

In Combat

Mobile Riverine Force



Brigadier General William B. Fulton

EDITOR'S NOTE: *The author was the commander of the 2d Brigade, 9th Infantry Division when that unit began operations as the Army's component of the mobile riverine force in the Mekong Delta, South Vietnam, in 1967. He later was the Assistant Division Commander of 9th Division unit operating in the Mekong area. Brigadier General Fulton is now in the Office of the Assistant Vice Chief of Staff.*

In 1966, it became apparent to General Westmoreland and his staff that in order to more fully assist the Government of South Vietnam forces in their fight against the enemy it would be necessary to project US combat power into the Mekong Delta. It was obvious that US forces would have to be configured to operate in this riverine environment and be given the capability of conducting riverine warfare.

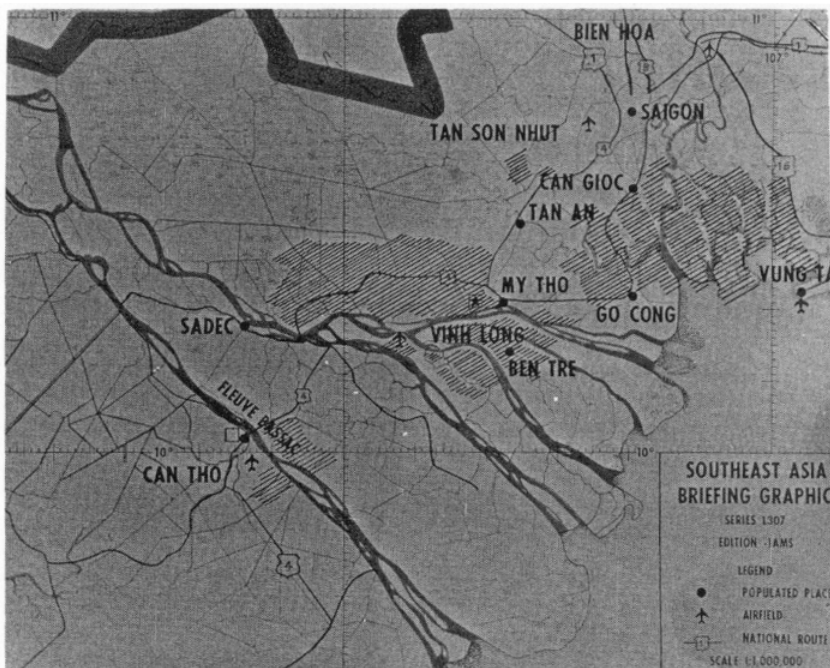


Figure 1. Area of operation.

The Mekong Delta (fig 1) commences at Saigon in the III Corps and comprises all of the ARVN 4th Corps Tactical Zone. The Delta contains essentially four-fifths of the total population of South Vietnam, including Saigon. It produces the major portion of the food and livestock necessary to sustain the population of South Vietnam and for export. Control of its economy and the population is essential to the government.

The Delta has an extremely limited road net, and there is an overabundance of surface water. Inland waterways, both rivers and canals, provide the natural routes for transportation and communications. These water routes have both strategic and tactical importance to both sides. Control of the water routes is vital to the South Vietnamese Government. Because of the limited roads, large portions of the area are accessible only by water or air. Large-scale airmobile operations are somewhat limited because of the distance between suitable marshaling fields and remote enemy base areas. Consequently, greater reliance must be placed on the movement of large forces by water when there is a requirement for massing forces against the enemy in these less accessible areas.

The primary difference between riverine warfare and ground warfare is chiefly a matter of environment. In riverine warfare, waterways are the primary method of movement. Although the fundamental tactics and

techniques governing normal ground operations are applicable to riverine operations, special organization and operating procedures are required when offensive ground forces, supported by Navy ships and craft, operate directly from inland waterways. The Mekong Delta area, comprised of the major waters of the Mekong and Bassac River basins, is intersected by literally hundreds of man-made canals and natural rivers, streams, and creeks which are affected by tidal actions that cause the water level to rise as high as 13 feet at high tide.

The introduction of US combat power into the Delta required the development of a major tactical and logistical base in the Delta and the development of a riverine force. The development of both required appreciable lead time.

The Dong Tam Base is located 8 kilometers west of My Tho and was dredged from the sands of the Mekong River to a size of approximately 600 acres. It took a year to fill. The base houses from 11,000 to 12,000 troops and includes necessary storage and support facilities, airfields, and a harbor, cut out of rice paddies, that accommodates LST's. Dong Tam is the home base of the Mobile Riverine Force and of major elements of the 9th Infantry Division.

MOBILE RIVERINE FORCE

General Westmoreland's Mekong Delta Mobile Afloat Force (MDMAF) concept was approved by the Joint Chiefs of Staff (JCS) in June 1966. The Navy was tasked to develop ships and small river boats which would be capable of supporting Army operations in this riverine environment. In September 1966, the Army component—2d Brigade, 9th Infantry Division—and the Navy component—River Assault Flotilla No. 1—were charged with teaming together to train for riverine operations and to develop operating procedures, doctrine, and tactics to facilitate riverine operations. The two forces conducted their training in actual combat actions on a limited scale from February through May 1967. On 2 June 1967, the Mobile Riverine Force became operational.

The Mobile Riverine Force consisted of approximately 5,000 Army and Navy troops and includes a brigade headquarters, three infantry battalions, a field artillery battalion minus, and 9th Division support troops, including combat engineers.

Four Navy barracks ships, World War II barracks LST's modified for riverine operations, are now authorized for this force. Each ship has a helipad and is capable of housing and messing approximately 1,100 Army and Navy troops. The USS Benewah is configured as a command ship with a joint tactical operations center and accommodates the Army and Navy staff. Each of the other ships is capable of taking aboard a battalion force plus its Navy supporting elements. Ammi pontoons, developed in-country, enable rapid loading of troops night and day. The pontoons are towed from base area to base area by the ships which they support.

In addition to the four barracks ships, the force is authorized a repair

ship—the Askari—which is capable of repairing all of the Navy boats in the tactical area of operations. Also included in the force is an LST which contains the necessary Army and Navy supplies and ammunition for 10 days of operations and food for 30 days. The LST can be resupplied by the Navy LST's any place within the Delta area. These ships then comprise the MRB—the mobile riverine base. This base houses 5,000 troops, and it is capable of moving up to 150 kilometers within a 24-hour period of time, with combat operations capable of being launched within minutes after dropping anchor in the base area.

The Navy component of the Mobile Riverine Force—River Assault Flotilla No. 1—consists of two river assault squadrons and one support squadron. Each river assault squadron has 26 armored troop carriers (ATC), 5 Monitors, 3 command and control boats (CCB), and 16 assault support patrol boats (ASPB). These craft were developed by the Navy to support ground operations.

The armored troop carrier is a reconfigured LCM-6, which was used in amphibious operations in World War II. The craft carries 40 troops, has a speed of 6 to 8 knots, and is capable of operating in small rivers approximately 25 meters wide and 2½ feet deep. Three of these craft will move a company. The armored troop carrier mounts twin 20-mm guns in the rear turret, and two .50-caliber machineguns on either side turret. In addition, it has seven .30-caliber machineguns and two Mark 18 40-mm grenade launchers each capable of firing 200 grenades per minute. The boat has roughly 25 tons of armor and bar armor plus styrofoam flotations along each side.

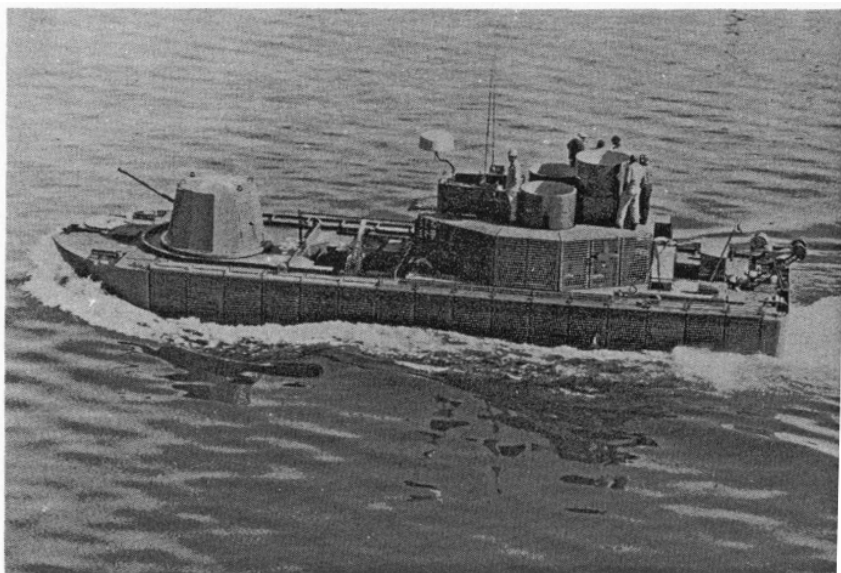


Figure 2. The Monitor.

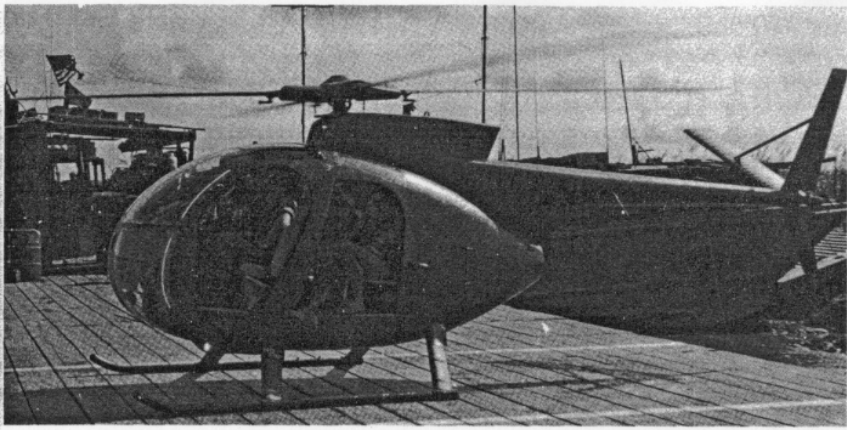


Figure 3. Helideck of ATC.

The assault support patrol boat is a 15-knot, double-hulled minesweeper with very heavy armament, which includes 40-mm and dual 20-mm guns, and is radar equipped. This craft acts as the reconnaissance and security element during movement of a riverine force.

The Monitor (fig 2) mounts a 105-mm turret forward, a Navy 81-mm breech-loading gun for direct or indirect fire amidships in the center well, and .50-caliber and 20-mm guns on the aft portion. It is specially armored and has a speed of approximately 6 knots; it is the battleship of the force.

The command and control boat is utilized as a joint tactical CP by the infantry battalion commander and his Navy counterpart. The brigade commander also utilizes the command and control boat during operations. This boat looks very much like the Monitor, but it has a command post located in the center well with ample Army, Navy, and Air Force communications equipment for contact with the mobile riverine base and the tactical units on the ground and water and for close air support and control of airlift helicopters.

INNOVATIONS

Several innovations were made in-country to facilitate tactical operations. One was the development of the aircraft carrier (light) by adding a helideck to the armored troop carrier. This was done in the mobile riverine base during actual operations. This carrier is capable of accommodating either the LOH or the UH-1 aircraft (fig 3). It is intended that, each of the 52 armored troop carriers in the force have a helideck. This feature enables the commanders to be continuously airborne since one armored troop carrier is paired with each battalion commander's command and control boat. This feature also permits medical evacuation and resupply at any point during operations. In effect, each armored troop carrier has become a one-aircraft landing zone (LZ).

Very early it became obvious that there would be a need for a helicopter barge to enable full use of helicopters in the area of operations. A barge capable of accommodating three UH-1 aircraft was built-in-country. Rubber bladders under the deck hold 1,500 gallons of JP4 fuel, giving the barge a significant refueling capability. The barge is normally towed by the artillery battalion with an LCM-8 into the forward area and is habitually located at the fire support patrol base (FSPB) for use as part of the brigade forward CP.

To complete its mobility, the Army obtained 60 "Boston Whalers" powered by an 85-horsepower outboard motor. The boat is capable of moving 10 men at about 30 knots and is the force "dismount" capability which the troops use in small streams that the larger Navy craft cannot enter. It also provides a courier, shuttle, patrol, and scout capability for units within the mobile riverine base, at the fire support patrol base, and within the area of actual operations.

FIELD ARTILLERY COMPONENT OF THE MOBILE RIVERINE FORCE

Field artillery suitably adapted to the riverine environment was a prerequisite for successful force operations. The original Mekong Delta mobile afloat force concept provided for towed 105's and their prime movers to be placed aboard the Navy armored troop carriers for movement to the area of operations. The thought was that, hopefully, at a suitable location along the bank the prime movers could be driven off. The truck would then tow the 105 from a second ATC onto the shore where it would go into position. From the outset it was obvious that the concept could not be made to work since virtually all banks were too steep and the tidal action in the Delta ranges from 5 to 13 feet, depending on the season. The river banks are so soft and muddy that they simply are not negotiable by any type of truck, or track vehicle for that matter. Secondly, other than for the all-too-scarce roads, there are virtually no firing positions

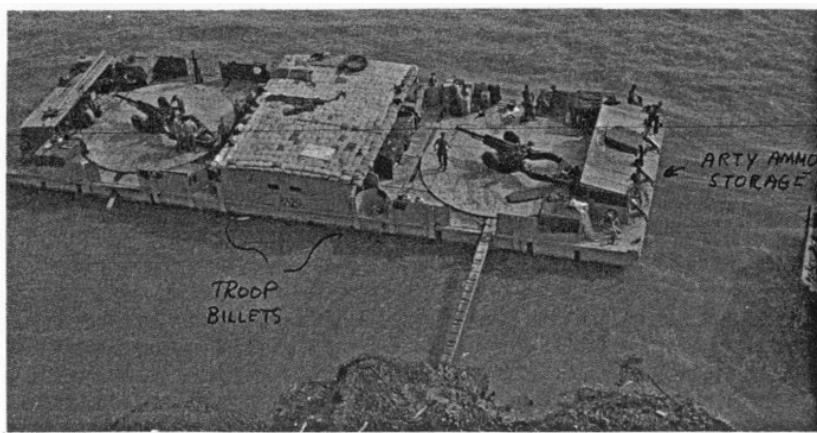


Figure 4. Riverine field artillery barge.

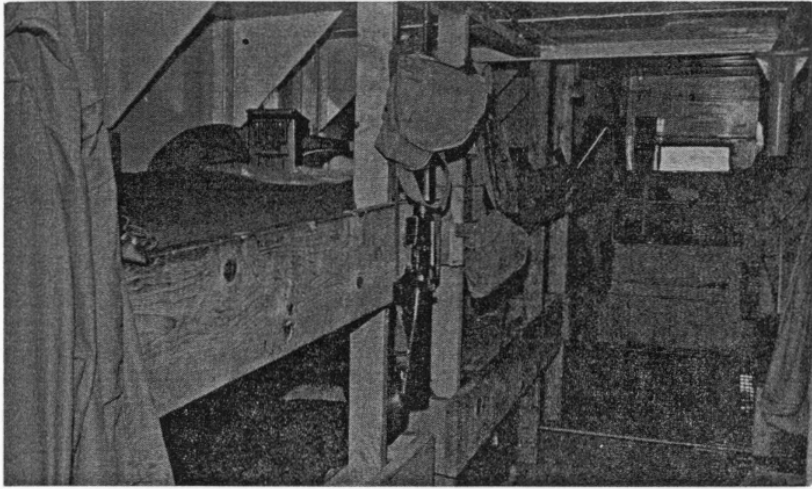


Figure 5. Troop housing on barge.

to be found along the streams, canals, and rivers even if a vehicle could be made to tow a howitzer off an ATC. Any suitable ground that is found above the water normally contains a house, a hamlet, or a small town. High ground has been man-made during the dry season for a purpose. Most ground found in the Delta along streams is too soft and wet to support the weight of the 105-mm howitzer.



Figure 6. Ammunition storage shed.

Faced with this simple reality, the 3d Battalion, 34th Artillery, under the command of LTC Carroll Meek, experimented with Navy pontoons to determine whether a 105 could be fired from the water with any degree of accuracy and stability. The experiment was made at Dong Tam Base with the cooperation of the Navy during February through April 1967. It was found that these barges could be towed by either the LCM-6 or LCM-8 craft. Numerous combat operations were run, day and night, to confirm the effectiveness of field artillery used in this mode. Upon verification that this was a feasible method of firing, the 9th Infantry Division requested six riverine artillery barges, which were fabricated out of pontoons at Cam Ranh Bay. These barges have armor siding and fixed plates so that the light 105-mm howitzer M102 can be fastened to them. Each barge contains positions for two howitzers (fig 4). Troop housing with bunks for the field artillery section was built amidships on the barge (fig 5), and storage sheds (fig 6) for approximately 750 rounds were built on either end of the barge, for a total of 1,500 rounds per barge, so that each piece could be serviced separately by its guncrew. These barges are towed by Army LCM-8's, which also carry additional artillery ammunition. The 1097th Army Transportation Boat Company was attached to the 2d Brigade and possessed approximately 23 LCM-8's. The field artillery battalion, while housed aboard the barracks ships, modified two LCM-8's to accommodate the battalion fire direction center. The LCM-8's also provided troop housing for the FDC and the headquarters battery, and one of the LCM-8's was configured into a large brigade tactical operations center, which is used by both the Army and Navy senior commanders to control operations in the forward area. The cabin area contains space for a situation map, a communications console, and a conference area. Additionally, on the CP LCM-8 there is office space and sleeping accommodations for six personnel. Using the CP craft in

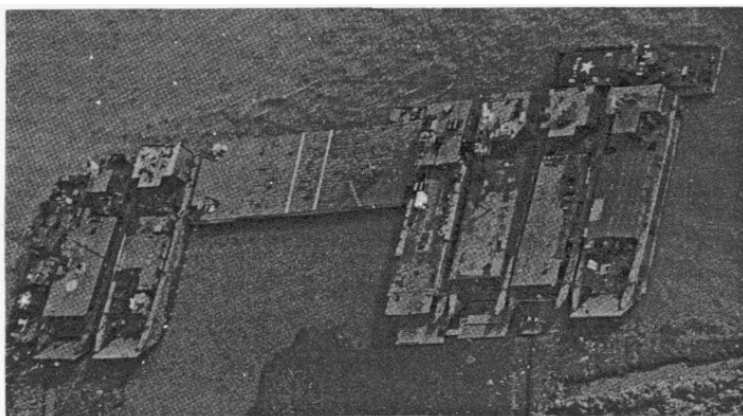


Figure 7. Fire support patrol base.

conjunction with the helo-barge, a very convenient brigade toward CP is established. The forward brigade CP is collocated with the field artillery battalion FDC in the fire support patrol base (FSPB, fig 7). The floating FSPB provides a ready area to facilitate command and control within 10,000 meters of the area of operations. The commander can extend his control to the air by using his C&C (command and control) aircraft or his CCB which is also located at this point.



Figure 8. Barge in firing position.

The field artillery battalion, thus accommodated on the field artillery barges and the LCM-8's, is a highly mobile force which, when escorted by Navy boats, moves independently to its firing positions for close support of ground operations (fig 8). The tubes are always poised in transit to fire an old-fashioned naval broadside against both banks simultaneously in case of ambush.

This force usually moves at night; establishes its firing positions alongside the river bank, where it anchors to the shore; and is laid and ready before daylight. It is capable of giving close and accurate fire support to ground operations around the clock in the area of operations. Without question, the creation of the "floating" field artillery riverine battalion is the greatest single innovation in riverine operations. Had the mobile riverine force been required to rely on the original concept of using towed howitzers moved by armored troop carriers, it is doubtful whether the force would have met with any success at all.

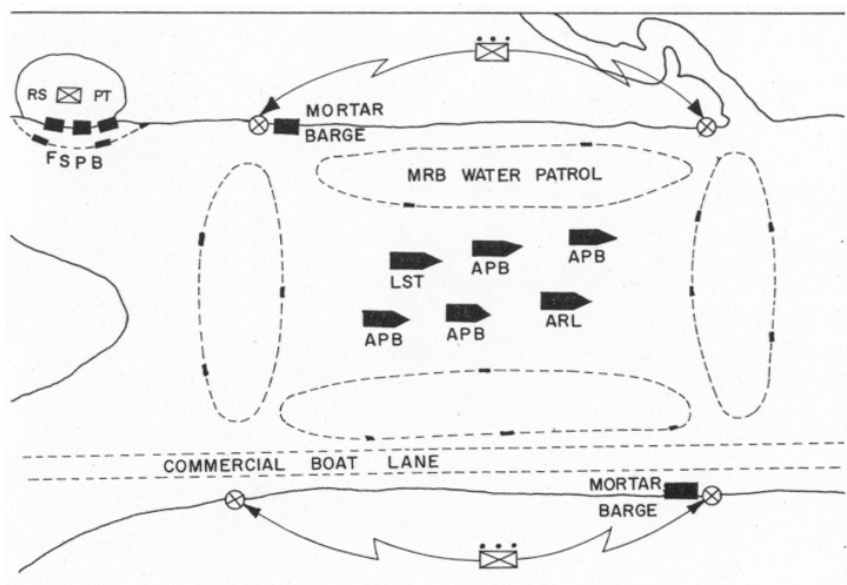


Figure 9. Defense of mobile riverine base.

Mobile Riverine Operations

To gain an appreciation of how field artillery is used to support mobile riverine operations, it is essential to divide such operations into two phases. The first phase is base defense. The second is the conduct of strike operations.

Figure 9 provides a schematic of how the mobile riverine base is defended. The major ships attempt to anchor in a relatively secure location. Navy assault support patrol boats move in stations around the base to protect it against waterborne threats—swimmers, high-speed craft, mines, and the like. Army elements establish foot patrol bases on the banks to preclude enemy direct and indirect fires against the base. Mortar barges, which were developed in-country and are capable of supporting two 4.2-inch mortars and three 81-mm mortars, are normally located on either side of the river. The field artillery fire support patrol base, when it is part of the mobile riverine base and not forward in an area of operations, is anchored in such a location that the close-in support fires of the mortars can protect it while, at the same time, the fires of the field artillery can support the overall mobile riverine base and the patrols operating on the shore.

Strike operations can be conducted from 50 to 70 kilometers from the mobile riverine base. When a large area of operations is involved, landings are made, as indicated in figure 10, normally in conjunction with other land forces participating in a blocking role. These forces get

into position either by land or air movement. The field artillery fire support patrol base is located so that it can provide offensive fires within the strike area. Normally, a ready-reaction force (RRF), in addition to fire base security troops, is positioned in the fire support patrol base area. If no suitable pickup zone (PZ) can be provided in the fire support patrol base, an aircraft carrier task group (TG) with lift aircraft can rendezvous in the middle of the stream. Roughly a company can be lifted in this manner into the strike area in a turn around time of 5 to 10 minutes.

Strike operations involve sealing off a major river by Navy patrol forces and moving up a subsidiary stream in order to form natural blocks with continuous patrols. Troops are then beached to move against the blocking forces or against the opposite shore, thus entrapping the enemy forces located in the area.

An extensive area of operations is often necessary so that sweeps can be made into the base areas and fortified campsites of the enemy, which usually are widely dispersed. Mobile riverine battalions often must operate independently of other battalions. In this situation, the mobile riverine support field artillery can be divided into two separate support elements. Efficient fire support is effected in this configuration from two positions along the river. However, it is more preferable to locate the two riverine support batteries in one fire support patrol base and establish as many as two additional fire support patrol bases on land, using a number of different alternatives. These additional fire support patrol bases are habitually located so as to reinforce the riverine field

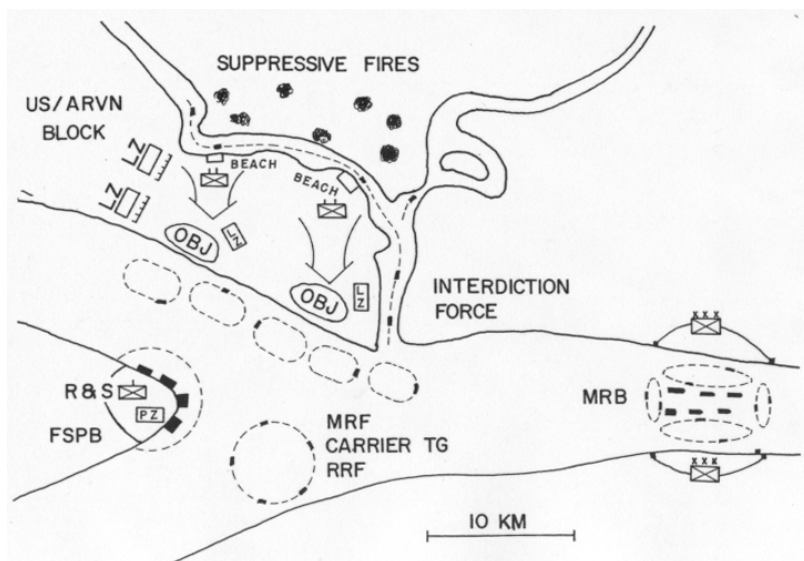


Figure 10. Riverine operation.



Figure 11. Airmobile firing platform.

artillery battalion and be controlled by the fire support coordination center (FSCC) of the brigade.

On several occasions the self-propelled 155-mm howitzer was fired from an LCM-8. However, it was found to be more effective to transport the self-propelled 155-mm battery by LCM-8's to an off-loading location, such as a commercial ferry site, where it could then move into an ARVN compound and fire in support of riverine operations. The towed 155-mm battery has been airlifted by Chinook and placed in a town located close to the area of operations.

The airmobile firing platform (fig 11), which is used with the M102 howitzer, was especially developed for the 9th Division for use in the delta rice paddies and flooded areas. Normally, a firing battery of four M102's is airlifted into an inundated area and established as a fire support base in 4 or 5 feet of water. The base is located so that it can support, and be supported by, another fire support patrol base. Figure 12 indicates a concept of employment of multiple fire support patrol bases in the riverine environment.

The Army component commander is responsible for the coordination of all fire support for the Mobile Riverine Force. This includes naval gunfire in support of strike operations and base defense. The field artillery commander, therefore, acts in his normal capacity as the fire support coordinator. He performs these functions in the forward area at the brigade forward tactical CP which, as mentioned above, is collocated with the fire direction center. Since the helo-barge is also at this location, both the field artillery commander and his aerial observers can take off from and land at this location. With the field artillery liaison officer and the air liaison officer accompanying the brigade commander in his airborne CP, continuous communications and control of all types of fire support, to include air, are possible. Since the infantry battalion commanders have complete freedom of movement by virtue of the aircraft

carriers (light) which accompany their communications and control boats, quick coordination conferences can be effected at the fire support patrol base within a matter of minutes.

Logistical Support

In Vietnam, logistical support for riverine operations is much simpler than for normal land operations. The LST in the mobile riverine base provides a floating base from which the entire force, both Army and Navy, can be resupplied. This includes artillery ammunition. The LST carries all types of supplies and ammunition for 10 days of operations. It is resupplied by a Navy LST once every 7 days. Resupply to the area of operations can be effected by both water and helicopter. Normally, artillery ammunition resupply is routinely effected by naval craft (ATC's) shuttling from the mobile riverine base forward to the fire support patrol base in the area of operations. In case of an emergency, artillery ammunition can be airlifted from the supply LST directly to any of the fire support patrol bases. The ATC's carry 3 days' supply of food, water, and ammunition. The LCM-8's, as part of the artillery afloat force, have a large carrying capacity for all items required to supply and support the field artillery battalion. Hence, the field artillery can stay in the area of operations for an indefinite period of time, depending on tactical necessity. Logistical support for the overall force is a Navy responsibility; resupply of ground operations, to include the field artillery, is an Army

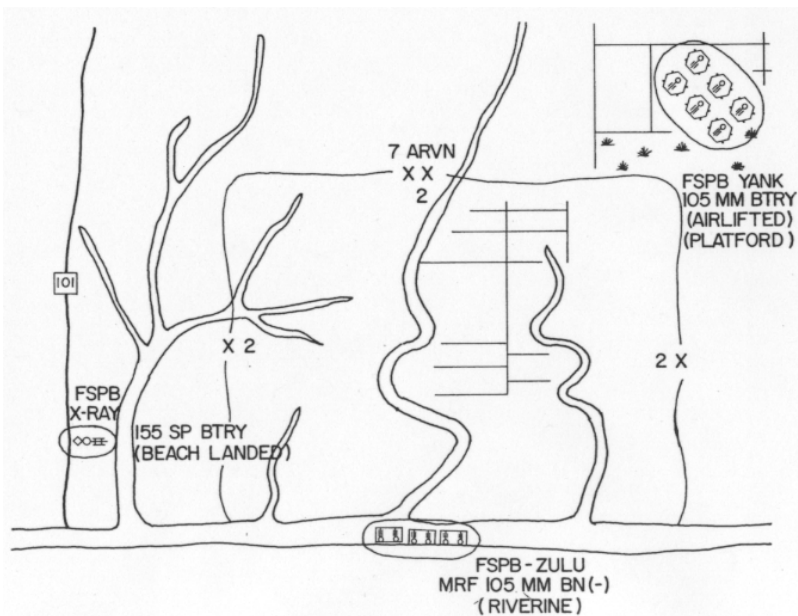


Figure 12. Concept of employment.



responsibility in coordination with the Navy. Incidentally, the Navy always insures that one hot, well-prepared meal is brought forward each day to the "gunners," regardless of the distance to be traveled.

Effective riverine operations have been conducted for approximately 18 months throughout the Delta from Saigon to Can Tho (shaded areas in fig 1). The field artillery has repeatedly demonstrated that it is capable of supporting riverine operations in any of the Delta provinces. The field artillery not only has operated from the major rivers but has repeatedly gone up small streams and canals to conduct its close fire support missions, thus insuring that necessary ingredient to all effective combat operations—decisive firepower.

LASER FOR TANKERS

A total of 243 of the Army's M-60A1E2 tanks will be equipped with new laser rangefinders. In operation in a tank, the laser is bore sighted with the tank commander's sight and gun. When a target is selected, a laser beam flashes at it. The range appears in meters on a readout and then is fed automatically into the tank's fire control system.