRSU commander strongly support the idea of HASLO infiltration to conduct their missions.

The Corps LRSU commander recommended that the HASLO technique replace the MFF requirement completely. He

highlighted certain problems he had in qualifying his personnel. Some of these problems were as follows: difficulty in obtaining MFF course allocations, length of the MFF course and its impact on his mission, and training required to maintain the MFF proficiency. For this LRSU commander, the HASLO technique provided a simple, quick, and efficient technique for his teams to infiltrate and conduct their mission.

The Special Forces Group and the Ranger Battalion were the only units questionned about the UWO capability. The Special Forces Group Operations Officer stated the most likely missions where his unit would employ the UWO infiltration technique would be for special reconnaissance or direct action missions. The Ranger Battalion Operations Officer considered the most likely missions to be search and recovery operations, target surveillance and detection, and waterborne operations support. He further commented that he felt such missions should be the responsibility of the Regimental Headquarters and not a mission for the battalions.

Responses to the questionnaire and discussions throughout this thesis were used to develop the thesis summary.

Summary

The thesis questions were as follows: Does the U.S. Army need to maintain the current organization of MFF and UWO teams? If not, how should these teams be reorganized and which units should maintain these capabilities? Also, are there alternative techniques or variations of MFF or UWO training that can be maintained by other units so they can still meet their mission requirements?

In the area of MFF, this study has found that there are many possible missions that could use an MFF infiltration. A technique to augment the Army's ability to conduct high altitude precision parachute infiltration is to qualify all Special Forces teams and selected Ranger Regiment teams in the use of the high-altitude, static-line opening (HASLO) technique. This technique would also be an extremely effective infiltration technique for the many Corps and Division LRSU teams, pending authorization or full qualification of their LRSU teams as MFF capable.

The HASLO technique would be a significant combat multiplier for the Special Forces Groups. It would give Special Forces Groups the ability to infiltrate accurately at night every team into a relatively small drop zone or a remote area. Infiltration aircraft would not have to fly low or directly over the drop zone when infiltrating using the HASLO technique. This study recommends all Special Forces A-teams become HASLO qualified.

The HASLO technique would also give the Ranger Regiment and Battalions the ability to accurately infiltrate perhaps as much as a platoon-size element, or larger, onto a target or dropzone. Again, surprise would be achieved because infiltration aircraft could fly off-set from the target area. This study recommends that the Ranger Regiment and Battalions be authorized the equipment and support facilities to qualify and maintain twenty personnel at Regiment and fifty personnel in each battalion as HASLO jumpers. These numbers represent the number of personnel found in a Regimental command and control cell or a platoon in a Ranger battalion.

Corps and Division LRSU teams have the most to gain from instituting and employing the HASLO technique, especially those LRSU teams which are authorized airborne units but not authorized any MFF billets. Corps and Division LRSU teams do not get many MFF Qualification Course allocations due to other unit priorities and allocation availability. The majority of those course allocations goes to Special Operations Forces units. Using the HASLO technique, Corps and Division LRSU teams could meet a vast majority of their infiltration requirements.

For non-MFF airborne LRSU teams, HASLO would significantly increase their infiltration capabilities when compared to the use of the MC-1B and MC-1C round canopies. Perhaps if all Corps and Division LRSU teams were HASLO

qualified, there would be no need for them to have the MFF requirement. If Corps and Divisional LRSU/D teams could satisfy their infiltration requirements with the HASLO technique, this would allow more MFF course allocations to be given to the Special Operations Force units. It may also reduce some rigger and jump support requirements from these units as well as TDY costs. An evaluation to determine if the HASLO technique can satisfy Corps and Divisional LRSU/D infiltration requirements may be an area of further study. Regardless, the HASLO technique has significant advantages for any Corps and Divisional LRSU/D team, and this study recommends that all such units become HASLO qualified.

The first place to start HASLO training would be at Fort Bragg, N.C. where the USAJFKSWCS would teach HASLO as part of the current Special Forces Qualification Course (SFQC). In this way, personnel graduating from SFQC will be proficient in HASLO procedures and would be able to assist in unit-run HASLO certification courses.

The U.S. Army should also allow units to teach HASLO at their home stations. Units conducting the HASLO Certification Course would need to ensure the course is run by personnel who have graduated from the HASLO Instructor and Jumpmaster Course designed by the USAJFKSWCS at Fort Bragg, N.C. Once USAJFKSWCS had approved their training plans, qualified personnel could then organize and conduct this training at their units.

The U.S. Army could increase its MFF capability by supporting more on-post freefall training programs such as those conducted by the 1st Special Forces Group (Airborne) at Fort Lewis, Washington Further study in this area may indicate that it would cost the U.S. Army less to negotiate with local sport parachute facilities (to qualify students as USPA B licensed parachutists) and then to have an MTT certify the military aspects of MFF, than to spend the TDY costs of sending those students to Fort Bragg, N.C. This study recommends the US Army encourage such programs in order to save money and increase available MFF units.

Finally, this study does not recommend any similar training techniques to qualify U.S. Army personnel as combat divers. The current training techniques employed by the Combat Diver Qualification Course (CDQC) at Key West, Florida, are designed specifically for military combat divers and there is no non-military equivalent.

This study does recommend, however, that Special Forces units increase their surface swim capability by training all A-teams using the surface swim program provided in Appendix D. The cost for additional swim sets and suits would be slight and the training is rather inexpensive. The Ranger Regiment conducts this training and has dedicated swim teams in every company. Corps and Division LRSU teams could also conduct this training, thus increasing their mission accomplishment capabilities.

The result of instituting these recommendations would be a truly flexible Special Forces Group with increased parachute and surface swim capabilities. It would also increase the ability for the Ranger Regiment to infiltrate a large amount of personnel accurately onto a target at night via parachute. The Rangers would also maintain their current Scout Swimmer capability. For Corps and Divisional LRSU/D teams, the HASLO technique would significantly increase their current infiltration capabilities. In all cases, the training is rather inexpensive and it significantly increases the overall combat readiness of the U.S. Army.

Endnotes

[1]U.S. Army, RTC 350-1, Regimental Training Circular (Fort Benning, Georgia: Headquarters, 75th Ranger Regiment, 1990), p. G-1.

[2]MTOE 07085LSP01.

APPENDIX A

GLOSSARY

The following terms are defined to establish a common understanding between the writer and the reader of this study. The primary sources for these definitions were Training Circular (TC) 31-25, Special Forces Waterborne Operations and TC 31-19, Military Freefall Parachuting.

AGL: Above Ground Level.

ASI: Additional Skill Identifier.

BCM: Buoyancy Compensator, Military. A flotation vest worn by SCUBA divers.

CCT: Combat Control Team. USAF personnel specially trained to control the arrival and departure of aircraft during a combat or training situation. Usually conducted at a remote site that does not have a control tower.

CDS: Combat Diving Supervisor. A qualified combat diver given special training in the duties and responsibilities of planning, preparations, and supervision

of combat diving operations. The CDS is responsible for the safe conduct of all diving operations.

Closed-circuit SCUBA system: A life support system or breathing apparatus in which the gas [CO2] is resysled; carbon [C] is removed and oxygen [O] is periodically added.

Combat Diver: A diver school-trained on horizontal-dive infiltration and exfiltration techniques for conducting special operation missions.

CRRC: Combat Rubber Raiding Craft. A rubber raft, such as the Zodiac F-470, used to carry approximately 10 personnel and equipment.

Cu-ft: Cubic feet.

DMT: Diving Medical Technician. Provides complete medical support coverage for all diving operations. He has received extensive training in the diagnosis, evacuation, and both the emergency and sustained treatment of personnel with diving injuries.

Draegar LAR V: Draeger Limited Air Re-breather, Model V. A closed-circuit breathing rig, UBA approved for diving use by the US Army and US Navy.

DZ: Drop Zone. The intended landing area of a parachute jump.

FARP: Forward Arm and Refuel Point.

FSW: Feet Sea Water.

HAHO: High Altitude High Opening. The freefall technique whereby a parachutist jumps form a high altitude and almost immediately opens his parachute.

HALO: High Altitude Low Opening. The freefall technique whereby a parachutist jumps from a hig altitude and falls to the lowest possible safe altitude before opening his parachute.

HAMO: High Altitude Medium Opening. The freefall technique whereby a parachutist jumps from a high altitude and falls to a prescribed altitude that still enables him to use some "stand-off" before landing. See "stand-off" definition.

IAW: In accordance with.

Jumpmaster: The person responsible for ensuring the jump is done safely and correctly.

LRSD: Long Range Surveillance Detachment.

LRSU: Long Range Surveillance Unit.

METT-T: Mission, enemy, terrain, troops available, and time. An acronym used when commanders conduct a mission analysis.

MFF: Miltary Freefall. Includes all aspects of military freefall parachuting such as High Altitude Low Opening (HALO), High Altitude Medium Opening (HAMO), and High Altitude High Opening (HAHO). See individual definitions.

NCDU: Naval Combat Dive Unit. These were World War II US Navy swim teams. See UDT.

NCO: Non-commissioned Officer.

Platform: A technical term describing an airplane or vessel used to bring infiltration teams to a point of embarkation. For example, it could mean an airplane for MFF operations or a submarine for UWO missions.

RAPS: Ram-Air Parachute System. A type of canopy commonly referred to as a "square" canopy because of its rectangular wing shape. Due to its maneuverability, it offers a jumper much better accuracy.

Rubber Duck: An over-water airborne operation involving jumpers and one or more CRRCs. The boat is dropped via parachute from the aft end of the aircraft and the jumpers follow out. After landing in the water, jumpers swim to the CRRC, de-rig it and conduct their missions.

Scout Swimmer: Designated swimmers proceeding the main dive teams to provide intelligence and security during beach landing operations and infiltrations. May be used separately or with dive teams.

SCUBA: Self-Contained Underwater Breathing Apparatus.

SEALS: Sea, air and land. The popular name for a US Navy special warfare unit.

SOE: Special Operations Executive. The British clandestine arm of the military during World War II which infiltrated agents and saboteurs into occupied Europe.

SOP: Standard Operating Procedure.

Stand-Off: A technique in which a parachutist is dropped from and opens his parachute at a high or medium altitude. The parachutist then can fly the canopy to his target from as far away as 10 miles.

TOE: Table of Organization and Equipment.

UBA: Underwater Breathing Apparatus.

UDT: Underwater Demolition Teams. An early name for US Navy swim teams used from the time of World War II until the 1960s.

Unit Diving Officer: Officer in overall charge of diving operations responsible for planning, preparation, and supervision of combat diving operations.

UW: Unconventional Warfare.

APPENDIX B

QUESTIONNAIRE

223 Hatch Street
Fort Leavenworth, KS 66027

February 21, 1993

Dear sir;

I am conducting a study on military freefall (MFF) and underwater operations (UWO) as part of a master's thesis at Fort Leavenworth, Kansas. The purpose of this questionnaire is to identify trends in the Army concerning training and employment of these techniques and to get your opinions on some alternative methods.

The results of this questionnaire will not be formally published but will be recorded in this study maintained at Fort Leavenworth, Kansas. Data compiled will be used for an article to be published at a future date in Special Warfare.

When the questionnaire is completed, please return it in the envelope provided. Please complete it by 15 March. I understand your busy schedule and I sincerely appreciate your taking time for this questionnaire.

Sincerely,

Edward B. Daly
CPT, Infantry

Enclosure

1. What type of unit is yours?
   a. Special Forces Group (Airborne).
   b. Ranger Battalion/Regiment.
   c. Corps Long Range Surveillance Unit .
   d. Division Long Range Surveillance Unit.
   e. Other (please specify) _____.

2. What is your duty position?
   a. Group/Regimental/Battalion Operations Officer.
   b. LRSU commander.
   c. Other, please specify.

_____

3. How many MFF positions are in your unit? (Please put numbers of each in spaces for appropriate response.)
   a. _____ detachments/teams of _____ personnel each.
   b. _____ personnel. (This unit does not use dedicated teams or detachments.)
   c. Other

_____.

4. What is the most likely infiltration technique your unit would employ to accomplish its METL tasks?
   a. Parachute assault.
   b. Air assault (helicopter).
   c. Wheeled vehicle infiltration.
   d. Foot infiltration.
   e. Other _____-

_____.

5. What are the most likely missions your unit would conduct if employing an MFF infiltration? (Prioritize those, if any, that apply.)
   a. Foreign internal defense.
   b. Guerilla warfare.
   c. Direct action.
   d. Pathfinder operations.
   e. Target designation.
   f. Target surveillance.
   g. Runway/objective clearing team mission.
   h. Other (please specify)

_____.

Enclosure

6. Does your unit have enough MFF school allocations this fiscal year to keep 90% or better qualified MFF personnel?

a. Yes.
b. No.
c. Other.

_____.

Enclosure

7. How many UWO positions are in your unit? (Please put numbers of each in spaces for appropriate response.)

a. _____ detachments/teams of _____ personnel each.
b. _____ personnel. (This unit does not use teams or detachments.)
c. Other

_____.

8. Please prioritize the most likely missions your unit would conduct when employing UWO.

a. Direct action.
b. Pathfinder operations.
c. Target designation.
d. Target surveillance.
e. Search and recovery operations.
f. Waterborne operations support.
g. Other

_____.

9. Does your unit have enough UWO school allocations this fiscal year to keep 90% or better qualified UWO personnel?

a. Yes.
b. No.
c. Other.

_____.

10. What are the biggest training deficiencies that inhibit your MFF and/or UWO training? (Please explain.)

11. If the Army had a high altitude static line parachute system using the current freefall canopy, would this benefit your unit? (This system would enable non-MFF qualified personnel to make jumps from between 4000 feet and 9500 feet above sea level and to fly as a team to their designated target or drop zone. This training could be taught at the unit and would take approximately three days. Personnel who are high altitude chamber qualified could jump from higher altitudes.)

a. Yes. (Please explain.)

b. No. (Please explain.)

12. Do you have any particular concerns or recommendations that you feel deserve further study? (Please explain.)

Thank you for your assistance.

APPENDIX C

ONE-WEEK HASLO TRAINING PLAN

This appendix briefly outlines the key training events for each training day. It provides the basic framework for individual unit training schedules. The number of personnel to become qualified, the number of certified instructors, and the training resources available will produce different training schedules. However, it is important to develop a schedule which gradually trains a student. The stages will go from the initial classroom instruction through daylight jumps to successful night HASLO jumps with full combat equipment using "stand-off" approach as part of a team.

DAY 1: Administrative requirements
Orientation
Classroom instruction
- In-flight procedures
- Jump commands
- Exit procedures
- Individual equipment rigging
- Canopy handling procedures
- Drop zone (DZ) markings
- Emergency procedures

DAY 2: Review classroom instruction
Conduct daylight HASLO jump without combat equipment
Conduct night HASLO jump without combat equipment

DAY 3: Conduct daylight HASLO jump with combat equipment
Conduct daylight HASLO jump with combat equipment and team grouping under canopy
Conduct night HASLO jump with combat equipment

DAY 4: Conduct daylight HASLO without combat equipment using "stand-off" technique as a team
Conduct daylight HASLO with combat equipment using "stand-off" technique as a team
Conduct night HASLO without combat equipment using "stand-off" technique as a team

DAY 5: Conduct daylight HASLO with combat equipment using "stand-off" techniques as a team
Conduct night HASLO with combat equipment using "stand-off" techniques as a team

DAY 6: Conduct two night HASLO jumps with combat equipment using "stand-off" techniques as a team

DAY 7: Weather day

APPENDIX D

SCOUT SWIMMER TRAINING PLAN

This training plan, found in the Ranger Training Circular (RTC) 350-1, provides an excellent listing of tasks, conditions, and standards to qualify soldiers as Scout Swimmers. The plan can be taught at the unit level in most Special Operations Forces (SOF) units. The actual training plan will vary depending upon unit assets and the number of personnel to be trained.

1. Task: Conduct a 1000 meter, 2000 meter, or 3000 meter individual surface swim with or without combat equipment (CE). CE consists of a waterproofed rucksack, tow-line, load-carrying equipment (LCE), and weapon.

Conditions: Given fins, mask, Buoyancy Compensator, Military/Underwater Dive Team (BCM/UDT) vest, booties (coral or wetsuit), a designated swim uniform, night or day, a 1000, 2000, or 3000 meter measured swim course, safety boats/personnel as required, an individual with a stopwatch, one chemlite per individual for night swims, and time in which to conduct the training (see standards). Allow five minutes for individual stretching before and after the swim.

Standard: Each swimmer will complete the swim with all equipment in the following times: 1000 meters in 30 minutes without CE or 45 minutes with CE; 2000 meters in 60 minutes without CE or 90 minutes with CE; 3000 meters in 100 minutes without CE or 145 minutes with CE.

2. Task: Conduct a 1000 meter, 2000 meter, or 3000 meter buddy-team swim, with or without CE.

Conditions: Given fins, mask, BCM/UDT vest, booties (coral or wetsuit), a designated swim uniform, day or night, a measured swim course, safety boats/personnel as required, an individual with a stopwatch, adequate time in which to conduct the training (allow five minutes for individual stretching before and after the swim), and as part of a two-man buddy-team.

Standard: Each swimmer will remain within arm's reach of his buddy at all times and complete the swim with all equipment in the following times: 1000 meters in 30 minutes without CE and 45 minutes with CE; 2000 meters in 60 minutes without CE or 90 minutes with CE; 3000 meters in 100 minutes without CE or 145 minutes with CE.

3. Task: Conduct a 1000 meter, 2000 meter, or 3000 meter "bud-line" swim, with or without CE.

Conditions: Given fins, mask, BCM/UDT vest, booties (coral or wetsuit), a designated swim uniform, day or night, a measured swim course, safety boats/personnel as required, an individual with a stopwatch, adequate time in which to conduct the training (allow five minutes for individual stretching before and after the swim), and as part of a six-man team with a six-man "bud-line."

Standard: Swim with the team on the "bud-line" and complete the swim with all equipment in the following times: 1000 meters in 30 minutes without CE and 45 minutes with CE; 2000 meters in 60 minutes without CE or 90 minutes with CE; 3000 meters in 100 minutes without CE or 145 minutes with CE.

4. Task: Conduct a tactical beach crossing.

Conditions: Given a section of beach, seasonal uniform and equipment, a minimum of two scout swimmers to conduct the tactical beach crossing.

Standards: Each scout swimmer will conduct a tactical beach landing/crossing demonstrating the proper scout swimmer techniques.

5. Task: Compute tidal height at a desired time.

Conditions: Given an area to compute tides, the National Ocean Survey Tide Tables, and situation (a location and desired time) 10 minutes to compute the height.

Standard: Each scout swimmer will compute the tidal height at the desired time; using the tide manual, predict the height of the tide at a given time within 10 minutes.

6. Task: Compute current set and drift for a given time.

Conditions: Given classroom, National Ocean Survey Tidal Current Tables, pencil and paper.

Standard: Each scout seimmer will compute the current set and drift IAW methods outlined in TC 31-25, Chapter 3.

7. Task: Compute an estimated current triangle (tidal current offset).

Conditions: Given classroom, a nautical chart, parallel ruler, divider, National Ocean Survey Tidal Current Tables, pencil, paper, a location and desired time of drop off, and landing point(s).

Standard: Each scout swimmer will give the compensated azimuth for a swimmer or a boat from the drop off location to the desired landing point on the beach in accordance with TC 31-25, P. 18-17.

8. Task: Demonstrate coxswain skills with paddle and motor.

Conditions: Given 6 - 8 scout swimmers or a scout swimmer team, Zodiac boat, 6 - 8 paddles, an outboard motor, a beach area and water area in which to train.

Standard: Each scout swimmer will know the boat handling commands (leading across land, into and out of water, on water, land breaching commands, boating, and off Naval vessels); know the duty of each person on the boat team, prepare an outboard motor for operation, and operate an outboard motor.

9. Task: Conduct high speed cast and recovery.

Conditions: Given a craft with power to pull the Zodiac along its side at the assigned speed, scout swimmers in fatigues and fins, a padded snare, ropes needed to secure the Zodiac to the larger boat, and a cast master.

Standard: The scout swimmer will know the correct cast/recovery voice commands, the two launch techniques, and the swimmer's body position, launch and recovery speeds, conduct a Zodiac and stern cast with equipment in open waterfront, a surface craft, give correct signals upon entering the water, and be recovered by use of a snare.

10. Task: Rig and conduct an inflatable boat helocast.

Conditions: Given scout swimmers with fatigues, fins, rucksack, inflated Zodiac, rope needed to tie down all equipment, a rotary-wing aircraft with a rear ramp which will be the point of exit for the Zodiac and the scout swimmers, e.g., CH-47; a safety boat with motor will be in the water.

Standard: Each scout swimmer will know how to secure all equipment into the Zodiac, and load the boat onto the aircraft; once the aircraft is in position, the ramp will be lowered and the Zodiac and all personnel will exit using correct body form; the number one man will maintain control of the Zodiac and pick up each person on the team entering the water.

11. Task: Complete a confirmatory beach report.

Conditions: Given a beach, a confirmatory beach reconnaissance report (CONBEREP) form, a pencil, paper, and two complete radios.

Standard: Each scout swimmer will state the purpose of a CONBEREP and when it is used, compile the required data and transmit a CONBEREP via the radio using the standard NATO format.

12. Task: Identify basic chart information, symbols, and abbreviations.

Conditions: Given written examination, charts, and maps.

Standard: Measure latitude; measure longitude; plot a magnetic course or true course on a nautical chart; determine variation, compute time, speed and distance; obtain courses to steer and SOG, allowing for set and drift; deploy and scout swimmers from the surface.

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