FMFM 2-2

AMPHIBIOUS RECONNAISSANCE

U.S. MARINE CORPS

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FOREWORD

1. PURPOSE

This publication, FMFM 2-2, Amphibious Reconnaissance, provides information concerning the relationships between reconnaissance units, the conduct of an amphibious reconnaissance, and the tactics and techniques employed by amphibious reconnaissance patrols. Also included is guidance for the training of reconnaissance units. It is made available to other Services for information and use as desired.

2. SCOPE

This manual describes the techniques of collecting information of intelligence interest to the landing force concerning landing beaches and coastal and inland areas by amphibious reconnaissance. It covers the mission, organization, capabilities, and employment of the various amphibious reconnaissance units.

3. SUPERSESSION

FMFM 2-2 of 12 December 1963 with Changes 1 and 2.

4. CHANGES

Recommendations for improving this manual are invited from commands as well as directly from individuals. The attached User Suggestion Form should be utilized by individuals and forwarded to the Commanding General, Marine Corps Development and Education Command (Attn: 45R), Quantico, Virginia 22134.

5. CERTIFICATION

Reviewed and approved this date.

W. J. VAN RYZIN
Lieutenant General, U.S. Marine Corps
Chief of Staff

DISTRIBUTION: "T"

USER SUGGESTION FORM

From:

To: CGMCDEC, Quantico, Virginia 22134

Subj: FMFM 2-2; recommendation(s) concerning

1. In accordance with the Foreword to FMFM 2-2, which invites individuals to submit suggestions concerning this FMFM directly to the above addressee, the following recommendation(s) is/are forwarded:

a. ITEM #1 (May be handwritten; if more space is required, use additional sheets and envelope.)

(1) Portion of Manual: (Cite by paragraph and/or page number.)

(2) Comment: (Explain in sufficient detail to identify the points of the suggestion.)

(3) Recommendation: (State the exact wording desired to be inserted into the manual.)

b. ITEM #2

(1)

(2)

(3)

c. ITEM #3 (etc.)

(1)

(2)

(3)

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TO: Commanding General
Marine Corps Development and Education Command
(Attn: 45R)
Quantico, Virginia 22134

RECORD OF CHANGES

Change No.	Date of Change	Date of Entry	Organization	Signature

AMPHIBIOUS RECONNAISSANCE

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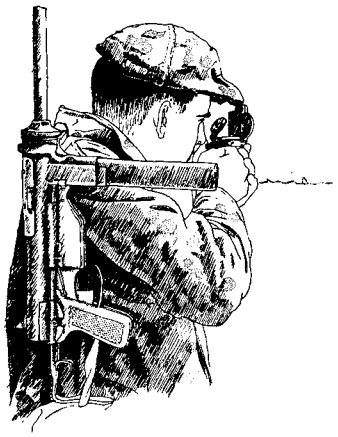


SECTION 1

INTRODUCTION

101. GENERAL

This section discusses the definition of amphibious reconnaissance and related terms. Succeeding sections deal with units engaged in amphibious reconnaissance with emphasis on the force reconnaissance company, the training of force reconnaissance company personnel, the conduct of an amphibious reconnaissance, and the tactics and techniques employed by amphibious reconnaissance patrols.

102. DEFINITIONS

a. Amphibious reconnaissance is a general term relating to a landing conducted by minor elements, involving stealth rather than force of arms, for the purpose of securing information, followed by a planned withdrawal and/or recovery.

b. The term "reconnaissance" means a mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area.

c. The term "landing" means the physical emplacement ashore, by any means, from seaward.

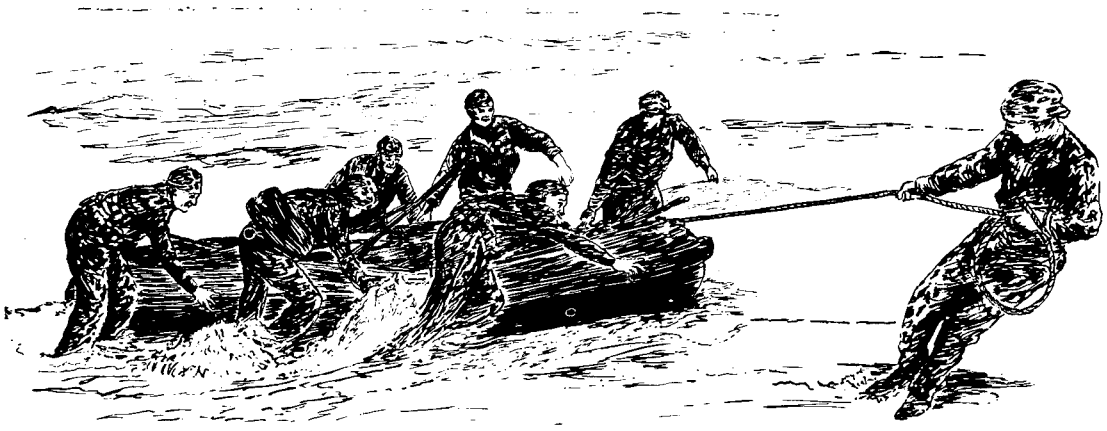
d. The term "minor elements" refers to those elements of a larger force, either Navy or Marine, specifically charged with the collection of information; the term "patrol" as used throughout this manual is such a minor element.

e. The term "securing information" embraces the collection of specifically prescribed data which is otherwise unobtainable or which is used to verify information

gathered from other sources. This collection effort is normally, but not necessarily, conducted prior to, and in support of, a projected or planned amphibious operation.

f. The term "planned withdrawal" means the movement of the landed elements seaward from the objective area to rejoin the landing force.

g. The term "planned recovery" means the physical extraction of landed elements or their linkup with friendly assault forces.



SECTION 2

RELATIONSHIP AMONG RECONNAISSANCE UNITS

201. GENERAL

This section discusses the relationships that exist among the three units, or elements thereof, normally included in the amphibious task force for the conduct of amphibious reconnaissance and related operational efforts: the underwater demolition team, the force reconnaissance company, and the reconnaissance battalion, Marine division.

202. UNDERWATER DEMOLITION TEAM (UDT)

a. Mission. --The primary mission of the UDT is to make reconnaissance of, and clear the approaches to, prospective landing beaches. Secondary missions include miscellaneous underwater and surface tasks within the capabilities of personnel and equipment.

b. Organization. --The UDT, an organic element of the naval amphibious forces, is composed of a headquarters platoon and four operating platoons. Each operating platoon contains two officers and 20 enlisted men. All members of the team are trained as surface and underwater swimmers as well as inflatable boat handlers.

c. Employment

(1) The UDT may operate as an integral unit or, as is more often the case, elements of the team may be task organized for the execution of specific missions. Tasks performed by UDT elements prior to or during an assault landing include:

(a) Reconnaissance of the seaward approaches of the landing beaches from the 3 1/2-fathom line inshore to the high water mark.

(b) Demolition of natural and manmade obstacles to the high water mark of the landing beaches.

(c) Mine clearance from the 3 1/2-fathom line inshore to the high water mark.

(d) Location, clearance, improvement, and marking of usable channels.

(e) Guidance of assault waves to the landing beaches.

(f) Delivery in usable form of data obtained during preassault operations, including information requested by or important to the landing force. Such information for the landing force is most often obtained by visual observation of the backshore and hinterland from the foreshore beach area.

(2) A detailed discussion of the capabilities, limitations, and tactical employment of the UDT is contained in NWIP 22-4(_), Underwater Demolition Teams in Amphibious Operations.

203. FORCE RECONNAISSANCE COMPANY

a. Mission. --The primary mission of the force reconnaissance company is to conduct preassault and distant postassault reconnaissance in support of a landing force.

b. Organization. --The company, organic to force troops, Fleet Marine Force, is composed of a company headquarters, a supply and service platoon, and six reconnaissance platoons. Each reconnaissance platoon contains three four-man reconnaissance teams. The company is organized to provide the landing force commander individual teams and required support personnel to execute specific missions. All members of the reconnaissance platoons are trained as surface swimmers, inflatable boat handlers, and parachutists. A limited number are trained as underwater swimmers.

(1) Company Headquarters. --The company headquarters contains a headquarters section, an operations section, and a communication section. Due to the nature of the company's mission, the operations section contains both an operations officer and an intelligence officer with appropriate enlisted assistants. Even though the company is concerned primarily with the collection and reporting of raw information which is processed into intelligence by the receiving headquarters, the organic intelligence personnel have the capability for limited intelligence production to serve the needs of the company commander. In addition, intelligence personnel are used to brief and debrief patrols and to prepare formal patrol reports. The communication section, operating under the supervision of the company communication officer, has the capability to enter and guard force command, control, and intelligence nets when the company operates as a subordinate element of the landing force. In addition to communicators in the company headquarters, each reconnaissance team contains one radiotelegraph operator. Communication support for the reconnaissance teams is provided by the communication section of the company headquarters.

(2) Supply and Service Platoon. --The supply and service platoon is organized to provide limited logistic support to the company in garrison and in rear areas in the field. The platoon contains a platoon headquarters, a supply section, a mess section, a parachute maintenance and repair section, a medical section, a motor transport section, and an amphibious equipment maintenance section.

(3) Reconnaissance Platoons.--The nature of employment of the company is such that, normally, each team acts independently of all other teams in the conduct of a specific mission. Patrols are briefed, introduced into their operating area, and recovered separately; consequently, cooperation among patrols is rarely required. Coordination, on the other hand, becomes increasingly more important and more difficult as the number of patrols landed or recovered by a single vessel or operating in the same general area increases. The number of patrols whose activities can be coordinated efficiently is on the order of two or three. The six platoon commanders, therefore, are normally employed as task organization commanders for one or more teams whose activities require a coordinated effort at levels above that of the individual patrol or as patrol leaders for patrols of larger than team size. The grouping of three teams into a platoon is consequently more of an administrative procedure than a tactical one.

c. Employment

(1) The force reconnaissance company, or elements thereof, is employed to collect information of military significance to the force and, when necessary, to provide terminal guidance for assault helicopters. The company has no offensive capability and is not employed as a tactical unit; that is, the company is not assigned missions to be executed by the company as a whole, nor is it assigned tactical missions, objectives, or tactical areas of responsibility. The company performs its assigned mission by furnishing small scout teams and supporting personnel for the performance of specific reconnaissance, surveillance, or guidance tasks.

(2) Information collection missions are assigned to acquire information otherwise unobtainable or to verify data collected from other sources. The collection effort is not in the form of a direct service to subordinate elements of the landing force. Raw information is acquired for the force commander, whose staff uses the information in the production of intelligence. The company does not evaluate or process into intelligence the information collected by its elements.

(3) Terminal guidance missions requiring parachute entry are assigned force reconnaissance company. These missions are assigned to provide visual or electronic navigational aid to assault helicopters prior to the landing of landing zone control teams. Such missions are assigned when visibility is reduced, when adequate terrain checkpoints are not available, or when it is not possible to use radar vectors. Terminal guidance tasks, when assigned to reconnaissance teams, are most often assigned to those teams executing preassault reconnaissance or surveillance tasks in the same general area as the landing zone; however, in some instances reconnaissance teams are introduced into the objective area for the sole purpose of providing last minute enemy information and terminal guidance to flight leaders. Terminal guidance tasks performed by reconnaissance troops do not include landing zone traffic control functions.

(4) Each reconnaissance team performs its assigned tasks through stealth. Introduced clandestinely into inland or coastal landing areas, the teams observe or physically reconnoiter the area or object of interest. Patrols report from the field directly to the landing force commander, using a relay station if necessary, and/or report after recovery by message and written supplementary report which is accompanied by physical or photographic exhibits acquired.

204. RECONNAISSANCE BATTALION, MARINE DIVISION

a. Mission. --The primary mission of the reconnaissance battalion, Marine division, is to conduct ground reconnaissance and observation in support of a Marine division or its elements.

b. Organization. --The reconnaissance battalion, an organic unit of the Marine division, is composed of a headquarters and service company and four reconnaissance companies. All reconnaissance troops are trained as surface swimmers and inflatable boat handlers. A limited number are trained as underwater swimmers.

c. Employment

(1) The reconnaissance battalion or elements thereof are employed to gain intelligence information in support of the Marine division or subordinate task organizations. It is not equipped for decisive or sustained combat and must accomplish its mission through stealth, maneuver, and rapid reporting. It is not capable of screening or counterreconnaissance missions. The battalion is dependent upon extensive use of helicopters and its organic light motor vehicles to provide mobility.

(2) Maximum effectiveness is achieved by employing the reconnaissance battalion as a unit under division control. This method of employment provides for maximum efficiency and exploits to the fullest extent the mobility and extensive communications of the battalion. Unit employment makes maximum use of the battalion staff in the detailed planning required of reconnaissance operations and utilizes the battalion logistics and maintenance system with greatest effectiveness. When operating under division control, the battalion commander will receive mission type orders from the division commander and will render his report directly to the division commander.

(3) One or more of the companies of the battalion may be attached to or in support of subordinate units of the division or specially task organized wing and division MEUs and MEBs. Specially task organized battalion landing teams operating independently of the division may be supported by company or smaller sized units of the reconnaissance battalion when the mission, or area of operations, presents a reconnaissance requirement beyond the organic capability of the infantry battalion to perform.

(4) During amphibious operations, all or part of the battalion may be introduced ashore prior to H-hour, at H-hour, or during the landing of nonscheduled units as the situation dictates.

(a) A pre-H-hour landing is used primarily to place reconnaissance elements in the area of greatest reconnaissance necessity prior to the assault landing. This is normally accomplished by landing units of platoon size or smaller by helicopter. The battalion also possesses an organic inflatable boat capability as an alternate means for pre-H-hour landings, plus a limited underwater swimmer capability.

(b) Post-H-hour landings are made when the immediate introduction of reconnaissance elements is not required, or is not feasible due to the terrain or the situation, or both. Certain elements of the battalion may be landed in the pre-H-hour landings while the majority of the battalion lands as a nonscheduled unit.

(5) Division reconnaissance elements may execute terminal guidance for initial helicopter waves. These tasks are executed by patrols assigned prelanding

reconnaissance responsibilities within the general landing area. Scouts check and verify selected landing sites. The usual portions of the area are determined and visual, electronic, or pyrotechnic signals emplaced to provide guidance for initial helicopter waves. A requirement for voice radio contact between a patrol on the ground and the helicopter flight leader may be imposed by the nature of the mission. The pathfinder terminal guidance capability of the reconnaissance units does not include landing zone traffic control functions.

205. RELATIONSHIP AMONG TASKS ASSIGNED TO UNITS

Missions reflected in current tables of organization provide the best source of guidance for the commander and his staff in determining tasks to be assigned reconnaissance units. Generally, the division of tasks is guided by two considerations: first, the time of execution of the task relative to D-day, and second, the location at which the task is to be executed relative to both the shoreline and the forward limit of the area of responsibility assigned to the commander of the air-ground task force.

a. Time of Execution. --Reconnaissance missions conducted prior to D-day are generally assigned to UDT or force reconnaissance elements. Such assignment does not preclude the clandestine pre-H-hour landing of elements of the reconnaissance battalion to conduct reconnaissance, establish observation posts, or provide terminal guidance for helicopterborne elements of the landing force.

b. Maneuver Areas. --Regardless of the time of execution, tasks requiring maneuver ashore are normally assigned to troop reconnaissance elements, while those requiring execution in the water are normally assigned to Navy UDT elements. As a rule, beach survey by troops seldom extends seaward of the mean lower low water line (MLLWL) or datum, while tasks performed by UDT elements seldom require movement of men landward of the high water line (HWL). During postassault operations, elements of the force reconnaissance companies are assigned reconnaissance or surveillance tasks in support of the air-ground task force as a whole. Generally, such tasks are those which extend the task force's ground reconnaissance and observation capability beyond the area covered by reconnaissance battalion troops of the ground element of the task force. In postassault helicopterborne operations, force reconnaissance troops perform terminal guidance tasks which require the use of the parachute for delivery of teams to the proposed landing zone. There may be no requirement for terminal guidance by troops on the ground or, if such requirement exists, the troops may often be delivered by means other than the parachute in which case the mission should be assigned to the division reconnaissance battalion.

SECTION 3

CONDUCT OF AN AMPHIBIOUS RECONNAISSANCE

301. GENERAL

a. This section discusses the conduct of an amphibious reconnaissance executed by Marine troops prior to an amphibious assault.

b. The organizational conditions under which such a reconnaissance is usually conducted are:

(1) The Marine reconnaissance troops are employed as a task unit within a reconnaissance and underwater demolition group.

(2) The reconnaissance and underwater demolition group operates as a subordinate task group of the advance force or, if its schedule of operations is such that it will be in the objective area considerably ahead of the advance force, as a subordinate task group of the amphibious task force.

c. While an amphibious reconnaissance may be conducted under conditions other than those mentioned, the factors considered during planning and the techniques employed during succeeding phases generally remain the same; however, command relationships differ.

302. COMMAND RELATIONSHIPS

The conduct of an amphibious reconnaissance is complicated not only by the physical conditions under which it is executed, but by the diversity of forces and levels of command concerned with its execution. Command relationships may differ from those normally encountered in an amphibious operation in that Marine elements will usually be subordinate to Navy elements at levels below the amphibious task force/landing force level. A Marine reconnaissance unit of a reconnaissance and underwater demolition

group does not constitute a landing group as defined in LFM 01, Doctrine for Amphibious Operations; consequently, the task unit commander will not enjoy the same command relationship as that which exists between a landing group commander and an advance force commander. A reconnaissance and underwater demolition group, whether operating as part of an advance force or not, is a naval force. Thus, the chain of command for the Marine task unit will include the group commander and may include an advance force commander, even though the reconnaissance task unit's parent organization remains a subordinate element of the landing force. Such a command relationship is analogous to that of a Marine attack squadron operating as an element of a support carrier group in an advance force. As in any phase of amphibious operations, command relationships not specifically described in LFM 01, Doctrine for Amphibious Operations, should be clearly defined in directives issued at amphibious task force level.

303. INTELLIGENCE FOR AMPHIBIOUS RECONNAISSANCE

Since amphibious reconnaissance missions are conducted to support intelligence needs of the landing force commander, amphibious task force commander, and subordinate task organizations of the advance force commander, all three of the above have a responsibility to provide any intelligence available and required by amphibious reconnaissance units for the successful accomplishment of assigned missions. It is the responsibility of reconnaissance unit leaders to make their intelligence needs known to the appropriate commander in detail and early in the planning phase so that required intelligence can be obtained and supplied.

304. PRELIMINARY PLANNING

a. Preliminary planning of an amphibious reconnaissance normally commences with a request from the landing force commander to the amphibious task force commander for information. Such a request is generated as a result of the formulation of the landing force commander's essential elements of information (EEI) and properly includes recommended means of acquiring the requested information and the date by which such information is needed. If the landing force commander concludes that certain information may be obtained by no means other than an amphibious reconnaissance, that such a reconnaissance is feasible, and that it will not jeopardize the security of the amphibious operation, he may submit a general plan for the conduct of the reconnaissance as part of his request for information. Such a plan should include:

(1) The scope of recommended activities including: the approximate number and size of patrols; the general operating area; the time frame of the reconnaissance relative to D-day; the landing, withdrawal, and/or recovery methods; and the general communication plan.

(2) Recommendations regarding the units to be employed for the execution of the reconnaissance whether organic to the landing force or not.

(3) The support which would be required to conduct the reconnaissance.

b. The amphibious task force commander incorporates the information requests of the landing force commander into his collection plan. Collection missions are assigned to subordinate task organizations within the amphibious task force based upon the collection plan. If the amphibious task force commander, after consultation with the landing force commander, decides to conduct a preassault amphibious reconnaissance,

he assigns the mission to a subordinate task organization, usually the advance force or, if other considerations dictate, to an independently operating task group. The assignment of a mission by the amphibious task force commander is made by a directive which also provides for the means to execute the mission. If the tasks inherent in the mission require it, he may assign both Marine reconnaissance troops and Navy underwater demolition personnel depending upon their availability within the amphibious task force. His directive provides for appropriate transportation, prescribes the priority of tasks, defines command relationships, and contains instructions relative to the times and methods of reporting the information collected.

c. Normally, the amphibious task force commander assigns the mission and the means to accomplish the mission to the advance force commander who, in turn, forms a subordinate task organization called the reconnaissance and underwater demolition group. Such a task group might consist of reconnaissance troops and underwater demolition personnel embarked aboard a submarine. In instances complicated by the employment of several patrols landed and recovered by different methods, the task of landing or recovering some of the patrols may be assigned to a task group other than the reconnaissance and underwater demolition group, such as the amphibious task force or advance force support carrier group.

305. PREPARATION AND PUBLICATION OF THE RECONNAISSANCE PLAN

a. Preparation of the reconnaissance plan is normally the responsibility of the advance force commander. After final approval by the amphibious task force commander, the plan is published as an annex to the advance force operation plan (if units other than those in the reconnaissance and underwater demolition group are involved) or as the reconnaissance and underwater demolition group operation plan (if only units of that group are involved). When the plan appears as a task group operation plan, the advance force operation plan contains only the mission of the task group and general instructions relative to the conduct of the reconnaissance, such as those contained in the amphibious task force commander's directive to the advance force commander.

b. The reconnaissance plan must include the missions assigned to each task unit of the task group, as well as specific responsibilities relative to landing, communications, reporting, withdrawal, recovery, and escape and evasion. Those paragraphs describing the missions and activities of friendly forces are usually limited and those concerned with the enemy, terrain, and weather are expanded to include all available information.

c. The landing force commander's staff representatives with the advance force, as well as representatives of the task group and each subordinate task unit, are required to assist in the preparation of the reconnaissance plan. Assistance may also be required from representatives of other commands responsible for specific tasks associated with the execution of the reconnaissance.

d. Distribution of the plan must be kept to a minimum.

306. PREPARATION OF THE DETAILED PATROL PLAN

The reconnaissance plan does not contain instructions relative to the operations of specific patrols except as those operations affect the activities of other organizations. The detailed instructions for each patrol are issued in a patrol plan prepared by the commander or officer in charge of the Marine task unit actually performing the reconnaissance. The detailed patrol plan includes the designation of individual patrol members;

the mission of each patrol; the specific areas of operation including patrol routes if appropriate; the time schedule for various events such as landing, reporting, and withdrawal; the methods to be employed for landing and recovery; specific communication procedures; and equipment requirements. Alternate procedures are included in the detailed patrol plan.

307. ROLE OF THE RECONNAISSANCE ORGANIZATION IN PLANNING

a. The reconnaissance organization listed in the landing force task organization may or may not provide the troops who actually execute the reconnaissance; however, that organization is capable of providing valuable assistance to the landing force commander during preliminary planning. The conclusion reached by the landing force commander regarding the feasibility of, and support required for, an amphibious reconnaissance is normally based upon a technical estimate furnished by the landing force's reconnaissance organization commander. The landing force commander's recommendation to the amphibious task force commander regarding the source of personnel to be employed for the execution of the reconnaissance is also normally based upon information furnished him by his reconnaissance organization commander who is familiar with the capabilities and limitations of those organizations usually employed for such tasks.

b. If the Marine troops to be employed are not organic to the landing force, the amphibious task force commander may request that they be so assigned. When the organization furnishing the troops has been determined, that organization commences its own planning and continues to assist the landing force, advance force, and reconnaissance task group commanders with the preparation of their plans. Planning is continuous and concurrent at all levels, and liaison between all elements involved is established as early as possible.

c. The role of the reconnaissance organization in planning may be described by the following example:

(1) The organization commander assists the landing force staff in the preparation of the request for reconnaissance during preliminary planning.

(2) The troop staff representation with the advance force includes a reconaissance representative to assist in the preparation of the reconnaissance plan.

(3) The reconnaissance task unit commander assists the task group commander in the preparation of task group plans while concurrently formulating the detailed patrol plan.

308. PLANNING CONSIDERATIONS

a. Size of Patrols.--The basic reconnaissance element, the four-man team, is used for the execution of patrol missions which require no more than two collection tasks to be performed simultaneously. While most collection tasks are readily executed by two men, the amount of equipment carried by a patrol may require additional men. The possibility of sustaining a casualty is a factor to be considered when comparing the four-man patrol to the two-man patrol as is the ability of four men to operate for a longer period on surveillance missions using two men per watch. It may be necessary to augment patrols with specialists, but such personnel must first be trained in the techniques to be used for landing, withdrawal, and recovery of the patrol.

b. Number of Patrols. --The number of patrols to be used depends upon the number, scope, and difficulty of specific collection tasks inherent in the mission of the reconnaissance task unit, the time allowed for the execution of the mission, and the geographical areas in which the tasks must be performed. The mission assigned to a reconnaissance task unit involves specific collection tasks. An order of importance or priority for such tasks should be assigned by the requesting headquarters. The reconnaissance task unit mission must be separated into specific tasks and the tasks regrouped into one or more patrol missions. Diverse tasks which require a patrol to operate at or near a specific location may be assigned to a single patrol. Diverse tasks requiring special equipment for each, even though performed in the same vicinity, should be assigned to more than one patrol. The time allowed for the execution of the mission may dictate that several patrols be used where a single patrol would suffice if the duration of the reconnaissance were extended.

c. Time Factors. --The time limit of the reconnaissance relative to D-day is determined by the date the collected information is required. The duration of patrol operations is determined by the patrol mission, the overland distances to be traversed by the patrol and the schedules of other forces operating in or near the objective area specifically the schedules of landing and recovery means. The duration of patrol operations ashore is limited by the ability of the patrol to sustain itself. The time allotted for a reconnaissance must be sufficient to allow for postponement and rescheduling alternate landing, withdrawal, and recovery times. A 6-day period added to the anticipated duration of the patrol usually provides a sufficient time for the execution of a reconnaissance; however, extreme weather conditions may render even a 6-day margin insufficient.

d. Communication Requirements. --Patrol communications are discussed in section 6 of this manual; however, the communication requirements of an amphibious reconnaissance do not end with the passage of message traffic from a patrol to a receiving station. Each link in the chain of message traffic must be determined prior to the reconnaissance as well as the means whereby photos, charts, and written reports are to be delivered to the requesting headquarters. The fastest means of passing message traffic to all interested organizations is the encrypted broadcasting of patrol messages by the initial receiving station. The fastest means of transporting written reports, photos, and charts is by aircraft from the patrol debriefing location to the requesting headquarters. In many instances, specific items of information are passed by the initial receiving station directly to the requesting headquarters, while other items are passed to the amphibious task force headquarters for processing and subsequent dissemination as intelligence.

e. Equipment Requirements. --The equipment to be carried by each patrol depends upon the collection tasks to be performed, the need for patrol communications, the area of patrol operations, and the methods to be employed for landing and recovering the patrol. When the amount of required equipment exceeds the ability of a specific patrol to carry it, one of the following courses is required:

(1) Increase the size of the patrol.

(2) Assign part of the patrol mission to another patrol.

(3) Deliver part of the required equipment to the patrol ashore. Equipment used by the patrol but no longer required may be abandoned. Abandoned equipment is hidden in such a manner that it cannot be found by the enemy.

f. Landing Methods

(1) A patrol may be landed by swimming or boating from a ship, submarine, or seaplane; by parachuting from an aircraft; or by landing directly from a helicopter or fixed-wing aircraft. The method selected should be that which will land the patrol with the least probability of detection, in or as close to its operating area as possible, and as simply and rapidly as possible.

(2) The major factors considered when selecting a method for landing are:

(a) Availability of ships and aircraft.

(b) Capabilities of available ships and aircraft.

(c) Enemy detection capabilities.

(d) Proximity of suitable landing areas to the patrol's operating area.

(e) Weather and hydrography in the landing areas.

(f) Capabilities of the patrol members.

g. Withdrawal and Recovery Methods

(1) A patrol withdraws and/or is recovered by swimming or boating to a submarine, surface craft, or seaplane; by embarking directly aboard a helicopter or fixed-wing aircraft; by ground-to-air pickup to an aircraft; or by linkup with friendly military or guerrilla forces. The requirement for eventual recovery of a patrol always exists, but the necessity for physical withdrawal of the patrol from the objective area varies. A patrol may be assigned a surveillance or terminal guidance mission to be executed after its reconnaissance mission, or the recovery method planned may involve linkup with friendly assault forces. In such cases, the withdrawal of the patrol is not required. A requirement may exist for the pickup of such items as photographs or soil samples. In such cases, the methods used are similar to those used for the withdrawal of troops. The recovery method selected should be that which provides for recovery of the patrol as near to its operating area as possible, as simply and rapidly as possible, with the least probability of detection, and which contributes to the rapid delivery of the information collected by the patrol.

(2) The major factors considered when selecting withdrawal and recovery methods are:

(a) Requirement for withdrawal of the patrol.

(b) Availability of ships and aircraft.

(c) Capabilities of available ships and aircraft.

(d) Enemy detection capabilities.

(e) Proximity of suitable recovery areas to the patrol's operating area.

(f) Weather and hydrography in the recovery area.

(g) Capabilities of the patrol members.

h. Embarkation Planning. --Embarkation planning is closely related to the selection of landing and recovery methods. Reconnaissance troops may be transported in ships or aircraft which are not involved with the landing or recovery of patrols; consequently, transporting and transferring these troops and their equipment must be considered early in the planning phase. If a particular ship is to be used for recovery only, embarkation plans must include embarking supporting troops in that ship to assist in the recovery and debriefing of the patrol.

309. RECONNAISSANCE TASK UNIT PLANNING

a. Governing Factors. --Planning at the reconnaissance task unit level is conducted concurrently with planning at the task force and task group levels. Detailed planning is governed by factors which have appeared in the amphibious task force commander's directive or which will appear in the reconnaissance plan published at advance force or reconnaissance and underwater demolition group level. These governing factors are:

(1) Mission of the reconnaissance task unit.

(2) Operations of other units involved in the execution of the reconnaissance.

(3) Number of patrols to be employed.

(4) Time allowed for the execution of the reconnaissance.

(5) Prescribed landing, withdrawal, and recovery methods.

(6) Prescribed communication procedures.

b. Detailed Planning. --Detailed plans based upon the governing factors listed in the preceding subparagraph include the selection of: patrol members, landing areas and times, recovery areas and times, communication equipment, and patrol equipment.

c. Selection of Patrol Members. --The assignment of individual patrol members is based upon the tasks to be performed, the methods to be used for landing and recovering the patrol, and the capabilities of the Marines available. The unit integrity of the four-man reconnaissance team is maintained whenever possible.

d. Selection of a Landing Area

(1) General Considerations. --Every patrol commences ashore from an initial point whose location is known precisely. It is obvious that a patrol would be immediately oriented if it could be landed at such a point. However, a transporting vehicle may not be able to locate a precise point from seaward or from the air, nor may a patrol be capable of following a precise course after leaving the transporting vehicle. Consequently, a landing area is selected instead of a landing point and one or more initial orientation points are selected in conjunction with the landing area. An initial orientation point is a patrol checkpoint, easily recognized on the ground, located on or near a prominent linear terrain feature. Examples are: a building on a road, a bridge on a river, or a river mouth on a coast. The relationship between this point and the landing area is such that members of a patrol landed anywhere within or near the landing area know that they must

first move in a specific direction to intercept the line and then move along the line in a specific direction to find the point. If several orientation points are chosen, the patrol is precisely oriented when it encounters the first point along its route. The landing area should meet the following requirements:

(a) Allow the undetected approach and retirement of the transporting vehicle.

(b) Allow the undetected landing of the patrol.

(c) Be well enough defined to be recognizable from the transporting vehicle.

(d) Be large enough to allow for minor errors in the predicted drift of parachutists, swimmers, or boat teams.

(e) Be far enough from the selected initial orientation points that reasonable errors in patrol navigation or strong unknown winds or currents will not change the initial direction of patrol movement to the orientation points.

(2) Coastal Landing Areas

(a) The selection of a coastal landing area usually involves a compromise between an area which permits easy landing with little security and one which provides maximum security at the cost of a difficult or hazardous landing. Examples of each are the wide, flat, sandy beach backed by an easily traversed hinterland and the narrow, steep, rocky beach backed by cliffs.

(b) The predominant factor considered when selecting coastal landing areas is the surf and its effect on swimmers or boats. Only a trained meteorologist can predict detailed surf characteristics and then only if he has sufficient data. Such predictions are used whenever they are available.

(c) Even though the actual surf characteristics may be unpredictable, it is comparatively simple to predict relative surf characteristics in two adjacent areas. One area may then be selected in preference to another when their comparative surf characteristics are known. In general, preferred surf conditions exist when ocean waves break in a single breaker line about 200 feet from the beach and the intervening space contains several foam lines which dissipate the force of the surf. The least desirable surf conditions exist when several breaker lines are present or when a single breaker line spills directly onto the beach. All waves will break when the water depth is less than the wave height, which is the vertical distance between a wave crest and the preceding trough. About half of all waves will break when the water depth is between one and two times the wave height. Very few waves will ever break in water deeper than twice the wave height, although the wave crests will tend to peak up distinctly at this point.

(d) The characteristics of the surf on a given day are based upon the nature of the bottom, the direction and speed of the wind, the distance between successive swells (called wavelength), the state of the tide, and the nature of the currents. Some of the factors to consider when predicting relative surf characteristics are:

1 Offshore shoals, ledges, and rough bottom contours tend to reduce the surf.

2 Offshore islands tend to break up ocean swells and produce several patterns of smaller waves.

3 Kelp or any variety of dense seaweed will reduce wave height.

4 Swift currents flowing in the direction of wave advance and onshore winds will reduce wave height.

5 A reef face or other abrupt break in the bottom may cause each wave to break up into smaller waves.

6 A submarine ridge perpendicular to the coast will increase wave height; conversely, a submarine canyon will reduce wave height.

7 A steep bottom will cause waves to break rapidly and close to or directly onto the beach accompanied by violent wave uprush.

8 A flat bottom will cause waves to break gradually and at a greater distance from the beach with several foam lines being formed between the breaker line and the beach.

9 A sand bar parallel to the beach will cause waves to peak up or break depending upon the depth of water over the bar. A single breaker line may form over a bar while another breaker line forms closer to or on the beach. The presence of several bars may cause multiple breaker lines. Sand bars are frequently found off sandy beaches exposed to wave action.

(3) Inland Landing Areas. --The choice of an inland landing area is also usually based on a compromise between ease of landing and security. A patrol may be landed inland by parachuting or by debarking directly from an aircraft on the ground. Regardless of the procedure used, the predominant factor considered when selecting the landing area is the presence and nature of obstacles to landing. For parachute landings, flat, open, recently plowed fields offer the greatest ease of landing, but the least security for the patrol; conversely, densely wooded, precipitously broken terrain offers the greatest security but also the greatest hazards to landing. Rolling terrain covered with sparse woods or brush is, consequently, often selected as a parachute landing area. Aircraft landing and takeoff characteristics will determine the suitability of a landing area from the viewpoint of obstacles.

e. Selection of a Landing Time

(1) General Considerations. --The time allowed for the execution of a reconnaissance will appear in the reconnaissance plan. This time period may be stated directly or it may be implied by a statement relative to the date specific forces will be available for employment, and the date by which the collected information is required. The primary landing time should be chosen to occur as early in this period as possible. Landings should be executed during darkness, preferably under no more than a crescent moon, and early enough to permit assembly, orientation, and movement of the patrol to its operating area prior to dawn.

(2) Coastal Landing Times. --As mentioned in subparagraph 309d(2), the predominant factor considered in selecting a landing area is the surf. Since surf characteristics depend upon the nature of the bottom and the depth of water in relation to

wave height, it is apparent that the surf will vary with the state of the tide. A beach with a variable gradient may produce the surf characteristics of a steep beach during high tide and those of a flat beach during low tide. Likewise, sand bars which affect the surf during low tide will have a reduced effect at high tide. These variable effects may be so pronounced that a beach may be preferred for use as a landing area during one stage of the tide, and totally unsuitable during the next stage. Consequently, tidal conditions must be considered when selecting an exact time for coastal landings.

(3) Inland Landing Times. --The selection of an exact time for inland landings is based on forecasted wind and visibility. Visibility must be sufficient to provide for aircraft orientation. Strong surface winds may render the landing too difficult to be attempted, particularly in the case of parachute landings.

f. Selection of Withdrawal and Recovery Areas

(1) General Considerations. --Regardless of whether or not a patrol is withdrawn from the objective area, it must eventually be recovered. The area selected for recovery should be easily recognizable by the patrol and the recovering forces, should allow the secure exchange of recognition signals, and should be a different area than the one used for landing. If troops are to be withdrawn from the objective area, the recovery area should meet the following additional requirements:

(a) Allow the undetected approach and retirement of the recovery vehicle.

(b) Allow the secure use of homing signals.

(c) Allow the maneuver or landing of the recovery vehicle.

(d) Allow for errors in predicted drift of swimmers or boat teams.

(2) Coastal Withdrawal Areas. --The predominant factor considered when selecting coastal withdrawal areas is the surf and its effects on swimmers or boat teams. Surf characteristics are evaluated in the same manner as for the coastal landing of a patrol.

(3) Inland Withdrawal Areas. --As in the selection of inland landing areas, the predominant factor considered when selecting a withdrawal area is the presence and nature of obstacles to landing of a recovery vehicle. Aircraft landing and takeoff characteristics will determine the suitability of a withdrawal area from the viewpoint of obstacles.

g. Selection of a Withdrawal or Recovery Time

(1) General Considerations. --The primary withdrawal or recovery time should be selected to occur as soon as possible after the execution of the patrol mission. Withdrawal or recovery should occur during darkness, under no more than a crescent moon, and late enough to permit the patrol to move from its operating area and prepare for recovery after darkness has fallen.

(2) Coastal Withdrawal Times. --As in the selection of landing times, the state of the tide and its effect on the surf must be considered when selecting an exact

time for coastal withdrawal. The withdrawal time selected must be early enough to allow completion of the recovery at sea prior to dawn.

(3) Inland Withdrawal or Recovery Times. --The selection of an exact time for inland withdrawal and recovery is based upon predicted winds and visibility as in the case of landings. Winds, however, will not be as critical as for parachute landings.

h. Selection of Alternate Areas and Times

(1) Alternate landing, withdrawal, and recovery areas are selected to provide for the eventuality of enemy activity increasing in the primary areas. They are selected in the same manner as primary areas and usually lie along the same route to be used by the landing or recovery vehicle.

(2) Alternate landing, withdrawal, and recovery times are selected to provide for contingencies other than an increase in enemy activity, such as bad weather or an increase in the anticipated duration of the patrol. Alternate times are selected in the same manner as primary times and usually occur at approximately 24-hour intervals.

i. Selection of Communication Equipment. --Selection of equipment for patrol communications is discussed in section 6 of this manual. Specific items are selected by the task unit commander.

j. Selection of Patrol Equipment. --Equipment to be used by each patrol is selected or approved by the reconnaissance task unit commander. Some latitude is given to the patrol leaders in equipment selection; however, every item, however insignificant, to be carried ashore must be approved by the task unit commander. Only those items which are required for the execution of the reconnaissance are allowed. If supplies or equipment, such as rations or communication gear, are to be delivered to the patrol ashore, the same detailed selection must be made since it is unlikely that a patrol will receive a delivery based upon an unplanned request from within the objective area.

310. ISOLATION OF PARTICIPATING TROOPS

When the reconnaissance task organization has been determined and patrol members selected, the task unit should be isolated from personnel not involved in the execution of the reconnaissance. Each patrol, with its supernumeraries, should conduct its planning and preparation without regard for the activities or missions of other patrols which have no bearing on their activity. Patrols should be briefed separately on plans which are applicable to that patrol only, but may be briefed with other patrols on information common to each, such as the weather, terrain, and enemy situations. Supernumeraries will accompany each patrol until they are no longer needed, usually until just prior to the execution of the landing. Patrol members unable to accompany the patrol during the reconnaissance should remain isolated until the patrol mission has been executed.

311. BRIEFING SEQUENCE

Patrol briefing will not be conducted in a single formal presentation. The flow of information and the formulation of plans will be gradual, progressing from the general to the specific. Since patrol members must be provided with information and

and instructions as early as possible, briefings are frequent, often repetitious, and progressively more detailed.

312. INFORMATION BRIEFINGS

Information briefings present a detailed discussion of the enemy situation; the terrain, weather, and hydrography of the objective area; and information relative to evasion, escape, and survival. No information is presented relative to friendly forces. Information briefings should be presented by members, preferably specialists, of the landing force staff, the advance force staff, the parent reconnaissance organization staff, or a combination thereof. Information packets, prepared by the landing force staff or advance force staff, may be used. All members of the reconnaissance task unit should attend information briefings.

a. Enemy Situation. --All available information concerning the enemy in the objective area should be presented.

b. Terrain. --Terrain studies of the objective area and the landing, withdrawal, and recovery areas are presented. Three-dimensional relief maps and terrain models are excellent briefing aids. Map and photographic coverage is obtained and presented in the following priority:

(1) Large scale map coverage of patrol operating areas and landing, withdrawal, and recovery areas.

(2) Large scale, low oblique, aerial photographic coverage of patrol operating areas and landing, withdrawal, and recovery areas. If a coastal landing is to be conducted, large scale high oblique aerial photographs from seaward should be obtained of the landing areas.

(3) Map coverage of aircraft flight paths and cross-country patrol routes in the largest scale appropriate.

c. Weather and Hydrography. --Weather, hydrography, and astronomical studies are presented. Weather and surf forecasts are presented regularly, especially just prior to the execution of the landing.

d. Local Populace. --All available pertinent information concerning the local populace should be presented. Their numbers, location, customs, habits, and attitudes toward the enemy and friendly forces should be highlighted.

e. Survival, Evasion, Resistance, and Escape. --Specific survival, evasion, resistance, and escape information for all areas in which the patrol will be operating is presented.

313. PLANS BRIEFINGS

Plans briefings are presented to the members of one patrol at a time. They progress from the most general of warning orders to precise discussions of all phases of the reconnaissance as they affect the specific patrol. Plans briefings are conducted by the reconnaissance task unit commander assisted, when appropriate, by members of his parent organization's staff and by aircraft pilots and ship's officers. Plans briefings cover the patrol mission; the concept of the reconnaissance; the communication plan;

the landing, withdrawal, and recovery plans; and administrative and logistics plans. Since the capture of patrol members is always possible, caution is exercised when discussing the activities of friendly forces. The movements of landing and recovery vehicles, except as they pertain to the patrol, are not disclosed, nor are the location or identity of communication receiving stations.

a. Patrol Mission. --The mission of each patrol is presented as a precise statement of the collection tasks to be performed. Priorities of tasks are presented if they have been assigned by the headquarters requesting the information or ordering the reconnaissance. Missions are stated in such a manner that they can be executed by direct measurement or observation. Patrols are not assigned missions which require evaluation or processing of collected information by the patrol members. An example of a mission requiring evaluation by patrol members is: "Determine whether beach matting will be required for vehicles landing on ABC Beach." Missions of this nature require patrol members both to collect and to evaluate information without access to the facts necessary for intelligent evaluation. A valid collection task for a patrol in this case is: "Determine the foreshore and backshore gradients of ABC Beach. Obtain soil samples from the foreshore, backshore, and immediate hinterland. Obtain panoramic photographs of the beach from both flanks at both high and low tides." The reconnaissance patrol is a collecting agency; the requesting headquarters is the evaluating, processing, and intelligence producing agency. In the example cited, the requesting headquarters determines matting requirements based upon the information provided by the patrol and the number and types of vehicles to be landed.

b. Concept of the Reconnaissance. --The concept of the reconnaissance is a general statement of the manner in which the reconnaissance task unit commander anticipates the reconnaissance will be conducted. The statement of concept includes:

(1) Methods of transporting the patrol to its operating area.

(2) Time and place of embarking in the vehicle to be used for landing.

(3) Method, time, and place of landing.

(4) Duration of the patrol.

(5) Methods for reporting.

(6) Method, time, and place of withdrawal and/or recovery.

(7) Alternate landing, reporting, withdrawal, and recovery plans.

(8) Times and places for rehearsals.

c. Communication Plans. --The detailed instructions for patrol communications are presented by the parent reconnaissance organization's communication officer. These briefings cover equipment, frequencies, antenna siting, special abbreviated procedures, call signs, brevity formats, codes, transmission schedules, and the magnetic azimuth to the initial receiving station. If additional training or rehearsal is required, the communication officer will present the schedule for such training. Issue of codes is delayed until just prior to landing.

d. Landing Plans. --The reconnaissance task unit commander presents the detailed landing plans. These briefings cover procedures, time schedules, and area characteristics. Just prior to the execution of the landing, the patrol receives its final briefing.

(1) Inland Landings. --A final review of each inland landing plan is presented by the patrol leader assisted by the aircraft pilot and/or the jumpmaster, if he is other than the patrol leader. Emphasis is placed on the precise flight path, visual checkpoints, speeds, altitudes, estimated drop or landing time, and the characteristics of the drop or landing area. The pilot reviews inflight procedures and exit commands or signals. During this final briefing, the patrol leader reiterates instructions previously issued regarding individual responsibilities during assembly and initial patrol movement.

(2) Coastal Landings. --A final review of each coastal landing plan is presented by the patrol leader assisted by ship's officers and the boat coxswain, if a boat is to be used. Emphasis is placed on debarkation procedures, ship-to-shore movement, and the characteristics of the landing area. Ship's officers review instructions previously issued to crewmembers. During this final briefing, the patrol leader reiterates instructions previously issued regarding individual responsibilities during the ship-to-shore movement, landing, assembly, and initial patrol movement. Just prior to debarkation, ship's officers will provide the patrol with the magnetic course to the landing area corrected for the predicted effects of wind and current.

e. Withdrawal and Recovery Plans. --The reconnaissance task unit commander presents the detailed withdrawal and recovery plans. These briefings cover procedures, time schedules, and areas. Emphasis is placed on recognition and homing signals and on alternate plans.

f. Administrative and Logistics Plans. --The reconnaissance task unit commander presents the detailed administrative and logistics plans. These briefings cover equipment, supply and resupply procedures, and instructions relative to handling patrol dead or wounded and prisoners, captured material, and civilians. Emphasis is placed on:

(1) Handling of special or unfamiliar equipment.

(2) Procedures for delivery and receipt of equipment ashore, if appropriate.

(3) Procedures for handling and recovering wounded patrol members.

(4) Procedures for burial of dead patrol members.

(5) Procedures to be followed if confronted by civilians.

(6) Procedures for handling prisoners or captured material, if appropriate.

314. PATROL LEADER'S ORDER

The leader of each patrol issues a patrol order to his patrol. This order contains specific instructions for each patrol member during each phase of the reconnaissance. The patrol order may be issued in a single formal presentation or in fragments followed by a complete order just prior to landing. The complete patrol order is issued in five-paragraph form and in the presence of the reconnaissance task unit commander. The patrol order must include:

a. A review of the enemy situation, predicted weather and hydrography, and characteristics of the landing, operating, withdrawal, and recovery areas.

b. The precise collection tasks assigned to the patrol.

c. The detailed patrol itinerary.

d. Specific tasks and responsibilities of each patrol member during the:

(1) Remainder of the preparation period.

(2) Inflight or ship-to-shore period.

(3) Landing, assembly, and reorganization period.

(4) Period devoted to collection of information.

(5) Reporting period(s).

(6) Withdrawal and recovery period.

e. Coordinating details relative to:

(1) The patrol route, initial orientation points, checkpoints, assembly points, and rendezvous points.

(2) Immediate action if discovered by enemy troops or civilians.

(3) Action to be taken by separated patrol members.

(4) Security of the patrol.

f. Administrative and logistic details relative to:

(1) Drawing and preparing equipment.

(2) Equipment loads of patrol members.

(3) Equipment inspection schedules.

(4) Rehearsal schedules.

(5) Resupply procedures.

(6) Handling patrol casualties and prisoners.

g. A review of communication procedures for both reporting and recovery.

h. Succession to command.

315. PATROL OPERATIONS ASHORE

The activities of a patrol ashore are based upon the principles of scouting, patrolling, and small unit tactics employed by all Marine infantry units. FMFM 6-5,

Marine Rifle Squad; FM 21-75, Combat Training of the Individual Soldier and Patrolling; and FM 21-50, Ranger Training and Ranger Operations, contain information and guidance relative to patrol conduct.

316. DEBRIEFING

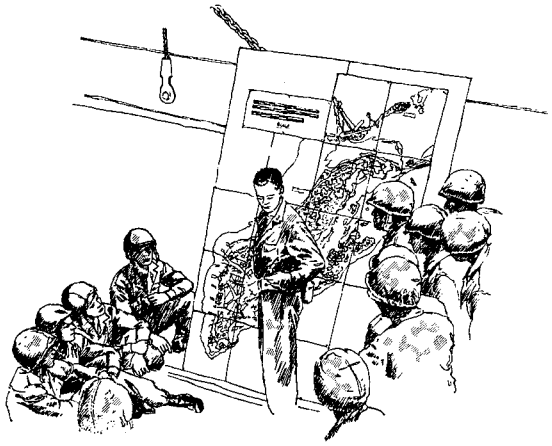
Debriefing is the extraction of information from patrol members by interrogation. Patrols are debriefed immediately after recovery. The specific information collected as a result of the patrol mission is obtained during debriefing. At the same time, interrogation is used to obtain information regarding sightings or observations whose significance may not be readily apparent to the patrol members. Formal patrol reports are prepared by the interrogating personnel based upon the information thus obtained. Ideally, debriefing would be conducted by a panel of officers from the headquarters originating the patrol mission; however, in many cases the debriefing will necessarily be conducted by the reconnaissance task unit commander assisted by members of the task unit headquarters. Tape recorders and the graphic aids used during briefings are excellent debriefing aids.

317. REPORTING

A patrol often transmits fragmentary reports from the field. In other cases, reports are required only after recovery of the patrol. In either procedure, a message report is submitted as soon after recovery as possible followed by the submission of a formal written report accompanied by items not susceptible to transmission by radio such as soil samples, exposed film, overlays, and annotated maps or charts. The initial message report must contain the specific mission of the patrol, a summary of the information collected as a result of the mission, and any information obtained regarding the enemy whether or not such information is required by the patrol mission. If no enemy information is obtained, a negative report is mandatory. Some specific reporting procedures are contained in section 7 of this manual.

318. REHEARSALS

Rehearsals are the best means of determining flaws in procedures or errors in planning. Each procedure used during an amphibious reconnaissance should be rehearsed, particularly those which involve elements of more than one organization. The exact ships, aircraft, or other supporting forces may be unavailable for rehearsals. In such cases, rehearsals are conducted using similar ships and aircraft, similarly manned. Patrol activities to be conducted ashore are rehearsed prior to embarkation as are activities requiring the use of aircraft. Shipboard procedures are rehearsed after embarkation, as are ship-to-shore movement and coastal withdrawal and recovery at sea. The more complex the procedure, the greater the need for rehearsal; consequently, rehearsals of procedures such as the underway submerged recovery of swimmers by a submarine are required.



SECTION 4

TRAINING

401. GENERAL

This section discusses the objective and conduct of reconnaissance training. Specific planning guidance is presented, where possible, to assist unit commanders in the preparation of annual training programs. The discussion emphasizes training of the individual Marine in the skills and techniques associated with preassault and distant postassault reconnaissance.

402. TRAINING OBJECTIVE

The sole objective of reconnaissance training is the successful execution of the reconnaissance mission in combat. The concept of preassault and distant postassault ground reconnaissance dictates that training programs develop reconnaissance teams capable of undetected activity on the enemy's ground under conditions which severely limit support from sources outside the teams themselves. Such undetected activity includes entry into an operating area, movement of the patrol within its operating area, execution of information collection and terminal guidance tasks, submission of patrol reports from within the operating area, eventual withdrawal from, or recovery in the operating area, and debriefing and submission of final reports.

403. CONCEPT OF TRAINING

a. As a point of departure for subsequent discussion of reconnaissance training, the following prerequisites are desirable and should be followed as the situation permits:

(1) The reconnaissance training cycle should be a minimum of one year in order to properly train personnel in the required skills and techniques.

(2) All personnel should have at least one year in a Marine division prior to assignment to a reconnaissance unit.

(3) A majority of the noncommissioned officers should have had previous tours with a reconnaissance unit.

b. Training is designed to develop confidence, endurance, initiative, teamwork, and skill in the application of the techniques associated with preassault and distant post-assault ground reconnaissance. The training of individual scouts and reconnaissance teams is characterized by the orderly progression from basic to advanced training, maintenance of team integrity, realism, and balance.

(1) Training Progress and Team Integrity.--Training progresses through four phases: basic individual training, advanced individual training, basic unit training, and advanced unit training. Depending upon the aptitude and experience of the individual, familiarity with all of the techniques associated with the billet of reconnaissance scout requires from 6 months to a year of individual training for a newly assigned Marine. Operational readiness and exercise requirements imposed by senior headquarters will seldom allow a prolonged individual training program. Consequently, annual training programs are so constructed that as much individual training as possible is conducted concurrently with team training. Some individual training, such as parachute and SCUBA (self-contained underwater breathing apparatus) qualification training requires attendance at a formal service school. Other training, such as evasion and escape training, is of such nature that its greatest value is realized when a Marine undergoes the training on his own rather than as a member of his operational unit, in this case the reconnaissance team. Ideally, a newly assigned Marine would receive all training which could only be given on an individual basis as soon as he reported to a company. Such initial training would be followed by immediate assignment to a reconnaissance team with which he would receive all other individual training. General military training prescribed by training directives is conducted throughout the annual training cycle. Those prescribed subjects which lend themselves to such treatment are integrated into team exercises whenever practical. Although the degree of skill required in various subjects may differ, with few exceptions the skills required of the reconnaissance scout are those required of all Marine riflemen. Team integrity is maintained during all general military training by scheduling such training for all team members simultaneously.

(2) Realism.--Field training is conducted under conditions which approximate those expected in combat. Because of emphasis on realism, there is a degree of hazard involved in all military training, and with the exception of inherent hazards associated with parachuting and open water exercises, field training of the reconnaissance scout is certainly no more hazardous than that conducted in any rifle company. While safety is an essential factor in any training program, safety procedures should not interfere with the tactical play of training exercises. The purpose of the safety procedures listed in paragraph 406 is not to destroy realism in exercises, but rather to provide guidance by which hazardous training may be conducted both realistically and safely. For example, the requirement for control and the employment of medical personnel in the drop zone during parachute exercises does not mean that their presence should interfere with a tactical parachute exercise unless unsafe conditions exist. In fact, their presence and location need be known only to the pilot and jumpmaster. Realism in the training of reconnaissance teams is acquired by:

(a) Emphasizing night training.

(b) Training in unfamiliar and varied terrain.

(c) Training in varied geographic and climatic areas, such as jungles, deserts, mountains, and arctic areas.

(d) Introducing into exercises those conditions and problems which the teams could be expected to encounter in combat such as:

1 Secrecy in planning and execution.

2 Thorough briefing of all participating troops.

3 Unmarked landing areas.

4 Tactical landing and recovery methods.

5 Use of alternate landing and recovery plans.

6 Limited resupply of patrols ashore.

7 Use of tactical communication procedures including radio transmission at extreme ranges.

8 Planned operational emergencies and simulated casualties.

(3) Balance.--The state of training of both individuals and teams is evaluated by observing their performance in the field. Because of the many skills required of the individual and the variety of tasks which may be assigned to a team, training programs cannot neglect some areas while emphasizing others. A team of expert parachutists who cannot communicate is of no value. Of limited value is a team of thoroughly proficient scouts who lack the capability for clandestine landing and withdrawal using a variety of methods. Annual training cycles end with participation by the majority of the reconnaissance unit in a major amphibious exercise of MEB size or larger or in a major reconnaissance exercise in which the unit is the principal troop unit participating. Such exercises provide commanding officers with an excellent opportunity to evaluate the effectiveness and degree of balance of the training conducted during the preceding annual cycle. Should areas be discovered in which weaknesses exist, added emphasis is placed on such areas in the early phases of the next cycle. It is not anticipated that all members of any one team will be equally proficient in a given skill or technique at any given time; however, a properly balanced training cycle will produce a reasonably proficient team member by the end of his first year in the reconnaissance organization; by the end of his first tour, ideally 3 years, he should be thoroughly proficient in all subjects associated with preassault and distant postassault reconnaissance.

404. SELECTION OF PERSONNEL

a. General.--Since the training program is geared to the development of combat-ready reconnaissance teams, the effectiveness of the program depends a great deal upon the care exercised in the selection of personnel for initial assignment and upon subsequent judicious formation of teams. Screening is essentially the same as that used for classification and assignment of all Marines: finding the Marine who fits the billet or, failing that, finding the Marine who meets the requirements for training in the billet. Normally, the number of Marines answering a request for volunteers from local FMF

units exceeds the number of vacancies. However, this excess does not necessarily simplify the selection problem since only about one in 15 will meet individual qualifications and have sufficient obligated service remaining to warrant formal school training.

b. Individual Qualifications. --Selection of personnel for assignment to a reconnaissance unit is based upon physical and medical qualifications and mental screening conducted at company level.

(1) Physical Requirements. --Physical requirements embrace those strength, endurance, and swimming prerequisites established by the Department of the Army for parachute training and by the Department of the Navy for SCUBA diving training. Physical requirements for such duty are rigid and will not be waived.

(2) Medical Requirements. --Medical requirements, also established by the separate Departments for parachute and SCUBA training, are usually rigid, but may be waived by the appropriate Department in certain cases such as a Marine otherwise qualified who barely fails to meet the minimum eyesight or weight and height requirements. Medical qualifications for assignment are determined by a medical officer.

(3) Mental Requirements. --Mental suitability is principally a matter of attitude, temperament, and the ability to make sound decisions. No simple test has been developed capable of predicting how an individual will perform in a strange environment under arduous circumstances; consequently, commanders must continue the screening of personnel throughout their tours in the unit. Careful selection prior to assignment, however, will reduce the incidence of transfer after assignment due to temperamental unsuitability. A great deal can be discovered through interview about the maturity and background of volunteers. Likewise, physical testing can tell a great deal about the motivation of a volunteer as well as determining his physical condition. During interview and physical testing, the unit commander's principal concern is the maturity, resourcefulness, experience, and motivation of the volunteer.

405. PLANNING THE ANNUAL TRAINING PROGRAM

a. General

(1) The annual training program for reconnaissance units will vary between units for any given year. While commanders strive to accomplish the ultimate training objective set forth in paragraph 402, certain factors may affect the annual training program. Factors which induce local variations include:

(a) Personnel turnover.

(b) Availability of ship, submarine, and aircraft support.

(c) Availability and timing of formal school quotas.

(d) Exercise and other training or administrative commitments imposed by higher headquarters.

(e) Actual operational commitments.

(2) Training of a reconnaissance company logically falls into four phases, in addition to general training requirements prescribed annually for all Marines.

These phases are basic individual training, advance individual training, basic unit training, and advanced unit training. Training in many areas is closely related and consequently overlaps during the training cycle. A great portion of basic and advanced individual training is accomplished concurrently with basic unit and advanced unit training. This is particularly true in the advanced individual and basic unit training. The training requirements set forth in succeeding paragraphs are intended as a guide in preparing training estimates and plans. While the total time allotted may at first appear excessive, it must be understood that a large part of the training will be accomplished concurrently. Emphasis is placed on the discussion of training the individual Marine in the skills and techniques associated with the billet of reconnaissance scout. Under normal conditions a company commander can expect to familiarize a newly assigned Marine with all of the skills and techniques associated with the billet of reconnaissance scout during the Marine's first year in the company. By the end of the second year, the Marine should be proficient in all the skills of his billet.

(3) The scheduling of training must be carefully considered in order to achieve maximum effectiveness. As an example, it would not be feasible to schedule basic swimming 8 hours a day, in consecutive days until completed. It is scheduled in shorter periods and is spread out over a 2- or 3-week period, which lends to more effective results. Conversely, to schedule swimming in short periods over the entire training year would reduce considerably the desired results. SCUBA and airborne training by the Navy and Army, respectively, is conducted at one time, as block training. Such training is preceded by preschool conditioning and familiarization by the reconnaissance company.

b. Basic Individual Training Requirements

(1) Refresher Training.--Refresher training consists of review of the basic combat skills of the Marine rifleman with emphasis on those skills of particular applicability to the reconnaissance scout. Of greatest importance in this phase of individual training is increasing the Marine's ability to use his map and compass in overland movement, particularly at night. Normally, about 100 hours of refresher training conducted over a 2-week period will suffice to put newly assigned Marines on the same basic footing for future training. Refresher training includes, but need not be limited to:

(a) Map and aerial photograph reading.

(b) Use of the compass.

(c) Land navigation.

(d) Patrol orders and reports.

(e) Observation and recording.

(f) Field sketching and ground photography.

(g) Individual protection, including NBC defense measures.

(h) Camouflage and movement.

(i) Combat intelligence.

(j) Patrol tips.

(2) Swimmer Conditioning.--A basic swimmer program is established to increase the individual's proficiency at least one level (from second class swimmer to first class or expert swimmer as defined by Marine Corps directive), to teach the rudiments of water safety and lifesaving, and to develop both self-confidence and endurance in the water. Swimmer instruction should be conducted by personnel qualified as a Red Cross Water Safety Instructor and assisted by personnel qualified as expert swimmer. During initial swimming instruction, buddy teams are formed, usually remaining paired throughout their service with the unit. Consideration of ability and compatibility is an important factor when forming buddy teams. It is desirable to conduct basic instructions during morning periods usually in conjunction with routine calisthenics. Upon completion of basic instruction, consequent periods of swimmer conditioning should be conducted in the afternoons devoted to pool and open water conditioning which lends to self-confidence and increased endurance. At the conclusion of the swimmer conditioning program, the student should be easily capable of swimming 3 to 5 miles in open water with the aid of swimmer fins. A 46-hour program conducted over a 2-week period will normally suffice to accomplish the swimming training objective. Swimmer conditioning includes as basic requirements:

(a) Poolside conditioning exercises.

(b) Basic swimming strokes and their application.

(c) Water safety, lifesaving, and emergency procedures.

(d) Pool and open water swimming without fins. Open water swimming includes swimming in ground swells.

(e) Use and care of swim fins, masks, diver's dress, life vests, and other swimming aids and accessories.

(3) Preparatory Parachute Training.--Prior to the assignment of personnel to airborne courses recognized by the Department of the Army, a concentrated parachute preparatory training course is conducted by the company. The airborne course is a concentrated, strenuous course during which physical requirements become increasingly greater. Personnel assigned to airborne courses, who are able to meet one and one-half times the physical requirements for admission, can be expected to successfully complete the course. About 60 hours of preparatory training can be expected to bring most prospects to a level at which successful completion of the formal course is ensured. This training, conducted in a 2-week period, should include:

(a) Physical conditioning.

(b) Parachute landing falls.

(c) Equipment familiarization.

(d) Jump commands and mock door drill.

(e) Suspended harness drill.

(f) Recovery from drag.

(g) Familiarization with airborne training techniques encountered at formal airborne schools.

(4) Demolitions. --While reconnaissance units are not charged with tasks requiring the extensive use of demolitions, it is conceivable that limited type demolitions tasks may be directed. All personnel should have a basic knowledge and training in the use of demolitions. Approximately 30 hours of instruction and training will provide the student with basic knowledge in the use of demolitions.

(5) Weapons Training and Requalification. --In addition to annual marksmanship requalification training with the service rifle and the submachinegun and/or pistol, familiarization training, to include firing, is conducted with all infantry weapons. Also included is instruction in recognition and characteristics of foreign weapons. Such training is best conducted as block training. Including annual requalification training, commanders can expect to devote about 3 weeks each year to weapons training.

(6) Training in Reconnaissance of Routes of Communication. --Reconnaissance units are frequently assigned the task of reporting the natural and manmade characteristics of roads and bridges. It is essential, therefore, that reconnaissance personnel be familiar with the basics of road and bridge construction/classification. A period of approximately 40 hours is required to accomplish this familiarization.

(7) Communication Training. --Basic communication training involves classroom training of individuals in the type and characteristics of organic communication equipment and the manner in which it is employed by a reconnaissance team. In addition to acquiring familiarity with the gear, training is conducted in sending and receiving international Morse code. The goal of code training is the ability to send and copy an intelligible message should the team radio-telegrapher become a casualty. A scout whose training has been limited to familiarization and rhythm can transcribe, with a copy of the code available, his message into code characters and transmit it. A level of eight words per minute is satisfactory for a scout, and can be attained by 3 to 4 hours of practice per week for 12 weeks and maintained at that level by 2 hours of practice per week thereafter. About 30 hours of classroom or nontactical training, in addition to Morse code training, will suffice to familiarize newly assigned Marines with the communication problems of the reconnaissance team and their solutions. Communication familiarization includes:

(a) Characteristics and uses of all organic visual, infrared, underwater sound, and radio equipment.

(b) Voice radio procedures.

(c) Brevity formats, one-time pad system, numeral codes and authentication systems.

(d) Power sources and frequency alignment.

(e) Propagation theory, antenna characteristics, and field improvisation of antennas.

(f) Emergency communications.

(g) Waterproofing and packaging of equipment.

(8) Survival, Evasion, Resistance, and Escape Training. --In general, units are not capable of providing the level of training acquired at a formal course in survival, evasion, resistance, and escape training. The training is such a basic requirement for individual scouts, however, that all newly assigned Marines should receive at least familiarization training prior to assignment to a team. The formal course conducted at the Marine Corps Cold Weather Training Center is 2 weeks long. It is of such value that all reconnaissance troops should attend the course or a similar course during their first tour in the unit, preferably on an individual basis. It is desirable that the period include confinement in a POW camp for at least a 3-day period. Basic survival, evasion, resistance, and escape training conducted by the reconnaissance unit emphasizes:

(a) Psychological aspects of escape.

(b) Code of conduct and resistance to interrogation.

(c) Evasion and survival techniques.

(d) Prisoner-of-war camp routine and escape organization.

(e) Conduct within friendly evasion and escape nets.

(9) Intelligence Training. --While it is not the function of the reconnaissance scout to evaluate information, it is necessary that he understand his function as it pertains to the production of intelligence. Intelligence training emphasizes the requirements of the landing force in general and the intelligence requirements peculiar to the various combat and combat support units. A training technique which has proven fruitful is that of intelligence personnel from various units instructing reconnaissance troops in the effects of weather, terrain, and hydrography on the operations of their units and the necessity for the collection of specific items of information. About 8 hours each of classroom or nontactical fieldwork with engineer, artillery, helicopter, tank, Ontos, motor transport, and amphibian tractor units normally is sufficient to keep reconnaissance troops grounded in the intelligence requirements peculiar to those units. In addition to the training mentioned above, about 60 hours of formal instruction is conducted annually in such subjects as:

(a) Intelligence functioning and intelligence planning.

(b) Collection agencies and sources of information.

(c) Landing force intelligence requirements.

(d) Capabilities and limitations of combat and combat support units and their peculiar intelligence requirements.

(e) Counterintelligence.

(f) Handling of enemy documents, material, and prisoners.

(g) Recognition of foreign uniforms, equipment, and weapons.

(10) Preliminary SCUBA Training. --The basic qualification as a SCUBA diver is acquired at a formal Navy school. Prior to assignment to a formal school, local

preschool conditioning and familiarization training is conducted including pool and open water training. This training is conducted in accordance with Navy standards established in NAVPERS 92727A Curriculum for USN School Underwater Swimmers, NAVPERS 93206 Curriculum for Diver Second Class and SCUBA Diver, and NAVSHIP 250-538 U.S. Navy Diving Manual. Preschool diver training can profitably be combined with basic swimming qualification training. In addition to the program discussed in the preceding subparagraph, about 40 hours of preschool training will normally ensure satisfactory completion of the formal SCUBA course. Open water familiarization with diving equipment is only conducted after extensive classroom and pool training. Preschool diver familiarization training includes:

(a) Diving physics, physiology, diseases, and injuries.

(b) Safety practices and emergency procedures.

(c) Use and care of diving apparatus and accessories.

(d) Pool exercises using SCUBA.

(e) Closely supervised open water exercises using SCUBA.

(11) NBC Training. --NBC training should include:

(a) Individual conduct in an NBC environment.

(b) Procedures for reporting nuclear blasts and suspected or detected presence of chemical and biological agents.

c. Advanced Individual and Basic Unit Training. --A majority of advanced individual training is conducted concurrently with basic unit training. While advance individual training is designed to develop individual proficiency, basic unit training is conducted to weld individuals into effective operating teams. Basic unit training is characterized by combining several operating techniques into elementary exercises. Subject training includes:

(1) Physical Training. --In addition to basic individual physical fitness, training should be conducted daily by the entire unit to maintain a desired level of physical fitness. To ensure proper muscle tone, the type of physical fitness is varied and alternated as appropriate. Approximately 1 hour per day of scheduled physical training is considered ample. See FM 21-20, Physical Training, and TM 21-200, Physical Conditioning, for detailed information.

(2) Parachute Training

(a) Advanced individual training consists of 4 weeks of formal airborne training prescribed by the Department of the Army. Subsequent training includes familiarization with Navy and Marine aircraft normally made available to reconnaissance units, preparation of individual equipment, day and night jumps with complete combat equipment using static activated steerable parachutes. In addition, all parachutist officers and noncommissioned officer team leaders must take prescribed training to qualify as jumpmasters. The reconnaissance unit commander has the authority to designate qualified personnel as jumpmasters. Basic unit training includes preparation of team equipment, team jumps under tactical conditions, and team reassembly in the landing

area. In addition to the 4-week formal airborne course, an additional 2 weeks is required for subsequent advanced individual and basic unit training.

(b) TM 57-220, Technical Training of Parachutists, should be used for the preparation and conduct of parachute training. The criteria for jumpmaster qualifications is contained in TM 57-220, and in subparagraph 405b(3).

(3) Swimmer Equipment Training. --In addition to individual swimmer equipment discussed in subparagraph 405b(2), the reconnaissance team must be thoroughly familiar with equipment used by the team in open water operations. Teams should receive familiarization training in the types of boats to be utilized, and related boat equipment. Instruction is given on the use of boat compasses, metascopes, and submersible cameras. They are instructed in the packing and waterproofing of boat motors, communication equipment, map packets, clothing, and any other equipment deemed appropriate. A period of about 1 week is devoted to this type training. See subparagraph 406c for information concerning inflatable boat training.

(4) SCUBA Qualification Training. --Information is contained in the current series of MCO P1500.12_, Marine Corps Formal Schools Catalog. In addition, the current series of MCO 1500.16_ and MCO 1500.22_ contain information concerning SCUBA qualification and maintenance of diving proficiency requirements.

(5) Surf and Open Water Swimming. --As individuals and teams gain confidence and ability as swimmers, the training program is expanded in surf and open water swimming. Emphasis is on endurance and concealment in heavy surf and calm water by each team member. Approximately 60 hours are devoted to this type training. See subparagraph 406b for additional information and guidance relative to such training.

(6) Submarine Training

(a) Submerged Lockout and Lockin Training. --Both day and night training should be conducted in the techniques of leaving and entering a submerged submarine. Officers and noncommissioned officers are trained in the operation of a submarine escape trunk. Instructions and safety precautions relative to such training are contained in current submarine force and individual submarine instructions. In addition, section 5 of this manual contains pertinent information and guidance.

(b) Duration. --Approximately 2 weeks are required for this type training.

(7) Inflatable Boat Handling

(a) Individuals are assigned to boat teams for training in boat handling and remain with the same boat team throughout the training. Two reconnaissance teams may be trained as one boat team, rotating duties as passenger, coxswain, or as one of the six paddlers in a seven-man inflatable boat.

(b) Information and instructions relative to the conduct of inflatable boat training are contained in subparagraph 406c. A period of about 2 weeks is required for this type of training.

(8) Reconnaissance Patrolling. --Teams are assigned missions which require the members to apply the skills learned in basic individual training. Emphasis is placed on the responsibility and duties of the individual member as they apply to the success of the team as a whole. A minimum of 400 hours should be scheduled for reconnaissance patrolling over a 20-week period. FM 21-50, Ranger Training and Ranger Operations, contains detailed guidance for such training.

(9) Terminal Guidance Training. --Terminal guidance training is conducted on platoon and team basis. Terminal guidance teams provide terminal guidance to assault helicopters. Training primarily consists of reconnaissance techniques employed in the general area of the helicopter loading zone, marking of helicopter landing sites, use of pyrotechnics, clearing of minor obstructions and obstacles within the landing zone, and the use of various radio communication equipment. Approximately 40 hours is scheduled for preliminary training and instruction in terminal guidance procedures. Subsequent training is conducted concurrently with reconnaissance patrolling.

(10) Specific Reconnaissance Techniques and Reporting Procedures. --Teams are assigned missions which require the application of specific collecting, recording, and reporting techniques. The initial training period consists of about 30 hours. Subsequent training is accomplished during reconnaissance patrol training, unit off-base problems, and major fleet exercises.

d. Advanced Unit Training

(1) Advanced unit training may be conducted in support of landing exercises planned by other units or during exercises planned and executed solely by the reconnaissance unit.

(2) Advanced unit training is characterized by the realistic employment of all elements of the reconnaissance unit and includes:

(a) Training of the unit staff.

(b) Training of the unit supply and service elements.

(c) Training of the reconnaissance teams in the complete cycle associated with an amphibious reconnaissance which includes:

1 Team alert and isolation.

2 Briefing.

3 Specific training required by the mission.

4 Embarkation.

5 Rehearsal(s).

6 Landing.

7 Execution of the mission.

8 Reporting by message.

9 Withdrawal and recovery.

10 Debriefing/submission of formal reports.

(3) To integrate the various facets of training, it is most desirable to have unit off-base training culminating in one or more major fleet exercises.

(a) Unit Off-Base Training. --An artificial impression of confidence and capabilities often results when the same general area is used for training and exercises. It is highly desirable that a great portion of the training be conducted, utilizing different beaches, drop zones, and exercise areas. At least half of the training and exercises should be conducted at night. During this phase of training, teams should practice special landing and withdrawal/recovery techniques, evasion, escape, survival, and patrolling. The staff and service support elements participate in such training as deemed appropriate. A total of 4 weeks at varying periods is considered ample for accomplishment of this training.

(b) Major Fleet Amphibious Exercises. --The unit should participate in at least two large-scale amphibious exercises (MEB or larger) annually. To gain maximum training experience, teams should be introduced into the objective area by the various means available. Consideration is given to the rotation of the introductory method among teams if the company participates in more than one large-scale exercise. Approximately 4 weeks should be allotted for large-scale exercises, based upon the Fleet and Fleet Marine Force employment schedules.

406. SPECIAL TRAINING PROGRAMS

To assist the reconnaissance unit commander, his staff, and subordinate commanders, a discussion of open water exercises and inflatable boat team handling is presented below. In addition to assist force reconnaissance company commanders, parachute exercises are also discussed.

a. Parachute Exercises

(1) Designation of Personnel

(a) The reconnaissance unit commander designates the personnel who participate in parachute exercises. Qualification requirements should be established by unit directives.

(b) Examples of such designations are:

1 Parachutist. --A parachutist is any person who is currently assigned to duty involving parachute jumping.

2 Jumpmaster. --A jumpmaster, a qualified parachutist, is an officer or noncommissioned officer who, after having demonstrated a thorough knowledge of jumpmaster techniques, has been assigned such qualification by the reconnaissance unit commander and has been designated to act as such for a specific parachute exercise. He controls parachutists from the time they enter the aircraft until they exit.

3 Assistant Jumpmaster. --The assistant jumpmaster is a qualified parachutist assigned by the reconnaissance unit commander to assist the jumpmaster

for a specific parachute exercise. He may be a qualified jumpmaster himself, or parachutist undergoing jumpmaster training.

4 Drop Zone Controller. --The drop zone controller is a parachutist who, after having demonstrated a thorough knowledge of parachute operations, has been assigned to such duty for a specific parachute exercise by the reconnaissance unit commander.

5 Drop Zone Hospitalman. --The drop zone hospitalman is a medical corpsman assigned to such duty for a specific parachute exercise by the reconnaissance unit commander. He need not be a qualified parachutist.

6 Preflight Rigger. --The preflight rigger is a qualified parachute rigger assigned to such duty for a specific parachute exercise by the reconnaissance unit commander.

(2) Safety Precautions. --The following general safety precautions should be observed during the course of parachute exercises:

(a) Minimum Personnel Requirements. --The minimum personnel requirements for the conduct of parachute exercises in one drop zone are:

1 Jumpmaster.

2 Preflight rigger.

3 Drop zone controller.

4 Drop zone hospitalman.

5 Two parachutists.

(b) Ground-to-Air Communications. --Positive communications between the drop zone controller and the aircraft pilot are required. In addition, if a parachute exercise is conducted on or near an airstrip or air station, communications are required between the drop aircraft and the control tower. While radio will usually suffice, between the drop zone controller and the aircraft pilot, there will be instances in which equipment failure dictates the employment of an alternate means. The following is an example of a visual signal system:

1 Green smoke or steady white light indicates that it is safe to make a live drop.

2 A single red smoke or blinking red light indicates that unsafe conditions exist and the drop is temporarily suspended. This signal must be followed by a green smoke or a steady white light before the exercise may continue.

3 Two red smokes or a steady red light indicates that unsafe conditions exist and that the exercise is canceled, and the aircraft is to return to its base.

4 Air panels corresponding to smoke color codes discussed in subparagraphs 1, 2, and 3 may also be used during daylight exercises. In addition to use

as a control signal, the same panels can be used as a wind "Tee" indicating wind direction and velocity.

(c) Drop Altitude. --Static line jumps should not be executed at altitudes lower than 1,000 feet above the drop zone from fixed-wing aircraft and 1,250 feet above the drop zone from helicopters.

(d) Opening Velocity. --Standard troop parachutes of the T-10 type should not be activated at velocities in excess of 150 knots.

(e) Surface Winds. --Parachute operations should not be conducted if winds on the drop zone exceed 15 knots. Conversely, wind speeds of less than 15 knots are not necessarily safe when considered in conjunction with wind direction and terrain.

(f) Thundershowers. --Parachute operations should not be conducted when there are thundershowers in the immediate area of the drop zone.

(g) Reserve Parachute. --The wearing of a reserve parachute by all scheduled parachutists is mandatory.

(h) Parachute Landings. --Standup landings should not be permitted.

(i) Overwater Flights. --A floatation device should be worn by all parachutists as part of their normal jump equipment whenever the aircraft flight path is over water or whenever a body of water is sufficiently close to the drop zone to warrant their use. Prior to such flights, all personnel should be briefed on ditching procedures and techniques of parachute water landings.

(j) Stick Size. --One-man sticks should not be employed.

(3) Conduct of Parachute Exercises

(a) Parachute Operations Schedule. --An operations schedule, published as a unit bulletin, should be used to notify all participants of the details of a planned parachute exercise. A single schedule may include several planeloads of parachutists using one or more drop zones during a single training period or exercise. The parachute operations schedule should include the following information:

1 Jump number.

2 Date of jump.

3 Type of jump(s).

4 Type of aircraft.

5 Air-to-ground radio frequency.

6 Drop altitude(s).

7 Opening delay(s) (for free-fall jumps).

8 Drop speed and flap setting.

9 Drop zone(s).

10 Requested time of notice to airmen (NOTAM) and/or military clearance.

11 Station time(s).

12 Place of pickup.

13 Estimated drop time(s).

14 Preflight rigger(s).

15 Jumpmaster(s) and assistant jumpmaster(s).

16 Drop zone controller(s).

17 Drop zone hospitalman(men).

18 Participating parachutists and observers (usually listed by plane-load on enclosures to the schedule).

(b) Duties and Responsibilities of the Jumpmaster. --The jumpmaster is responsible for:

1 Conducting a prejump briefing which includes the data contained in the parachute operations schedule and any special instructions such as identification and description of the drop zone.

2 Coordinating all air-ground procedures with the drop zone controller.

3 Assigning and supervising the execution of specific duties of other parachutists who participate in the exercise.

4 Assigning specific duties to the assistant jumpmaster and supervising their execution.

5 Assigning the equipment to be jumped by each parachutist.

6 Assigning the stick order for all parachutists.

7 Ensuring that the station time prescribed by the operations schedule is met.

8 Ensuring that the aircraft is properly prepared for parachute operations. (See TM 57-220, Technical Training of Parachutists.)

9 Ensuring that each parachutist receives two inspections prior to boarding the aircraft, the first of which is conducted by a qualified jumpmaster (or

jumpmaster trainee under the supervision of a qualified jumpmaster) and the second by a qualified parachute rigger. (See TM 57-220, Technical Training of Parachutists.)

10 Coordinating with the pilot regarding all inflight procedures.

11 Briefing the pilot on pertinent portions of the operations schedule and on drop zone location and identification.

12 Furnishing the pilot with a passenger manifest.

13 Controlling the conduct and movement of personnel in the aircraft as directed by the pilot.

14 Relaying flight path corrections to the pilot as the aircraft approaches the drop zone.

15 Obtaining positive information on drop zone wind conditions, aircraft speed, and altitude for each pass over the drop zone.

16 Determining the exit point for each stick.

17 Issuing the jump commands and ensuring their proper execution. In this respect, it must be kept in mind that either the jumpmaster, the drop zone controller, or the aircraft pilot may cancel or suspend an exercise, but only the jumpmaster can order a jump executed.

18 Suspending or canceling the exercise should unsafe conditions arise.

(c) Duties of the Assistant Jumpmaster. --The assistant jumpmaster assists in or performs such jumpmaster duties as the jumpmaster may direct.

(d) Duties and Responsibilities of the Pilot. --The aircraft pilot is responsible for:

1 Coordinating with the jumpmaster in providing a properly equipped aircraft.

2 Preparing the flight manifest.

3 Coordinating with the jumpmaster regarding all inflight and air-ground procedures.

4 Relaying to the jumpmaster all wind and weather data received from the drop zone controller.

5 Notifying the jumpmaster when the aircraft is at the scheduled altitude and airspeed for each pass over the drop zone.

6 Notifying the drop zone controller of the number of parachutists in each stick as soon as the last man in the stick jumps.

7 Ensuring that static lines are drawn into the aircraft after the last parachutist jumps.

8 Suspending or canceling the operation should unsafe conditions arise.

(e) Duties and Responsibilities of the Drop Zone Controller. --The drop zone controller is responsible for:

1 Inspection of the drop zone prior to the exercise.

2 Positioning drop zone markers, if used.

3 Establishing ground-to-air communications, in coordination with the pilot of the drop aircraft.

4 Controlling all personnel and vehicles in the drop zone.

5 Ensuring that the drop zone hospitalman is present in the drop zone during the exercise.

6 Notifying the jumpmaster, via the pilot, of ground conditions for each pass over the drop zone. Should radio communications fail, visual signals must be used.

7 Suspending the exercise in the event of injury until the injured parachutist is removed from the drop zone.

8 Collecting and returning all parachute equipment used in the exercise to the unit loft.

9 Canceling the exercise in the event of a fatality or if unsafe conditions arise.

(f) Duties and Responsibilities of the Preflight Rigger. --The preflight rigger is responsible for:

1 Issuing all parachute equipment.

2 Assisting the jumpmaster and aircraft crew chief in the preparation of the aircraft for parachute operations. (See TM 57-220, Technical Training of Parachutists.

3 Conducting an inspection of each parachutist prior to the exercise. (See TM 57-220.)

4 Performing such other rigger's functions as the jumpmaster may direct.

(g) Duties and Responsibilities of the Drop Zone Hospitalman. --The drop zone hospitalman must be present in the drop zone at the commencement of and during all parachute exercises. He performs such medical functions as may be necessary or as may be directed by the drop zone controller.

b. Open Water Exercises

(1) Safety Precautions. --The following safety precautions are applicable to all open water exercises:

(a) Individuals will not be employed singly.

(b) Inflatable lifevests will be worn by all participants.

(c) Only those individuals qualified as second class swimmers or higher will be allowed to participate.

(d) A knife with a day/night flare attached will be worn by all participants.

(e) Only lightweight, easily jettisoned gear should be attached to the person or clothing of participants.

(f) Divers' dress, either wet or dry type, will be worn when water temperatures dictate.

(g) Open water exercises will not be conducted when the sea state is four or greater.

(h) A medical corpsman must be present in the training area.

(i) Provision will be made for emergency signals applicable to the particular exercise.

(2) Conduct of Open Water Exercises Involving SCUBA.--Exercises involving SCUBA should be conducted in compliance with applicable portions of NAVSHIPS 250-538, U.S. Navy Diving Manual.

c. Inflatable Boat Team Training

(1) Conduct of Boat Team Training.--During the training of boat teams, each member of the team is taught to perform the duties of all crewmembers. Boat team training starts ashore and progresses through stillwater training to boat exercises conducted on open water and in surf. During the latter phases of boat team training, areas are used which demand increasingly greater proficiency in boat handling. Sandy beaches with heavy surf are excellent advanced training areas. Boat team training includes:

(a) Instruction in nomenclature, inflation, stowage, preventive maintenance, and repair of inflatable boats and their accessories.

(b) Use of outboard motors to include preventive maintenance and repair.

(c) Dryland practice of procedures.

(d) Stillwater practice of handling procedures.

(e) Open water practice of handling procedures.

(f) Beaching and launching a boat in surf.

(g) Tactical boat landings and withdrawals.

(2) Inflatable Boat, Small (IBS).--Information relative to the standard IBS used by Navy and Marine reconnaissance organizations is contained in the manufacturer's

instruction manual furnished with each boat. These and similar manuals furnished with outboard motors should be used as references for training in nomenclature, inflation, stowage, care and maintenance of the boats, and the use of outboard motors and boat accessories.

(3) Boat Crew

(a) Composition. --A boat team consists of the boat crew and passengers. The crew of an IBS is seven men: a coxswain and six paddlers. Three paddlers are located along each gunwale and the coxswain is located in the stern. The starboard paddlers are numbered ONE, THREE, and FIVE; the port paddlers are numbered TWO, FOUR, and SIX, from bow to stern. The coxswain is crewmember number SEVEN. If passengers are carried, they are numbered consecutively from bow to stern starting with number EIGHT. All boat team members are addressed by number. When the coxswain wishes to address a command to a pair of paddlers, he may use the terms "ONES," "TWOS", or "THREES" indicating crewmembers number ONE and TWO, THREE and FOUR, and FIVE and SIX, respectively.

(b) Duties and Responsibilities of Crewmembers

1 Number ONE is the stroke. He sets the rate of paddling and maintains the paddling rhythm as directed by the coxswain. He assists the coxswain in keeping the boat perpendicular to the breaker line when beaching or launching the boat. He assists the coxswain in avoiding obstacles in the water.

2 Number TWO also assists the coxswain in keeping the boat perpendicular to the breaker line and in avoiding obstacles. He handles the towline and quick release line during towing operations.

3 Numbers THREE and FOUR are responsible for lashing and unloading equipment in the boat. They are used as scout-swimmers during tactical boat landings, if scout-swimmers are not carried as passengers.

4 Numbers FIVE and SIX assist in lashing and unloading equipment in the after section of the boat. They assist the coxswain in maneuvering in swift currents. They rig and handle the sea anchor.

5 Number SEVEN, the coxswain, is responsible for the performance of the crew and the handling of the boat. He is responsible for the distribution of equipment and passengers in the boat. He issues all commands to crewmembers, maintains course and speed, and operates the outboard motor if it is used.

6 During boat team training all members of the team will not display the same aptitude for boat handling, nor is it necessary that all members acquire the same degree of boat handling proficiency. When a boat team is formed for an operation, as opposed to a boat training exercise, the coxswain should be the team member with the greatest ability as a boat handler, and the stroke should be selected for his strength and ability to maintain a steady rhythm.

(4) Inflatable Boat Commands

(a) Preparatory Commands. --The coxswain will issue preparatory commands to indicate the persons to execute the command to follow. In some instances the preparatory command will include the expression "standby to. . . ."

(b) Forming the Boat Team. --The coxswain forms the boat team by commanding, "Team, FALL IN." The boat team forms facing the coxswain in a column of twos. The crewmembers assume the relative positions they will occupy in the boat. Passengers form at the rear of the two columns by number, even numbers in the left column, odd numbers in the right. After the team has formed, the coxswain commands, "Team, COUNT OFF." All hands sound off with their position numbers in order, including the coxswain, number SEVEN.

(c) Boat Handling Commands

1 LOW CARRY. --Crewmembers lift the boat to about knee height by the carrying handles.

2 HIGH CARRY. --Crewmembers lift the boat to about head height.

3 GIVE WAY TOGETHER. --Paddlers stroke in unison, following the rhythm set by number ONE.

4 HOLD WATER. --Paddlers hold their paddles motionless in the water with the blade perpendicular to direction of motion.

5 BACK WATER. --Paddlers paddle backwards.

6 REST PADDLES. --Paddlers rest their paddles across their legs.

(d) Launching the Boat. --To launch the boat the coxswain commands, "Crew, BOAT STATIONS." Crewmembers form alongside the boat in their relative boat positions. Passengers may be directed to assist in the boat launching. A single passenger will assist the coxswain in handling the stern of the boat. Two passengers are usually directed to assist by carrying the after part of the boat, one on each side behind the THREES. The coxswain then commands, "Standby to launch boat, LAUNCH BOAT." On the preparatory command the team members grasp the boat carrying handles; on the command of execution, team members execute low carry and move into the water at a fast walk. When the depth of the water is such that the boat floats free of the bottom, all hands commence pushing it seaward, remaining in their relative positions alongside the boat. As the water reaches the knees of the first pair of paddlers, the coxswain will command, "ONES IN." The ONES then climb into the boat and give way together. The coxswain orders each pair of paddlers into the boat in succession by commanding, "TWOS IN" and "THREES IN." Each pair of paddlers picks up the stroke of number ONE. The coxswain orders the passengers into the boat after the paddlers by commanding, "EIGHT IN," "NINE IN," and so forth. Passengers board over the stern and move forward in the boat to their boat positions. The coxswain enters the boat last.

(e) Turning the Boat Rapidly. --The coxswain steers the boat with his paddle, called the sweep. If he desires to turn the boat rapidly, he will order the paddlers on one side to back water while those on the other side give way together. Thus, a rapid turn to starboard is executed by commanding, "Starboard, BACK WATER. Port, GIVE WAY TOGETHER."

(f) Paddling Rate. --A paddling cadence of 30 strokes per minute is maintained for open water paddling. A faster rate is necessary when launching a boat through surf and a slower rate is necessary for long distances. The coxswain may order a cadence of 10 to 20 strokes per minute by commanding "REST STROKE." The stroke

decreases to about half of normal cadence and each paddler comes to the position of rest paddle between strokes. Well conditioned paddlers can maintain a rest stroke cadence for hours.

(5) Maintaining Course. --Inflatable boats should be kept perpendicular to the waves in a state three sea, but may take waves off the bow or stern in a state two sea. Consequently, it may be necessary to maintain course by tacking. Strong winds and currents may require the coxswain to steer a compensated course.

(6) Beaching the Boat in Surf. --The coxswain beaches his boat during one of the recurring periods of relatively light breakers that exists between series of heavy breakers. Prior to entering the surf zone the coxswain orders all hands to shift aft to put as much weight as possible in the stern. Even small breakers will capsize a boat if they can raise the stern out of the water. As the boat enters the surf zone the coxswain keeps the boat perpendicular to the surflines assisted by the ONES who may back paddle as necessary. The paddlers take advantage of the momentum of each wave by paddling faster as the wave raises the boat. The coxswain periodically observes the sea astern of the boat, but paddlers never look astern since they must concentrate on maintaining the cadence. The coxswain sounds with his sweep and orders the crew to disembark when the water is waist deep. The crew grasps the carrying handles and pushes the boat as far as it will float, carrying it at low carry thereafter. The coxswain may order the boat overturned at the water's edge to empty it of water. The greatest possibility of capsizing or swamping exists just before a boat is beached because of the difficulty of keeping it perpendicular to the surf in the turbulence caused by incoming waves meeting the backrush of water from the beach.

(7) Launching the Boat in Surf. --The coxswain launches his boat in surf during a period of relatively light breakers. He takes advantage of rip currents if they are present. As each pair of paddlers embarks, they shift forward in the boat to put as much weight as possible in the bow. Number ONE sets a fast, strong cadence without waiting for orders from the coxswain. In moderate or heavy surf the boat crew has little chance of making successful transit of the surf zone if the boat is not through the zone before the next series of relatively heavy breakers arrives.

(8) Overturning and Righting the Boat in the Water. --A coxswain may wish to empty a swamped boat by overturning it and righting it in the water, or he may wish to right a capsized boat. A boat is overturned and righted by the same procedure. The coxswain, holding all the paddles, and all but three members of the boat team stay in the water during the overturning or righting. Lines are passed through the carrying handles along one side of the boat. The three remaining paddlers grasp these lines, stand on the opposite side of the boat and fall backward into the water. They are assisted as necessary by the three paddlers in the water. (See fig. 1.)

(9) Tactical Boat Landings and Withdrawals. --Boat teams conduct minor tactical exercises during training to demonstrate and improve their boat handling ability under operational conditions. During these boat training exercises, all members of the team are trained to perform the duties of all other members. The instructor assumes the role of patrol leader for the exercise. Prior to conducting the exercise, the team members are given a fragmentary patrol order covering the landing and/or withdrawal procedures and the boat team assignments. The instructor sets the course for landing and issues all of his instructions to crewmembers through the coxswain, just as the patrol leader would do in an operation.

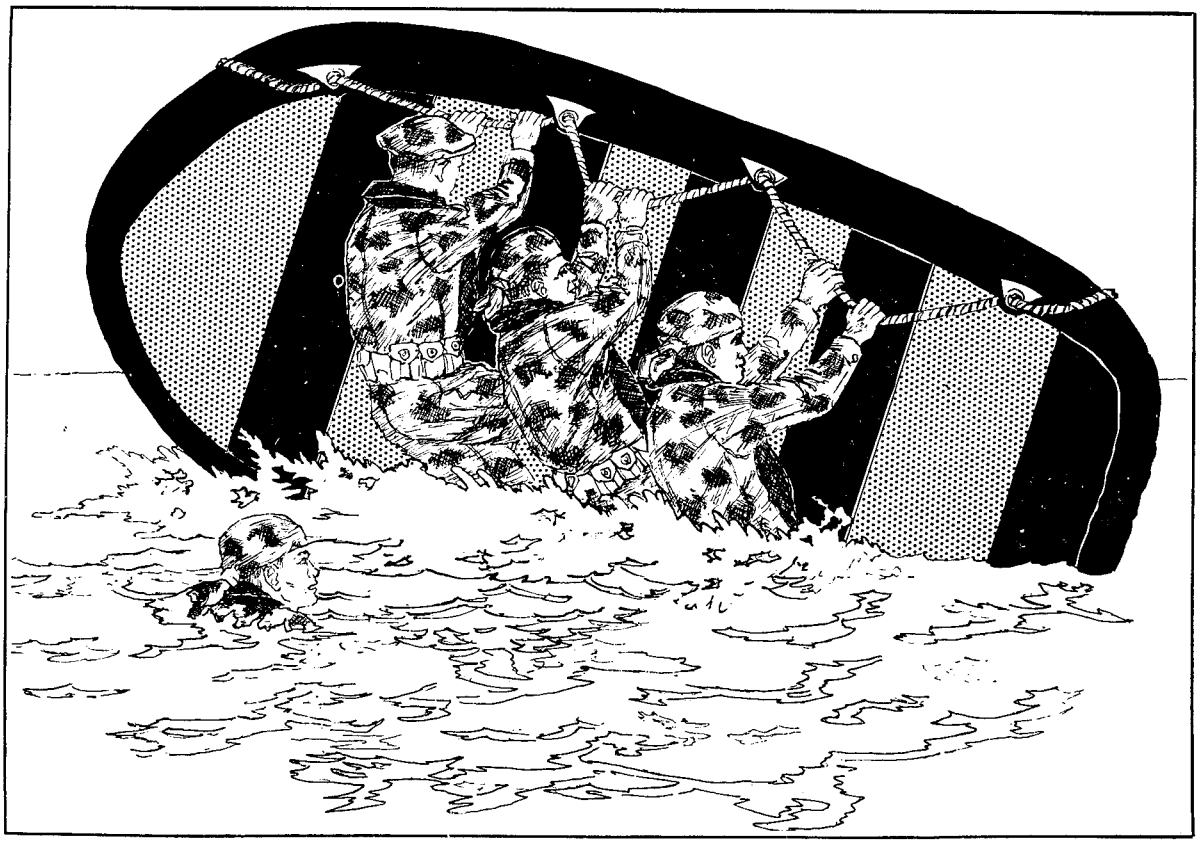
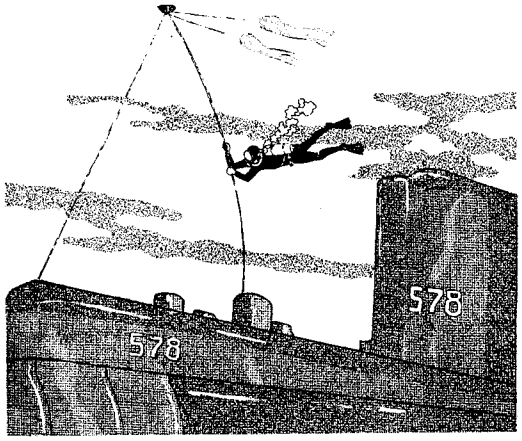


Figure 1. --Overturning or Righting the Boat in the Water.

(a) Tactical Landings. --As the boat approaches the surf zone, the instructor orders the coxswain to lie to outside the surf zone and maintain position relative to the beach. The instructor then orders the coxswain to send in his scout-swimmers. The coxswain commands, "TWOS OUT," and crewmembers THREE and FOUR enter the water and swim to the beach. Scout-swimmers must avoid splitting a breaker line or foam line because such splitting results in their being silhouetted against a white foam background. The scout-swimmers determine the presence or absence of enemy in the landing area, usually by moving singly about 50 yards in opposite directions after they reach the beach. When they have determined that the landing area is free of enemy, they signal the boat team that the landing area is clear, usually by using a filtered, hooded flashlight for a prearranged light signal. The scout-swimmers signal from the point selected by them as most suitable for landing. After signalling the boat, the scout-swimmers move in opposite directions away from the landing point to listening and observation positions. These security positions are at the limit of visibility from the landing point. When the boat team receives the signal from the scout-swimmers, the instructor orders the coxswain to beach his boat at the point from which the signal originated. After the boat is beached, the instructor orders it hidden and camouflaged as previously covered in his fragmentary patrol order.

(b) Tactical Withdrawals.--During the initial exchange of recognition signals, assistant instructors may be employed either at sea in another boat or hidden ashore to simulate the recovery vessel. The boat team remains hidden near the boat cache during this exchange. The instructor then orders a pair of scouts forward to determine if the withdrawal area is clear of enemy. These scouts reconnoiter the cache to see if it has been disturbed and observe the beach for the presence of enemy. After they have reported that the area is clear, the instructor orders the coxswain to prepare the boat for withdrawal. In some cases, this will require that the boat be inflated from air bottles or hand pumps. During this preparation the instructor posts individual scouts just short of the limit of visibility from the cache to warn of the approach of enemy. Usually, one observer is posted at each flank of the withdrawal area while the instructor observes the route previously taken by the boat team on their way to the cache. The coxswain informs the instructor when the boat is prepared for withdrawal. The instructor orders the coxswain to launch the boat. Just before the boat enters the water the instructor calls his security observers to the boat, where they take their boat team positions, usually as TWOS. The coxswain then assumes control of all hands for the launching.



SECTION 5

OPERATIONS FROM A SUBMARINE

501. GENERAL

This section provides information and guidance relative to the peculiarities of submarines and their effect on reconnaissance elements operating therefrom.

502. EMBARKATION

a. Preliminary Planning.--The characteristics of the particular submarine to be employed are ascertained prior to the commencement of embarkation planning. While the characteristics mentioned in this section are general in nature and apply to most submarines, differences exist in both internal and external configuration among the various classes of submarines and even among submarines of the same class. If the particular submarine to be employed is unavailable for inspection, its characteristics are obtained from the type command headquarters and a visit made to a similarly configured submarine.

b. Stowage of Troop Cargo and Equipment

(1) Within the Pressure Hull

(a) Cargo and equipment should be packaged with handles for lowering. Hatch size determines the maximum dimensions of individual packages; usually, hatches are of 25-inch diameter. All packages should be waterproofed and marked for identification.

(b) If outboard motor fuel must be stowed within the pressure hull, standard supplementary outboard motor fuel containers should be used.

(c) Small amounts of pyrotechnics usually may be stowed with the ship's flares.

(d) The weight of cargo and equipment and its stowed location should be furnished the ship's diving officer to enable him to compute trim.

(2) Outside the Pressure Hull

(a) Various items, such as deflated boats, which are not subject to pressure damage may be stowed in free-flooding cargo spaces outside the pressure hull. Prior to stowage, sharp objects or sea growths in these spaces should be padded or removed.

(b) For very short submerged trips, deflated boats may be stowed on deck, lashed securely with cargo nets or steel cables.

(c) Some submarines are equipped with pressure-proof lockers outside the pressure hull. Such lockers should be used for the stowage of inflammables.

503. TROOP LIFE WHILE EMBARKED

a. Duration. --Troops should be embarked aboard submarines for the shortest time consistent with the requirements of the operation. When possible, embarkation should be conducted at forward bases or at sea near or within the objective area.

b. Troop Routine. --Daily troop routine must be compatible with the daily operating routine of the submarine. Conditions are such that the following restrictions usually apply:

(1) Movement between compartments is held to a minimum.

(2) Physical exercise is not practical.

(3) Water discipline is strict. No laundry or shower facilities for troops should be anticipated.

(4) Troops are allowed topside only occasionally and then in limited numbers.

(5) Messing and berthing facilities are severely limited. It may be necessary to berth troops in the crew's bunks on a rotational basis.

(6) All troop activities are coordinated between the troop commander and the submarine commander.

(7) Submarine operating procedures are precise and strictly observed. While it is desirable that troops know and understand these procedures, embarked troops are not normally allowed to participate in the operation of the submarine except in occasional instances and then only under supervision.

504. DEBARKATION

a. General Procedures. --Tactical debarkation of either swimmers or boat teams may be conducted from a surfaced or submerged submarine. Regardless of the method used, the following general procedures should be observed:

(1) Crewmembers and troops should be briefed on the debarkation plan and the specific duties and station of each participating individual.

(2) Equipment to be debarked or used during debarkation should be inspected and prepared for debarkation prior to manning debarkation stations.

(3) The crew should man debarkation stations first; the debarking troops last.

(4) Debarking troops should be oriented in relation to the landing area and briefed on sea and surf conditions.

(5) A rehearsal should be conducted prior to any tactical debarkation.

b. Surface Debarkation of Swimmers

(1) Swimmers may debark from the conning tower of a broached submarine. Debarkation of more than one pair of swimmers will usually require that the upper and lower conning tower hatches be open simultaneously, a practice not always safe when broached. In such cases, the submarine will usually surface with decks awash.

(2) Duties of submarine crewmembers include manning and opening all hatches and assisting each pair of swimmers in the handling of equipment.

(3) Pairs of swimmers are called topside by number. Pairs may form, with their equipment, in the control room. If space permits, the first swimmer pair may take station in the conning tower prior to surfacing.

(4) Swimmers debark in pairs, with their equipment, in the lee of the submarine. Debarkation of each pair is usually ordered by the submarine commander.

c. Surface Debarkation of Boat Teams

(1) Duties of submarine crewmembers include:

(a) Manning and opening all deck hatches.

(b) Preparing the boats for launching. If outboard motors are to be used, they should be mounted prior to launching.

(c) Launching the boats and handling bow and stern lines.

1 Boats should be launched in the lee of the submarine and may be launched either forward or aft of the conning tower.

2 Debarkation of troops is expedited if the boats are positioned to take advantage of hull appendages which offer handholds and footholds.

3 Submarine freeboard should be the minimum consistant with safe operating procedures.

(2) Boat teams are called topside by number through assigned hatches. The coxswain leads, followed in order by the stroke, the outboard paddlers, the passengers, the inboard paddlers and the equipment.

(3) Boat teams embark in their boats in the same order that they come topside, except that the coxswain and stroke will receive and position the equipment in the boat prior to the other boat team members' embarking.

(4) Boats are normally cast off on order of the submarine commander.

d. Submerged Debarkation of Swimmers

(1) Surface swimmers use the buoyant ascent method in debarking from the submerged submarine.

(2) Duties of crewmembers include trunk operation or the supervision thereof and the manning and opening of the lower escape trunk hatch.

(3) Swimmers form in the forward torpedo room with their equipment. Each team enters the escape trunk and debarks on order of the submarine commander. The escape trunk should be flooded from within by a team member and drained by crewmembers in the torpedo room after the team has locked out. Individual ship's emergency bills contain instructions relative to escape trunk operation.

e. Submerged Debarkation of Boat Teams

(1) Boat teams may debark from a bottomed submarine in the same manner as swimmers.

(2) Duties of crewmembers include escape trunk operation or the supervision thereof and the manning and opening of the lower escape trunk hatch.

(3) Two SCUBA-equipped swimmers and the boat team to be debarked form in the forward torpedo room with their equipment.

(4) The two divers are locked out first and are used to release a deflated boat secured on the main deck, surface the boat, inflate it, and secure it to prevent drifting. The boat team debarks as swimmers through the escape trunk in two increments. After the second boat team increment has debarked, the two divers may enter the already flooded escape trunk and lock in.

f. Factors Affecting Debarkation

(1) The procedures discussed in the preceding subparagraphs by no means encompass all of the techniques which may be employed to debark reconnaissance troops. Others, such as towing manned boats into the objective area by a submerged submarine and by diving a submarine from under manned boats on the submarine's deck, have been successfully employed. Before selecting a particular procedure, however, the following factors should be considered:

(a) Security of the Submarine. --From the standpoint of security of the submarine:

1 Submerged operations are preferred to surfaced operations.

2 Underway operations are preferred to operations conducted while bottomed at periscope depth.

3 Either surfaced or submerged operations are preferred to operations conducted from a broached submarine.

(b) Simplicity of the Debarkation Operation. --From the standpoint of simplicity:

1 Surfaced debarkation is preferred to submerged debarkation.

2 Launching boats over the side is preferred to diving the submarine from under manned boats.

3 The use of swimmers is preferred to the use of boat teams.

4 Stationary debarkation is preferred to debarkation underway.

(2) Conditions may well dictate the use of a particular procedure or technique for debarkation; however, the procedure used should be the simplest possible consistent with operational security.

505. RECOVERY

a. General Procedures. --Tactical recovery of either swimmers or boat teams may be made aboard a surfaced or submerged submarine. Regardless of the method used, the following general procedures should be observed:

(1) Crewmembers and troops should be completely familiar with the recovery plan and the specific duties of each participating individual.

(2) Equipment to be used during recovery should be inspected and prepared well before recovery stations are manned.

(3) Whenever possible, a rehearsal should be conducted for the benefit of the ship's crew with either the same troops to be recovered or other embarked troops using the same recovery techniques.

(4) Prior to leaving the beach, either as swimmers or in boats, troops to be recovered should make positive contact with the recovery submarine. Several methods of making contact have been satisfactorily employed, all of which involve the transmission and acknowledgment of a short prearranged signal transmitted at a prearranged time.

b. Vectoring or Homing. --It is unlikely that physical contact between troops to be recovered and a submarine can be made at night without using a vectoring or homing system. While no specific procedures will be discussed in this manual, some useful techniques are listed below:

(1) Use of Underwater Sound. --Two-way underwater sound communication is possible. Equipment is available that can provide the capability for two-way underwater sound. Also, the submarine's passive listening devices, such as the JT hydrophone, may be used to give accurate bearings to any source of underwater sound provided the sound is sufficiently well defined to be distinguished above the background noise.

(2) Use of Radar. --Surface search radar may be used to give accurate ranges and bearings to an inflatable boat. The effects of sea return at short ranges may be countered by hoisting a portable radar reflector in the boat.

(3) Use of Infrared Light. --Infrared light may be used as a homing beacon for a boat team equipped with a metascope. Two-way infrared communication is also possible using infrared equipment.

(4) Use of Visible Light. --Visible light may be used as a beacon or for two-way communications.

c. Recovery of Boat Teams. --Boat teams may be recovered aboard a surfaced submarine through the conning tower or a main deck hatch. Duties of submarine crewmembers and boat team members are the same as those for debarkation. A recovery is executed in the inverse order of a debarkation with the exception that an outboard motor, if used, is hoisted aboard the submarine prior to hoisting the boat aboard.

d. Surfaced Recovery of Swimmers. --Swimmers may be recovered aboard a surfaced submarine via the conning tower or a main deck hatch in a manner similar to boat team recovery.

e. Submerged Recovery of Swimmers. --Swimmers may be recovered aboard a submerged submarine either bottomed or underway. Small air tanks or air hoses with demand regulators may be attached to descending lines to provide the swimmers with an air source during descent to the forward escape trunk.

(1) Bottomed Recovery. --Swimmers descend a buoyed line from the surface to the vicinity of the escape trunk door. The trunk is flooded, lighted, and opened to receive swimmers prior to the commencement of recovery operations. Swimmers lock-in in increments of four per cycle as in debarkation. The last pair of swimmers to descend retrieves the buoyed surface line and air sources.

(2) Underway Recovery. --Underway recovery of swimmers is conducted in essentially the same manner as a bottomed recovery except that physical contact between swimmers and submarine is facilitated by the swimmers stretching a line across the path of the approaching periscope or buoy. During the recovery operation, the submarine must proceed at minimum speed. Recovery of more than four swimmers during a single pass by the submarine is impractical.

f. Factors Affecting Recovery

(1) The procedures and techniques discussed in preceding subparagraphs are general in nature and do not encompass all of the procedures which may be employed to recover reconnaissance troops. As in debarkation, certain factors should be considered prior to selecting the recovery procedure to be employed on a particular operation. These factors include:

(a) Security of the Submarine. --From the standpoint of security of the submarine:

1 Submerged operations are preferred to surfaced operations.

2 Underway operations are preferred to operations conducted while bottomed at periscope depth.

3 Passive listening is preferred to the active use of the submarine's radar, sonar, underwater communication equipment, or radio.

4 The use of underwater sound is preferred to the use of light or other electromagnetic transmissions.

(b) Simplicity of the Recovery Operation. --From the standpoint of simplicity:

1 The practice of maneuvering a submarine to contact stationary swimmers or boat teams is preferred to the practice of requiring troops to maneuver to contact a stationary submarine.

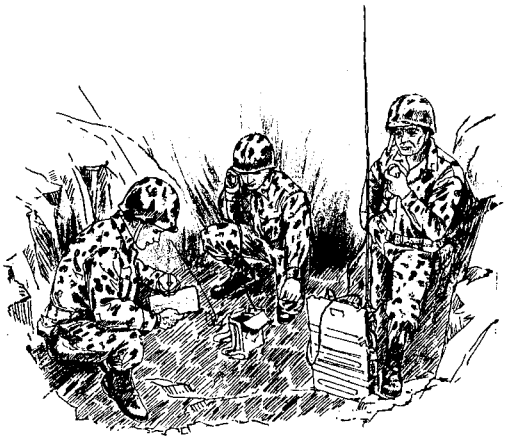
2 The use of purely mechanical noisemakers is preferred to the use electronic signal devices.

3 Surfaced recovery is preferred to submerged recovery.

4 Stationary recovery is preferred to underway recovery.

5 The use of swimmers is preferred to the use of boat teams.

(2) As in debarkation, conditions may dictate the use of a recovery procedure, whether described herein or not; however, in each operation, the procedure used should be the simplest possible consistent with operational security.



SECTION 6

PATROL COMMUNICATIONS

601. GENERAL

This section discusses the communication requirements of amphibious reconnaissance patrols and provides information and guidance relative to meeting these requirements.

602. COMMUNICATION REQUIREMENTS

a. Principal Requirement. --In an amphibious reconnaissance, the principal communication requirement is for the passing of collected information from the collecting agency to the requesting headquarters. The problem of meeting this requirement is complicated by the following:

(1) The need for security.

(2) The distances usually encountered.

(3) The physical limitations on the amount of equipment which may be carried by a patrol.

b. Secondary Requirement. --A secondary requirement exists for communications between a patrol and its recovery vessel, whether aircraft or ship, for the transmission of recognition, authentication, vectoring, or homing signals. The problem of meeting this requirement is complicated primarily by the environmental conditions under which such a requirement must be met. Communication techniques related to recovery of patrols at sea are discussed in paragraph 505.

c. Additional Considerations. --Communication requirements for a particular patrol will vary with the following:

(1) The mission of the patrol.

(2) The time schedule of the operation.

(3) The method of recovery.

603. SELECTION OF EQUIPMENT

The selection of equipment for each reconnaissance patrol should be based on:

a. The needs of that patrol.

b. Equipment available for employment.

c. Range desired.

d. Availability of relay facilities.

e. Communication security requirements.

604. PREPARATION OF EQUIPMENT

a. General. --The reliability of equipment in the field depends primarily upon the care exercised in preparing the equipment for transportation and use.

b. Waterproofing

(1) Requirement. --Waterproofing of equipment in many instances entails more than protecting the equipment against moisture or momentary immersion; it requires that each piece of equipment be rendered waterproof under conditions of prolonged immersion, often under pressure.

(2) Technique. --Equipment to be waterproofed should be cleaned, prepared for operation, tested, and broken down into major components for packaging. The components are then padded and sealed in separate Pliofilm containers. Each piece is resealed in a second waterproof container of more durable material than Pliofilm. If a suitable waterproof outer container is not available, a second layer of Pliofilm should be used, covered with canvas or other heavy-duty covering.

c. Packaging for Aerial Delivery

(1) Requirement. --The nature of aerial delivery requires that equipment be packaged to withstand the shock of landing.

(2) Technique. --Whenever possible in parachute operations, communication equipment should be carried by individual parachutists. If it is necessary to use separate bundles, the sensitive components of the equipment should be carried by individuals and the less sensitive components packaged for separate drop. TM 57-220, Technical Training of Parachutists, contains instructions relative to padding and packaging equipment.

605. EMPLOYMENT TECHNIQUES

a. General. --There are several techniques which may be used to provide relatively secure long-range transmission employing low-power portable equipment.

b. Range. --Range may be increased by employing a relay station or using skywave propagation.

(1) Retransmission. --Various types of ground communication equipment may be used to transmit information to an offshore ship or aircraft for retransmission to the requesting headquarters. The use of supplementary antennas will increase the inland distance over which such a retransmission method may be used. Patrols operating well inland may send information through friendly aircraft utilizing either automatic or manual retransmission techniques.

(2) Skywave Propagation. --Reliable communications at ranges up to several thousand miles may be obtained from current high frequency ground communication equipment using skywave propagation. This is a physical phenomenon associated with the effect of the ionosphere on radio waves. Radio waves radiate in all directions; those which follow the curvature of the earth are known as groundwaves; those which travel in straight lines are known as skywaves. Some skywaves are refracted back to the earth by the ionosphere and may be received on this first skip or reflected by the earth and received on the second or third skips. The distance between the transmitter and the point on earth at which the skywaves may be received on the first skip is known as skip distance. The skip distance for a given frequency will change with the time of day, the season, and the latitude and longitude of the transmitter. If the locations of the transmitting station and the receiving station and the time of transmitting are known, a frequency can be selected which will result in the distance between the two stations being a multiple of the skip distance for that frequency. The best frequency for skywave transmission between two known points during a particular time period may be predicted by using the Navy Publication DNC-14 and U.S. Army Strategic Communication Command, Intermediate Distance Skywave Propagation Chart (100-1,500 miles).

c. Security. --Communication security may be enhanced by:

(1) Limiting transmission time.

(2) Scheduling transmissions at random intervals.

(3) Scheduling frequency changes.

(4) Using directional equipment.

(5) Reducing power output to lowest level consistent with reliability.

606. ANTENNA SELECTION

a. Requirements. --For direct patrol communications, an antenna should be selected which best meets the needs of the specific patrol. In one case, range requirements will permit the use of organic radios with either the component antenna or auxiliary antenna equipment for groundwave transmission. In another case, range requirements will be such that skywave propagation is necessary. There are several easily constructed antennas which may be used with current ground equipment for skywave propagation. For details of construction, see FM 24-18, Field Radio Techniques. A third case exists in which direct radio communications is not possible due to the receiving station being just beyond groundwave range for current portable equipment but inside the minimum range for skywave propagation. In this case, a retransmission station must be used and

antenna selection will then depend upon the range from the transmitting station to the retransmission station rather than to the receiving station.

b. Skywave Antenna. --As discussed in subparagraph 605b(2), the best frequency for skywave propagation can be predicted if the location of the transmitting and receiving stations and the transmitting times are known. Antenna length will depend upon the frequency to be used. The elevation of a horizontal antenna will depend upon the range desired. Generally, a half-wave horizontal antenna will give good results in skywave propagation.

607. ANTENNA SITING

a. General. --The terrain adjacent to the antenna site in the direction of the receiving station will have a considerable effect upon antenna efficiency.

b. Desirable Sites. --Types of terrain sites are listed below in the order of preference:

(1) Large bodies of water.

(2) Large flat open fields.

(3) Fields sloping down from the antenna.

(4) Lightly-wooded ground sloping down from the antenna.

608. COMMUNICATION TRAINING

Since any member of an amphibious reconnaissance patrol may be required to initiate or receive radio transmissions, either voice or International Morse Code, basic individual training should always include special training in communication requirements and techniques employed by reconnaissance teams. Communication training applicable to personnel of reconnaissance units is discussed in paragraph 405b(7).

SECTION 7

REPORTING PROCEDURES

701. GENERAL

This section discusses reporting procedures associated with reconnaissance of landing areas; that is, beach, hydrographic, and helicopter landing area surveys, and surf observation. Although the section is devoted to terrain and hydrographic characteristics only, it reflects the mandatory requirement that all patrols report all enemy information collected incident to any reconnaissance.

702. STANDARDIZATION OF TERMS

The terms used in this section to describe terrain or hydrography are standard throughout the Navy and Marine Corps and are defined in the glossary to this manual. Descriptive terms used in any report submitted after a reconnaissance must be used accurately.

703. BEACH SURVEY

a. Scope of the Survey. --A beach survey involves the collection of data describing the physical characteristics of a beach; that is, an area whose boundaries are a shoreline, a coastline, and two natural or arbitrarily assigned flanks. The survey may be conducted openly or clandestinely. Reconnaissance troops are normally involved in clandestine surveys and are used to collect or verify any or all of the descriptive data listed in subparagraph 703b(2). A reconnaissance conducted to obtain information about the enemy on or near a beach is not a beach survey, even though such information, when collected, is always included in the survey report.

b. Beach Survey Report. --A beach survey report is a written report consisting of three sections. The report may be accompanied by sketches, overlays, annotated charts, photographs, exposed film, and soil and vegetation samples appended as

appropriate to clarify or amplify the information contained in the report. The three sections of the report are the heading, the beach description, and the observed enemy situation.

(1) Heading. --The heading contains the miscellaneous data which is used by the receiver to evaluate the information contained in the rest of the report. The heading includes:

(a) The date the report is submitted.

(b) The identity and mission of the unit conducting the survey.

(c) The identity and location of the beach surveyed.

1 Reference maps or charts used.

2 Designation or name of the beach.

3 Coordinates of the beach flanks.

4 Landmarks used for identification and their position relative to the center of the beach.

(d) The date and time the survey started and was completed.

(e) The datum plane used to determine the shoreline.

(f) A brief description of the conditions under which the survey was conducted to include weather, visibility, and enemy interference.

(g) A list of items appended to the report.

(2) Beach Description. --The beach description section contains data used to evaluate the suitability of a beach for amphibious operations. As such, it is the body of the report and must be detailed and precise. Descriptive data includes:

(a) Beach length and configuration.

(b) Usable beach length.

(c) Beach interruptions and obstacles.

(d) Type of coastline.

(e) Foreshore description.

1 Width.

2 Gradient.

3 Composition.

(f) Backshore description.

1 Width.

2 Gradient.

3 Composition.

4 Vegetation.

5 Exits.

(3) Observed Enemy Situation. --The enemy situation section contains ALL information about the enemy which may have been collected during the beach survey. The section includes a precise discussion of all manmade objects on the beach, whether or not such objects were obviously erected as part of a beach defense. The discussion of enemy defenses and activities is not limited to those occurring on the beach proper, but includes all such defenses and activities observed.

704. HYDROGRAPHIC SURVEY

a. Scope of the Survey. --Hydrography is the science of describing and studying bodies of water. In amphibious operations, hydrography is the science of describing and studying the sea and marginal land areas and their effects on such operations. A hydrographic survey involves the collection of information about the area in which landing craft are beached and into which troops disembark; that is, the area consisting of the foreshore and the nearshore sea approach. It is apparent that a hydrographic survey and a beach survey overlap in that they both involve the collection of data relative to the foreshore area. The survey may be conducted openly or clandestinely. Reconnaissance troops, when used, are normally involved in clandestine surveys and are used to collect or verify any or all of the descriptive data listed in subparagraph 704b(2). Hydrographic surveys are usually conducted by UDT personnel, but such tasks may be assigned to Marine reconnaissance troops.

b. Hydrographic Survey Report. --A hydrographic survey report is a written report consisting of three written sections and a hydrographic sketch. It may be accompanied by other overlays, photographs, exposed film, and the bottom samples of foreshore or nearshore approach appended as appropriate to clarify or amplify the information contained in the report. The three written sections of the report are the heading, the hydrographic description, and the observed enemy situation. The hydrographic sketch is a scale drawing of the nearshore and foreshore areas as seen from above.

(1) Heading. --The heading contains miscellaneous data which is used by the receiver to evaluate the information contained in the rest of the report. The heading includes:

(a) The date the report is submitted.

(b) The identity of the unit conducting the survey.

(c) The mission assigned to the unit conducting the survey.

(d) The identity and location of the area surveyed.

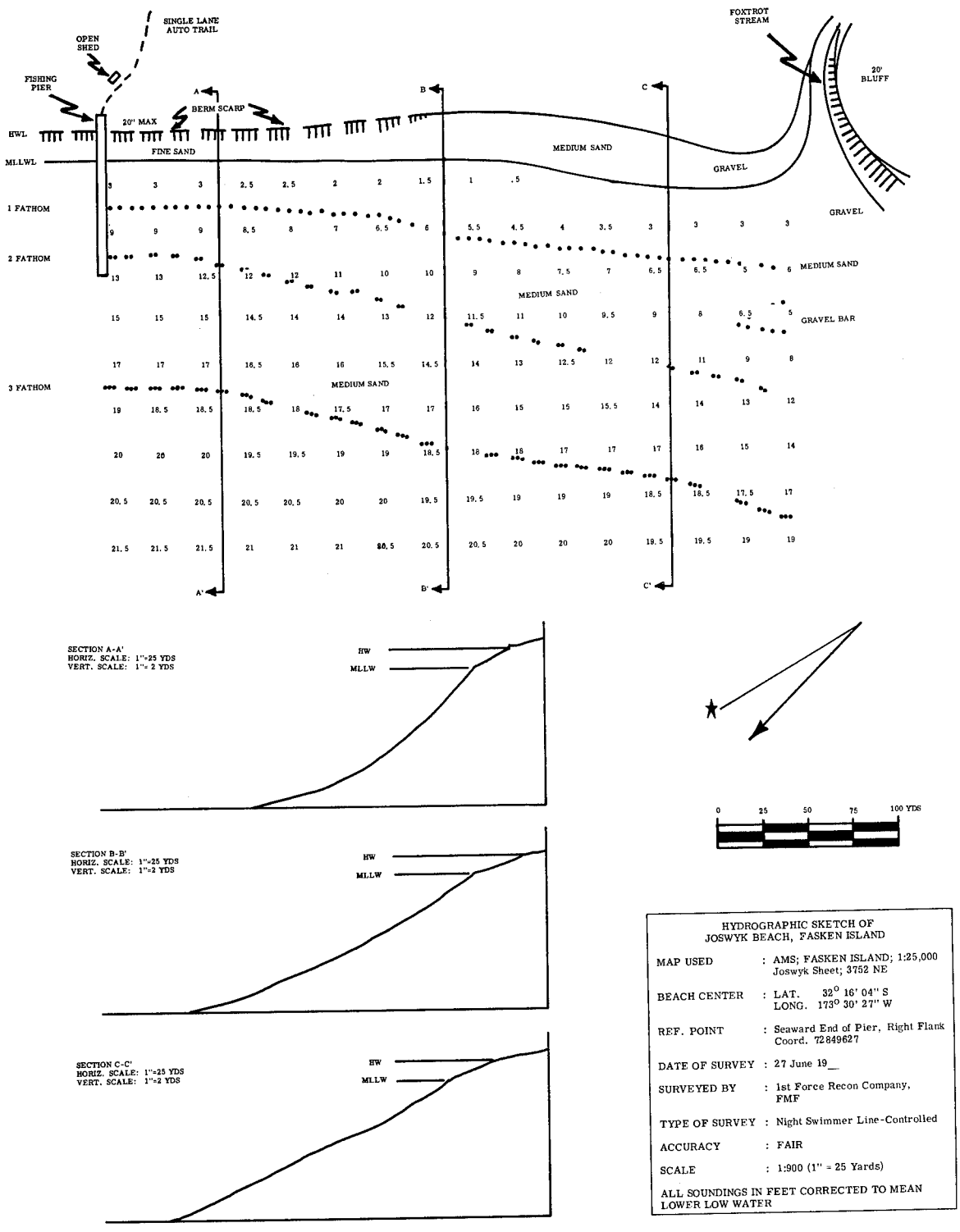


Figure 2. --The Hydrographic Sketch.

1 Reference maps or charts used.

2 Designation or name of the beach.

3 Coordinates of the beach flanks.

4 Landmarks used for identification and their position relative to the center of the beach.

(e) The date and time the survey started.

(f) The date and time the survey was completed.

(g) The datum plane used to determine the shoreline.

(h) A brief description of the conditions under which the survey was conducted to include weather, visibility, and enemy interference.

(i) A list of items appended to the report.

(2) Hydrographic Description. --The hydrographic description section, with the hydrographic sketch, contains data used to evaluate the suitability of a beach for an amphibious landing. As such, it must be detailed and precise. Descriptive data includes:

(a) Beach length.

(b) Beach configuration.

(c) Beach interruptions.

(d) Type of backshore.

(e) Surf characteristics.

(f) Inshore currents.

(g) Tidal ranges and times.

(h) Nearshore description.

1 Distance from the shoreline to the 1-, 2-, and 3-fathom curves.

2 Gradient.

3 Bottom composition.

4 Reefs, bars, shoals, or seaweed.

5 Other obstacles.

(i) Foreshore description.

1 Width.

2 Gradient.

3 Composition.

4 Runnels, cusps, or scarps.

5 Other obstacles.

(3) Observed Enemy Situation. --The enemy situation section contains ALL information about the enemy collected during the hydrographic survey. The section contains a precise discussion of all manmade objects in the area surveyed, whether or not such objects were obviously erected as part of a beach defense. The discussion of enemy defenses and activities is not limited to those occurring in the nearshore and foreshore areas, but includes all such defenses and activities observed.

(4) Hydrographic Sketch. --The hydrographic sketch is a graphic presentation of the nearshore and foreshore areas. It is a 1:900 or 1:1800 scale drawing which shows the shoreline, the one, two, and three fathom curves, the foreshore, obstacles, cultural features, beach flanks, and beach interruptions as seen from above. The sketch depicts the nearshore and foreshore gradients by showing three cross sections taken at the beach center and in the middle of the right and left sections of the beach. The vertical and horizontal scales of the cross sections may differ from the scale used for the main sketch. The vertical scale of the cross sections is usually larger than the horizontal scale of the cross sections. All soundings taken by the survey party are shown on the sketch. An example of a hydrographic sketch is shown in figure 2.

c. Collecting Soundings

(1) General Conditions. --The accuracy of the hydrographic sketch depends upon the precision with which bottom soundings are taken and the precision with which obstacles are located. The location and depth of soundings and the location and depth of obstacles are determined in the same manner. The necessary conditions for the collection of accurate soundings are:

(a) The depth measurement must be accurate.

(b) The time at which the measurement is taken must be accurate.

(c) The location of the point at which the measurement is taken must be accurate.

(2) Measuring the Depth. --Water depth may be measured accurately by using a lead line or fathometer for surface soundings, and a wrist depth gauge for submerged soundings.

(3) Determining the Time of Soundings. --All watches used by survey parties should be checked against a chronometer both before and after the survey. Inaccuracy by a few seconds is insignificant, but inaccuracy by a few minutes may cause distortion on the finished sketch, particularly in areas having an extreme tidal range. Most soundings are corrected to mean lower low water (the datum plane used to describe heights of tides) by adding or subtracting the tidal height from the depth measured; consequently, the time

at which each sounding is taken must be accurately recorded so that the height of tide at that time can be computed.

(4) Determining the Position of the Sounding. --There are several methods of determining the position of soundings. The most common methods used are the intersection method for open or administrative surveys and the base line method for clandestine surveys. All survey methods are dependent upon accurately locating one or more points and then locating the positions of the soundings in relation to these points. Because hydrographic sketches are prepared on a 1:900 or 1:1800 scale, soundings are usually taken at 25- or 50-yard intervals.

(a) Intersection Method. --The intersection survey method uses two plotting parties, a pair of rangemarks and a sounding party in a boat. The two plotting parties locate themselves accurately by resection at each flank of the beach being surveyed. The sounding party in the boat proceeds toward or away from the beach taking soundings at approximately 25-yard intervals. The sounding party maintains its course perpendicular to the beach by keeping the two rangemarks aligned. As each sounding is taken, the water depth and time is recorded by the sounding party who signals the plotting parties. The azimuth to the sounding party and time of each sounding are recorded by each plotting party. As each run perpendicular to the beach is completed, the rangemarks are moved approximately 25 yards down the beach for the next run. The accuracy of the survey does not depend upon the accuracy with which the rangemarks are placed but rather upon the accuracy of the azimuths recorded by the plotting parties.

(b) Base Line Method. --The base line survey method uses a base line marked at 25-yard intervals. One end of the base line is located accurately, the line is stretched taut and the azimuth along the line is taken. Swimmers station themselves at each 25-yard marker and swim on a course perpendicular to the base line recording soundings and times every 25 yards. Each swimmer may be provided with a line marked in 25-yard intervals to determine the sounding intervals, or only the two flank swimmers may be provided with such lines. In the latter case, all swimmers are required to stay abreast of the flank swimmers. All methods such as the swimmer-line controlled survey and the parallel survey are variations of the base line survey. The inherent difficulty of using this method lies in the inability of swimmers to stay on a course perpendicular to the base line; consequently, these surveys, particularly if conducted at night, are not as accurate as open surveys conducted by intersection.

(5) Conduct of the Hydrographic Survey. --Detailed information relative to the conduct of hydrographic surveys is contained in TM 5-235, Special Surveys.

705. HELICOPTER LANDING AREA SURVEY

a. Scope of the Survey. --A helicopter landing area survey involves the collection of data describing the characteristics of a proposed or selected helicopter landing area. The area may be a landing zone, a landing site, or a landing point as defined in FMFM 3-3, Helicopterborne Operations. The survey may be conducted openly or clandestinely. Reconnaissance troops are normally involved in clandestine surveys and are used to collect or verify any or all of the descriptive data listed in subparagraph 705b(2). A reconnaissance conducted to obtain information about the enemy in or near a helicopter landing area is not a landing area survey even though such information, when collected, is always included in the survey report.

b. Helicopter Landing Area Survey Report. --A helicopter landing area survey report is a written report consisting of three sections. The report may be accompanied by sketches, overlays, annotated charts, photographs, exposed film and soil and vegetation samples appended as appropriate to clarify or amplify the information contained in the report. The three sections of the report are the heading, the landing area description, and the observed enemy situation.

(1) Heading. --The heading contains miscellaneous data which is used by the receiver to evaluate the information contained in the rest of the report. The heading includes:

(a) The date the report is submitted.

(b) The identity of the unit conducting the survey.

(c) The mission assigned to the unit conducting the survey.

(d) The identity and location of the area surveyed:

1 Reference maps used.

2 Designation or name of the landing area.

3 Coordinates of the center of the landing area.

4 Landmarks used for identification and their position relative to the center of the landing area.

(e) The date and time the survey started.

(f) The date and time the survey was completed.

(g) The boundaries of the area surveyed.

(h) A brief description of the conditions under which the survey was conducted to include weather, visibility, and enemy interference.

(i) A list of items appended to the report.

(2) Landing Area Description. --The landing area description section contains the data used to evaluate the suitability of an area for helicopter operations. As such, it is the body of the report and must be detailed and precise. Descriptive data includes:

(a) Size of the area.

(b) Surface materials.

(c) Breaks or interruptions in the area.

(d) Obstacles.

(e) Slope(s) within the landing area in excess of 14 percent (1:7).

(f) Vegetation within the landing area.

(g) Local use of the landing area by natives.

(h) Cultural features within the landing area.

(i) Description of adjacent terrain.

(j) Exits.

(k) Surface winds.

(3) Observed Enemy Situation.--The enemy situation section contains ALL information about the enemy collected during the survey. The section includes a precise discussion of all manmade objects and cultural features in the landing area whether or not they are obviously a part of the area defenses. The discussion of enemy defenses and activities is not limited to those occurring in the landing area, but includes all such defenses and activities observed.

c. Radio Transmission of Survey.--In rapidly moving situations, the submission of an extensive written helicopter landing area survey report may not be practical or possible. In such cases the use of a standardized message format will facilitate the radio transmission of the helicopter landing area survey (HELLAS).

(1) Format.--A HELLAS report in the following format will normally provide sufficient information to permit formulation of plans for helicopterborne landing operations:

HELLAS REPORT (to identify type of report) Time of Survey (day and hour)

ALFA	- Location (grid coordinates of the center of area or the code name of the landing zone, site or point if previously designated).
BRAVO	- Dimensions or size (if the area is rectangular or oblong, the direction or attitude of the long axis should be given.)
CHARLIE	- Surface conditions (type, soil, vegetation, slope over 14%).
DELTA	- Obstacles on or near area (trees, hills, holes, ditches, towers, etc.).
ECHO	- Exits from area (direction and type - vehicle or troop).
FOXTROT	- Enemy situation.
GOLF	- Other pertinent information (prevailing surface winds, landmarks for pilots, possible assembly areas, local use of the landing area).

(2) Example of a HELLAS report message:

HELLAS REPORT Ø217ØØ X ALFA OAK BLUE X BRAVO 125 BY 5ØØ METERS GRID BEARING 17ØØ MILS X CHARLIE FIRM CLAY WITH SPARSE COVERING OF GRASS AND LOOSE SANDY GRAVEL IN EASTERN ONE THIRD OF AREA X DELTA TREES WESTERN SIDE 4Ø FEET X TREES NORTHERN SIDE 25 FEET X SCRUB GROWTH ON EASTERN AND SOUTHERN SIDE 5 to 1Ø FEET X DRAINAGE DITCH RUNNING DIAGONALLY ACROSS NORTHWEST CORNER X ECHO NO RESTRICTIONS FOR TROOP EXIT X TWO VEHICULAR TRAFFIC EXITS SOUTHERN SIDE ONE RUNNING SOUTH AND ONE SOUTHWEST X ONE VEHICULAR TRAFFIC EXIT EASTERN SIDE RUNNING NORTHEAST X FOXTROT NO CHANGE FROM PREVIOUS REPORT X GOLF SOUTHERLY PREVAILING WINDS X NO PROMINENT LANDMARKS X

706. SURF OBSERVATIONS

a. Scope of the Observations.--A surf observation involves the collection of data describing the physical characteristics of the surf off a particular beach. Surf observations may be conducted openly or clandestinely. Reconnaissance troops, when used, are normally involved in clandestine observations. Since a single surf observation is of little value to the receiver, a series of observations is usually made. The period between observations usually decreases as H-hour approaches. Surf observations are normally made by UDT personnel, but such tasks may be assigned to Marine reconnaissance troops.

b. Surf Observation Report.--The surf observation report is a written report consisting of two sections. It is usually submitted in a message format called a SUROB. The two sections of the report are the heading and the surf description.

(1) Heading.--The heading includes:

(a) The chronological number of the report.

(b) The beach designation.

(c) The date and local time of the observation.

(2) Surf Description.--The surf description includes:

(a) The significant breaker height.

(b) The maximum breaker height.

(c) The breaker period.

(d) The types of breakers and the percentage of each type.

(e) The breaker angle and direction.

(f) The inshore current set and drift.

(g) The number of breaker lines and width of the surf zone.

(h) Additional information such as surface winds on the beach.

c. Conducting the Surf Observation.--A surf observation may be made by one or two men. When two men are used, one observes and the other records the

observations. The only equipment needed is a watch with a second hand and a pencil and paper.

(1) Selection of a Vantage Point. -- The observers select a vantage point as close to the shoreline and as near to the center of the beach as possible. Surf observations are made directly to seaward of the vantage point.

(2) Observing the Surf. --Only that portion of the surf zone directly in front of the vantage point is observed since waves will break at different times along any breaker line. The surf is observed for a 10-minute period. Each breaker is recorded as it occurs. Only the outermost breaker occurring along the observer's line of sight is recorded when two or more waves break simultaneously. Breaker height is recorded to the nearest half-foot. Breaker type is recorded as spilling, plunging, or surging. Both breaker height and type of each breaker are recorded, such as "3.0 Sp." "3.5 P." or "3.5 Su." After the breaker heights and types have been recorded for a 10-minute period, the observers record the total number of breaker lines and the width of the surf zone. The number of breaker lines and the width of the surf zone can best be determined by looking down the beach at an angle. Inshore current may be estimated by throwing a stick into the surf zone and noting the distance down the beach that it floats in 1 minute. Breaker angle can best be estimated by looking down the beach at an angle.

d. Preparing the SUROB

(1) Format. --A SUROB message is submitted in the following format:

SUROB	(Number) (Beach Designation) (Local Time)
ALFA	(Significant Breaker Height)
BRAVO	(Maximum Breaker Height)
CHARLIE	(Period of Breaker)
DELTA	(Type Breaker and Percentage)
ECHO	(Breaker Angle)
FOXTROT	(Inshore Current)
GOLF	(Number of Lines of Breakers and Width of Surf Zone)
HOTEL	(Remarks)

(2) Preparing the Message

(a) SUROB: Fill in the number of the observation (ONE, TWO, etc.) for the particular operation. Fill in the beach designation (RED, BLUE ONE, etc.). Fill in the date and local time at which the observation was made (080230I, 161210R, etc.).

(b) ALFA: Fill in the significant breaker height to the nearest one-half foot. Significant breaker height is the average of the highest one-third of all breakers observed during the 10-minute observation period.

(c) BRAVO: Fill in the maximum breaker height to the nearest one-half foot. Maximum breaker height is the height of the highest single breaker observed during the 10-minute observation period.

(d) CHARLIE: Fill in the breaker period to the nearest one-half second. Breaker period, in seconds, is computed by dividing 600 seconds (10 minutes) by the total number of breakers recorded during the 10-minute period.

(e) DELTA: Fill in the types of breakers and the percentage of each type to the nearest 10 percent. The percentage by type is computed by dividing the total number of each type of breaker by the number of all breakers observed during the 10-minute period.

(f) ECHO: Fill in the breaker angle and direction. Breaker angle is the acute angle (from 0 to 90 degrees) formed between the breaker lines and the shoreline expressed to the nearest 5 degrees. The breaker direction is the direction from which the breakers are coming, either right or left. The direction is expressed as right or left of the observer when he is facing seaward.

(g) FOXTROT: Fill in the set and drift of the inshore current. Current set is the direction toward which the current is flowing expressed as a cardinal or intercardinal direction (WESTERLY, NORTHEASTERLY, etc.). Current drift is the speed of the current expressed to the nearest one-tenth knot. Speed in knots may be computed by dividing the distance, in feet, that the stick floated in 1 minute by 100 (the number of feet it would float in 1 minute if it were traveling at 1 knot.)

(h) GOLF: Fill in the number of well-defined breaker lines in the surf zone and the width of the surf zone in feet. The width of the surf zone is the distance from the outermost breaker to the extreme uprush of water on the beach.

(i) HOTEL: Fill in any pertinent data not included in ALFA through GOLF, such as surface wind speed and direction or the existence of surf zones other than the usual inshore band of surf.

(3) Example of a SUROB

SUROB THREE BLUE ONE 280/7ØØ I X ALFA FOUR PNT ZERO X BRAVO FIVE PNT FIVE X CHARLIE NINE PNT FIVE X DELTA SPILLING 7Ø PLUNGING 2Ø SURGING 1Ø X ECHO ONE FIVE LEFT X FOXTROT SOUTHWESTERLY ZERO PNT SEVEN X GOLF TWO LINES 1ØØ X HOTEL SINGLE BREAKER LINE 400 YARDS FROM BEACH BT.

GLOSSARY

backshore. That zone of the shore or beach lying between the foreshore and the coastline and acted upon by waves only during severe storms, especially when combined with exceptionally high water.

beach gradient. The inclination or slope of the beach:

flat. Less than 1:120.

gentle. 1:60 to 1:30.

mild. 1:120 to 1:60.

moderate. 1:30 to 1:15

steep. More than 1:15

beach profile. A graphic representation of a cross section of a beach at right angles to the shoreline at a given point, indicating the widths and gradients of the foreshore and backshore as well as the nearshore underwater gradients.

beach scarp. An almost vertical slope along the beach caused by erosion due to wave action. It may vary in height from a few inches to several feet, depending on wave action and the nature and composition of the beach.

beach swale. An elongated depression in the foreshore or backshore or behind the beach, generally paralleling the shoreline and formed by wave action. Swales separate beach ridges.

berm. A nearby horizontal portion of beach formed by deposit of material under the influence of wave action. The berm is distinctly flatter than other portions of the beach. None or more than one berm may be present.

chart datum. The plane or level to which soundings or a chart are referred. It is usually taken to correspond to a low water stage of the tide. Also the intersection of a given parallel and meridian to which horizontal positions are referred; commonly the equator and meridian of Greenwich.

current. A horizontal movement of water:

drift of current. The velocity of a current expressed in knots.

set of current. Direction toward which current moves.

types of current:

ebb current. A tidal current that moves away from the shore or down a tidal stream.

littoral current. A movement of water close to and parallel to the shoreline (generally wave-induced).

ocean current. A movement of water which is more or less permanent in its characteristics, as the Gulf Stream.

rip current (rip surf). A narrow current of water flowing seaward through the breaker zone.

tidal current. The horizontal ebb and flow of water due to changes in tide.

wind current. A movement of water produced in the open sea by local, impermanent winds.

cusps. A hydrographic feature usually occurring on a single beach and having the appearance of a succession of semicircles of equal size. They vary in length from about 20 or 30 feet to over 100 feet and in vertical depth from 1 to 2 feet.

fathom. A unit of measure, used for soundings on some charts, equal to 1.83 meters or 6 feet.

leeward. The direction toward which the wind is blowing; the direction toward which waves are traveling (contrast to wind direction).

littoral. That part of the shore which is exposed at low tide and covered at high tide; of or pertaining to a shore, a coastal region.

range of tide. Ordinarily, the difference in height between mean high water and mean low water; less commonly, the difference in height between any given high water and the preceding or following low water.

refraction of water waves. The process resulting in a change of direction of a train of waves moving in shallow water at an angle to the sea bottom contours. The part of the wave train advancing in shallow water moves more slowly than the part still advancing in deeper water, causing the wave crests to bend toward alignment with the sea bottom contours; the bending of wave crests by currents.

runnel. An elongated shallow depression formed by waves and/or tidal action in the foreshore or in the bottom just offshore and generally parallel to the shoreline.

sea, state of. Description of the sea surface with regard to wave characteristics:

Code	Description	Wave Height (ft)
0	Calm	0
1	Smooth	Less than 1
2	Slight	1 to 3
3	Moderate	3 to 5
4	Rough	5 to 8
5	Very Rough	8 to 12
6	High	12 to 20
7	Very High	20 to 40
8	Mountainous	40 and over

vectoring. As used in this text, the process of guiding a reconnaissance team to a desired location. The process involves the continuous determination of the relative positions of the team and the desired spot to which the team is to be guided. Directional signals are then passed to the team in order to effect physical contact.

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