THE RISE AND FALL OF THE BROWN WATER NAVY: CHANGES IN UNITED STATES NAVY RIVERINE WARFARE CAPABILITIES FROM THE VIETNAM WAR TO OPERATION IRAQI FREEDOM

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The US is currently involved in a counterinsurgency campaign in Iraq, and similar to the counterinsurgency campaign conducted almost thirty years ago in Vietnam, riverine warfare is an important part. Current riverine forces include the Navy's Special Boat Team Twenty-Two and the Marine Corps' Small Craft Company. Both, however, are merely a shadow in comparison to their Vietnam predecessors, and for one, their days are numbered.

The US Navy did not possess any inland patrol forces prior to the Vietnam War and had only a handful of coastal patrol boats, despite the lessons of her past and of her contemporaries. France, in her ill-fated campaign to maintain the Indo-china colonies, used the rivers of Southeast Asia extensively. Special units, called *Dinassauts*, transported and supported infantry via the inland waterways of Vietnam. The South Vietnamese River Assault Groups continued this practice. American advisors noted their operations, and several studies were conducted. Yet, prior to 1965, the US Navy applied very few resources to the problem of riverine warfare.

By 1968, however, three naval task forces comprised of over 600 vessels were operating on the waterways and coasts of Vietnam. Despite their success, the Navy quickly discarded them after the war.

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ABSTRACT

THE RISE AND FALL OF THE BROWN WATER NAVY: CHANGES IN UNITED STATES NAVY RIVERINE WARFARE CAPABILITIES FROM THE VIETNAM WAR TO OPERATION IRAQI FREEDOM, by LCDR Jason B. Scheffer, 101 pages.

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The US Navy did not possess any inland patrol forces prior to the Vietnam War and had only a handful of coastal patrol boats, despite the lessons of her past and of her contemporaries. France, in her ill-fated campaign to maintain the Indo-china colonies, used the rivers of Southeast Asia extensively. Special units, called *Dinassauts*, transported and supported infantry via the inland waterways of Vietnam. The South Vietnamese River Assault Groups continued this practice. American advisors noted their operations, and several studies were conducted. Yet, prior to 1965, the US Navy applied very few resources to the problem of riverine warfare.

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ACRONYMS

ASPB	Assault Support Patrol Boat
ATC	Armored Troop Carrier
CRRC	Combat Rubber Raiding Craft
IED	Improvised Explosive Device
LCM	Landing Craft-Mechanized
LCI	Landing Craft-Infantry
LSSL	Landing Support Ship-Large
LCT	Landing Craft-Tank
LCVP	Landing Craft-Vehicle and Personnel
MAAG-V	Military Assistance Advisory Group-Vietnam
MACV	Military Assistance Command-Vietnam
MDMAF	Mekong Delta Mobile Assault Force, later called the Mobile Riverine Force
MRF	Mobile Riverine Force, operational term applied to the Mekong Delta Mobile Assault Force concept
NVA	North Vietnamese Army
PBR	Patrol Boat-River
PCF	Patrol Craft-Fast
PTF	Patrol Torpedo Boat-Fast
RRC	Rigid Raiding Craft
RAC	River Assault Craft
SBT	Special Boat Team
SEAL	Sea, Air, Land commando

STCAN/FOM	*Services Techniques des Constructions et Armes Navales, France Outre Mer,* the name of the builder and the acronym meaning they were constructed outside of France
SOC-R	Special Operations Craft-River
SURC	Small Unit Riverine Craft
VC	Viet Cong

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CHAPTER 1

INTRODUCTION

Action on the Rivers

On 21 June 1968, two river patrol boats of the US Navy's River Patrol Squadron Five were conducting a routine patrol on the My Tho River in Vietnam when they noticed a sampan, apparently ducking into a nearby canal. Pursuing the suspicious craft, they quickly captured the sampan and placed it under tow. Returning to the main channel with their prize, the two boats came under a withering hail of gunfire and rockets. They had sailed into a Viet Cong ambush. The following excerpt is taken from Gunners Mate (Guns) Second Class Patrick Ford's Navy Cross citation, posthumously awarded for his actions that day:

> Two explosive B-40 rockets struck one of the boats, immediately killing the patrol leader and coxswain. Within seconds, the boat was ablaze and out of control, heading directly for the Viet Cong positions. Even as the boat was hit by four additional rockets, and after suffering serious injuries, Ford tenaciously maintained a steady volume of return fire from his aft machine-gunner's station. In the face of enemy gunfire and with his clothing on fire, Ford assisted three seriously wounded shipmates into the water. Only after ensuring that all the surviving crew had left the boat did Ford make his way into the water. He was the last man alive to leave what remained of Patrol River Boat 750.
>
> Soon after GMG2 Ford entered the water, he was killed by a burst of enemy machine-gun fire. However, as a result of his fearless devotion to duty, he saved the lives of two of his shipmates.[1]

Such action was commonplace on the rivers of Vietnam, where the US Navy was attempting to help the democratic Republic of Vietnam quell the communist-backed insurgency that was attempting to turn the country into a communist state.

At the onset of US involvement in the conflict in Vietnam, the coastal regions and rivers of the world were largely overlooked by US military planners. The US Navy,

concentrated on defeating the Soviet Navy on the open ocean, did not possess any craft suitable for patrolling inland waterways. To ignore this facet of warfare in Vietnam would mean that the Viet Cong and North Vietnamese Army would be able to operate freely along the coasts, rivers, and canals of the Republic of South Vietnam. The fertile Mekong Delta, a heavily populated region in the southern third of South Vietnam and the major food-producing region of the Republic of South Vietnam, was especially vulnerable to VC and NVA activity. The VC and NVA actively interdicted river traffic, and had supply routes along the South Vietnamese coast and through the Mekong Delta's vast network of rivers and canals.[2] To counter communist use of these routes, the US developed and employed a wide range of inshore and river combat craft and created several specialized task forces for patrolling the coast and rivers. This force, created nearly from scratch, was tasked with fighting an elusive and cunning enemy without the benefit of a formal doctrine or fully developed watercraft. Following the war, riverine warfare capability was once again relegated to the backwaters of naval planning and the large, specialized force quickly dissolved to become only a shadow of the previous capability. A vitally important component of almost any campaign, repeatedly proven throughout military history, riverine warfare capability has been consistently ignored by the US Navy until the need for such capability is painfully acute.

Primary and Subordinate Research Questions

This thesis examines the creation of the "brown water navy," the force that the US Navy assembled for combat on the muddy, inland waters of South Vietnam, its demise after the Vietnam War, and its relevance in today's operating environment. It analyzes the origins of the force, from the initial studies highlighting the need for such a force, to

the design and acquisition of its specialized vessels, and the creation of its combat doctrine. It also documents the bleak post-Vietnam years and the current operations on the rivers of Iraq. It answers the following questions: How were lessons learned from previous experiences applied to the development or acquisition of specialized craft for the Task Forces? Additionally, how were lessons learned from previous experiences applied to the development of a doctrine for fighting in a riverine environment? Did the strategy and desired operations dictate the types of the forces applied, or did the available forces and capabilities shape the strategy and operations conducted? Finally, is riverine warfare relevant to the conflicts of today, and if so, have the lessons learned from previous experiences been incorporated into the current doctrine and force structure?

The riverine forces in Vietnam have been the subject of numerous books, magazine articles, papers, and even movies. During the war in Iraq, riverine forces once again captured newspaper headlines. Few writers, however, have examined the evolution of the force, and its specialized vessels and doctrine, in relation to their historical precedents or meaning for the future. Blake Dunnavent ably documents the riverine experiences of the US Navy through the country's history in his book *Brown Water Warfare.* In his examination of the creation of the brown-water navy used in Vietnam, however, he provides only a cursory statement that the US Navy drew on its experiences in the American Civil War. The degree of influence of historical precedent on the creation of the riverine forces for Vietnam is largely unexplored, and the influence that the French Naval Assault Battalions, or *Dinassauts,* had on US naval planners is left untouched. Edward Marolda effectively chronicles the actions of the brown water sailors in his book *By Sea, Air, and Land, An Illustrated History of the US Navy and the War in*

Southeast Asia. Although illustrating the relationship between the *Dinassauts* and the Mekong Delta Mobile Afloat Force, he does not address how the lessons learned from the French experiences helped to shape the Mobile Afloat Force. The command and control relationships of the Mobile Afloat Force and their difficulties are addressed from the Army perspective by Major General William Fulton in the Department of the Army publication *Vietnam Studies, Riverine Operations 1966-1969*. However, little is written to illustrate how these difficulties could have been avoided through the study of experiences of the combined river operations of the Union Army and Navy during the Civil War.

In the post-Vietnam era riverine forces have been largely overlooked, struggling to remain in existence and eventually becoming a niche in the special warfare community. This migration is largely undocumented. Finally, although the war in Iraq has brought riverine warfare back into the public consciousness, it continues to remain only a small part of naval planning. Operations currently underway in Iraq prove that there are lessons from the riverine campaigns of Vietnam that can be directly applied to current operations in Iraq.

Historical Significance

The historical significance of the Navy's performance in Vietnam cannot be overlooked. Although the Navy has conducted river campaigns in nearly every conflict in its history, including the Revolutionary War, the Civil War, and the Yangtze River Patrol in China, the forces used were quickly disbanded following the conflict, and the lessons from those campaigns were rarely retained. In the years leading up to direct US involvement in the Vietnam War, there were many indicators pointing to the need for riverine forces, yet these were largely ignored. The importance of a credible inshore force

was always subordinate to the prestige of the blue-water fleet, consequently resources were applied only when absolutely necessary. Such was the case during the Vietnam War. Immediately following the war, the need for such a capability faded, and so did the attention and resources for the riverine forces.

Today, the US once again finds itself conducting a counterinsurgency campaign, this time on the rivers of Iraq. The Tigris and Euphrates Rivers are vital waterways within Iraq, consisting of almost 5000 kilometers of navigable water that is used for transportation and shipping. They are also the lifeblood for the fertile Tigris and Euphrates valleys, the vital food-producing region for the country. Maintaining control of this region is of key importance to the restoration of stability to Iraq.

When the US became directly involved in supporting the Republic of South Vietnam the US Navy possessed neither inshore or riverine combat craft, nor doctrine for fighting in a riverine environment.[3] Prior to becoming involved in Iraq, the Navy of 2003 was better off than the Navy of 1964, but only slightly. In 2003 the US possessed only a meager riverine force in the form of one team of the US Navy Special Boat Unit and one company within the US Marine Corps known as the Small Craft Company.

The three Special Boat Teams (SBT) of the Special Boat Unit provide transportation and fire support to the Navy SEALS special operations teams and operate a variety of craft specially designed for this purpose. Of the three teams, only SBT-Twenty-Two is manned by Special Warfare Combat Crewmen trained for operating in the riverine environment, operating about eighteen specially designed craft, designated Special Operations Crafts-Riverine (SOC-R), for use in a riverine environment. During

the initial phases of Operation Iraqi Freedom, their services were called upon to help secure the vital ports of Umm Qasr and Basrah.[4]

The self-stated mission of the Marine Corps' Small Craft Company is the support of conventional forces in a riverine environment, and their inventory includes the River Assault Craft (RAC) and the Small Unit Riverine Craft (SURC). The RAC is the aging descendant of the venerable river patrol boats of the Vietnam War, while the SURC is a relatively new craft purposely designed for the Marines' requirements.[5] The Small Craft Company is currently operating in the rivers of Iraq, conducting counterinsurgency missions reminiscent of the inland river patrols of Vietnam. Although highly trained and equipped with heavily armed craft, these two units would be hardly capable of conducting a campaign on the scale of those conducted during the Vietnam War. Once again, the Navy could find itself creating a large riverine force, nearly from scratch.

Limitations and Methodology

There are several limitations to this analysis of the creation and uses of the riverine forces. Many of the primary historical source documents reside in the Naval Archives at the Naval Historical Center in Washington, D.C. Given the constraints of time, it was not possible to obtain the necessary information from them. Many of the primary source documents for current operations by forces operating in Iraq are classified, limiting their accessibility and utility for this project.

Where feasible, official government records and after-action reports were used to evaluate the effectiveness of the forces involved. A more accurate evaluation would have included the perspective of the enemy forces, the North Vietnamese Army and Viet Cong, especially in the evaluation of the effectiveness of US Naval forces in hindering

their movements and activities. Again, given the constraints of time and the difficulty in attaining access to records, this aspect was only given a cursory analysis. Additionally, as the focus of this thesis is on events that took place over forty years ago and few of those involved in the formative processes of the riverine forces are available for interview, personal interviews from this era were not sought. Finally, as operations are currently ongoing in Iraq, many of the details concerning their conduct are above the classification of this project.

This thesis is comprised of five chapters. Chapter 1 provides an introduction and background. Chapter 2 examines the experience of the French Navy in Vietnam and the creation of the *Divisions Navales d'Assaut*, or *Dinassauts*. As the originators of riverine warfare in Vietnam, their contributions would have significant impact on later US operations. Chapter 3 details the creation of the three US naval task forces employed in South Vietnam. Each was born of unique requirements and operating conditions, resulting in three distinctive but related forces. Chapter 4 examines riverine warfare in the post-Vietnam era, from the US withdrawal from Vietnam to the current conflict in Iraq. Chapter 5 provides conclusions and draw lessons for today's operating environment.

Evolution of USN Riverine Forces during and after the Vietnam War

The contribution by the riverine forces to the conduct of the Vietnam War cannot be overlooked. The Coastal Surveillance Force effectively cut the supply link from North Vietnam to the South Vietnamese coast. The River Patrol Force significantly curtailed the Viet Cong's ability to use the major waterways within Vietnam as supply routes and kept the vital Long Tau shipping canal to Saigon open to Allied shipping. The Mobile Riverine Force reduced the Viet Cong's ability to use the Mekong Delta as a base of

operations. Operation Sealords coordinated the efforts of the three task forces to place a veritable stranglehold on the VC supply lines in the Mekong Delta. The fact that this was accomplished with a force that did not exist five years prior is nothing short of remarkable. Amazingly, this force was quickly disbanded upon US withdrawal from South Vietnam.

Today, only one team of brown water sailors, trained in primarily unconventional warfare, the Navy's Special Boat Unit, is entrusted with safeguarding the hard-fought lessons of riverine combat. Carrying the mantle for conventional riverine warfare is the US Marine Corps' Small Craft Company. Basically, despite an increased emphasis on the littoral regions of the world that began with the end of the Cold War and the fact that in 2003 the US found itself attempting to support another fledgling government in a country where waterways provide an important means of transportation -- Iraq, riverine warfare has been all but forgotten by the US military. Hopefully, the experience in Iraq, where the ability of boats to bring combat power to bear on rivers and coastal waters has been shown once again, will change minds and renew interest in maintaining this capability within the force.

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[1]USS Ford, *USS Ford's Namesake*, [official USN website] available from http://www.ford.navy.mil/ABOUTFFG54.HTM; Internet; accessed 3 November 2004.

[2]James W. Johnson, *River and Canal Ambush Problems, Republic of Vietnam* (Bethesda, MD: Research Analysis Corporation, 1963), 3.

[3]R. Blake Dunnavent, *Brown Water Warfare* (Gainesville, FL: University Press of Florida), 129.

[4]CDR Patrick Butler, USN, former Commanding Officer of Special Boat Team Twenty-Two, telephone interview by author, Leavenworth, KS, 3 March, 2005.

[5]John R. Shafer, "What the Heck Is Small Craft Company Anyway?" *Marine Corps Gazette*, March 2001 [journal on-line]; available from http://www.lejeune.usmc.mil/2dmardiv/hqbn/company_pages/smallcraft/pages/jrsgazette.html; Internet; accessed 5 December 2004.

CHAPTER 2

THE FRENCH EXPERIENCE

French Return to Indochina

When France surrendered to Adolf Hitler in 1940, the seeds from which would spring the Vietnam War were planted. Blockaded by the British Royal Navy and cut off from the support of the mother country, the French colony of Indochina (Vietnam, Cambodia, and Laos) was ripe for exploitation by the Japanese Empire, and the colonial government of Indochina could do little to resist the increasing Japanese demands.[1] To the Japanese, Indochina represented a centrally located base that offered the ability to launch attacks against the Chinese in the north and against the British bastion of Singapore to the south.

The Japanese gradually escalated their influence over the French colony through a series of increasingly stringent demands. In June 1940, they demanded an end to the shipment of arms to China through the port of Haiphong. When the colonial government conceded, the Japanese demanded the right to station inspectors at the ports to verify compliance.[2] Japan next demanded the right to move troops through Indochina and in September 1940 began to move troops into key positions, taking some by force, such as the garrison at Lang Son.[3] In July of 1941, the French were compelled to grant Japan basing rights. Immediately following the attack on Pearl Harbor, the Japanese seized military control of Indochina, leaving the colonial French government in administrative control and relegating the remaining French military forces to the maintenance of law and order.[4] This uneasy arrangement remained in place until March 1945. The Japanese Empire had taken great losses from the Allies, and the war was quickly nearing an end in

Europe. Unsure of French loyalties and fearing a possible invasion by Allied forces, on March 9 the Japanese seized full control of Indochina in a swift and bloody coup, eliminating the remaining vestiges of the French colonial government. To govern Indochina they installed a puppet government, led by the Emporer Bao Dai.[5]

A local resistance movement, called the Viet Nam Loc Lap Dong Minh (Vietnam Independence League), more commonly known as theViet Minh, had formed to fight for the independence of Vietnam and was fighting the Japanese occupation. Supported by the Allies, they attacked Japanese troops and supply centers and even established a network for rescuing downed allied fliers. As the war moved to a close, the Viet Minh mounted an offensive throughout Indochina, resulting in the abdication of Bao Dai on 25August, 1945.[6] Ho Chi Minh, leader of the Viet Minh, quickly set up a coalition government in Hanoi and established the new Democratic Republic of Vietnam. The Allies, however, did not recognize this government. In order to accept the surrender of Japanese troops the Allies determined that they would divide the country along the 16th Parallel, with the Chinese governing the northern section and with the British governing the southern section. This was to be a temporary arrangement, pending the establishment of a permanent Vietnamese government. The US initially had no intention of restoring colonial powers, instead hoping to encourage independence for the newly liberated colonies. Struggling to get back on her feet after the war, France, however, moved quickly to reestablish control over her lost colony. Enlisting the tacit support of Great Britain, another major colonial power, France quickly sent troops to Vietnam under the premise of assisting the British in the restoration of order. Making the job all the more difficult, the Vietnamese considered themselves an independent nation.

Formation of the *Dinassauts*

The first French troops to arrive in Vietnam found that through years of war and neglect, the road system was largely impassable. This complicated the effort to wrest control of the countryside from the Viet Minh. The vast system of rivers and canals offered an alternative means of transportation. Among the French forces designated to restore order to Vietnam was a brigade of naval infantry--The Far Eastern Naval Brigade (BMEO). Originally, this brigade was to function as an armored naval infantry brigade, but on arrival in Indochina it quickly took on a different form. During the initial formative period of the brigade, Commander Francois Jaubert commanded the unit and accompanied the lead elements of the brigade as they deployed to Indochina.[7] He was a determined and resourceful officer, and through his inspirational leadership he instilled in the new brigade an e*sprit d' corps* that would remain throughout the war. Although they were a designated as a naval infantry brigade, the Far Eastern Naval Brigade did not possess any watercraft when they arrived in Indochina, and they quickly set out to acquire whatever they could get their hands on. Their makeshift flotilla was comprised of former Japanese junks, craft captured from the Viet Minh, surplus British landing craft, and several commandeered motorized barges originally used to transport rice. Fitted with heavy weapons and protective armor, the barges gave the brigade the ability to transport an entire company of infantry and their equipment.[8] This capability would prove invaluable in the initial efforts to restore French control over Indochina.

The importance of riverine combat forces was quickly proven when the French and British attempted to regain control of three cities located in the Mekong Delta south of Saigon. The first objective was My Tho, which was to be taken by an armored column

from Saigon, some seventy kilometers away. The column would be restricted to the roads, since the vehicles and tanks would be unable to traverse the swamp-like terrain of the Delta. The roads, however, were in very poor condition and pockmarked with craters. Most of the bridges had collapsed or had been sabotaged by the Viet Minh. It would take almost a week for the column to reach My Tho. Meanwhile, a task force comprised of a battalion of paratroopers and a company of naval infantry, traveling on the rivers and canals, arrived well before the land forces and secured the city two full days before the arrival of the overland contingent.[9] Before long, the naval infantry and paratroopers, transported by their makeshift riverine craft, secured the other two objectives of the operation as well. The use of naval units on the inland waterways of Vietnam clearly had merit.

The initial operations of the Far Eastern Naval Brigade were such a resounding success that the commander of the French Forces in Indochina, General Leclerc, directed that Commander Jaubert reorganize the Far Eastern Naval Brigade to form a river flotilla comprised of landing craft and naval infantry.[10] The importance of the inclusion of dedicated infantry cannot be overlooked. Command relationships between the land component and naval components could thus be cultivated and improved, as well as an appreciation for the mutual capabilities of each component. The individual troops would quickly gain experience in the specialized tactics and procedures that would evolve during the course of operations, resulting in lower casualties.[11] Unfortunately, as the conflict evolved, the French forces were spread too thinly to leave large contingents of troops assigned to the riverine units. The riverine units would normally maintain a small landing assault force, with larger infantry units attached as needed. This practice would

eventually become a key part of the French doctrine for fighting the counterinsurgency in Vietnam.

In 1947 the river flotillas were officially reorganized as *Divisions Navales d'Assaut*, or *Dinassauts*. The size and number of craft assigned varied based on availability, but the units were designed to have the same basic elements: a command ship, a transport section, a landing and support section, a patrol-liaison section, a minesweeper section, and whenever possible a small landing force of attached infantry. The command ship was usually an amphibious assault ship, modified to provide command and control functions and fire support to the remainder of the group. The transport section was comprised of a tank landing craft (LCT) or a section of mechanized landing craft (LCM), to provide transport functions for troops and cargo. The landing and support section was composed of a mix of LCMs and vehicle-personnel landing craft (LCVP) to transport troops and provide close-in fire support with heavy machine guns and small cannon. The minesweeper section used craft equipped with mechanical sweep gear to clear the rivers and canals of the frequent mines used by the Viet Minh. The patrol-liaison section consisted of one or more harbor patrol craft to provide security for the force. This organization was designed to provide a balance between two key capabilities: the ability to transport a battalion of troops, and to provide them with adequate fire support once disembarked.[12] Additionally, the craft of the *Dinassauts* maintained control of the vital lines of communication over the inland waterways. The actual craft and numbers assigned varied as the war progressed, but the basic elements remained the same. The French Navy would form nine permanent *Dinassauts* through the course of the war, and they would see service throughout Vietnam.[13] To meet growing

Viet Minh capabilities, the *Dinassauts* were often task-organized into large convoys. When France withdrew from Vietnam in 1954, much of this riverine force would continue service in the newly formed Navy of the Republic of Vietnam. The South Vietnamese Navy would form their own River Assault Groups, based on the Dinassauts.

French Riverine Craft

The French riverine fleet grew out of necessity and ingenuity at first, using whatever could be purchased, salvaged, scavenged, or captured. Recognizing the vital role of river transport, the French purchased additional river craft from the United States and Britain and shipped them to Indochina. In most cases, they used former amphibious assault ships and landing craft, due to their relative abundance following the war and their having characteristics that allowed them to operate on the waterways of Indochina after certain modifications to their armor, armament, and habitability. Throughout their experience in Indochina, limited resources and budget concerns hampered French Navy efforts, preventing them from building truly ideal riverine craft. The principle vessels used were:

Landing Craft-Infantry (LCI). The LCI was the flagship of the *Dinassaut*. It provided command and control functions, as well as fire support for the rest of the force. It had a displacement of 300 tons, a length of 160 feet, and a draft of four feet. Its variable pitch, twin screw propulsion made it highly maneuverable and gave it a top speed of fifteen knots. It was heavily armed with a 75-millimeter gun, a 40-millimeter gun, two 20-millimeter guns, one or two mortars, and multiple heavy machine guns. It could carry 250 troops, and as it had a beaching capability, could discharge them directly on the banks of the river.

Landing Ship Support-Large (LSSL). The LSSL was an LCI modified to provide additional fire support. It had the same characteristics of the LCI, except that its armament included a 76-millimeter gun and two 40-millimeter guns.

Landing Craft-Tank (LCT). The LCT was the ubiquitous transport craft of Indochina. It was used for transporting all types of cargo, including troops, vehicles, and supplies. Although they were not normally assigned to the *Dinassauts*, they frequently operated in conjunction with them in convoys. The LCT had a maximum displacement of 500 tons, was 187 feet long, and had a draft of four feet, nine inches. Its twin screws gave it a maximum speed of eight knots. Its armament consisted of a 40-millimeter gun, four 20-millimeter guns, and various machine guns. It could carry up to a battalion of troops or a variety of vehicles.

Landing Craft-Mechanized (LCM). The LCM was the workhorse of the *Dinassauts*. Built by both the British and the Americans, there were two basic types, the long LCM and the short LCM. The long LCM displaced up to fifty-two tons, was fifty feet long, and had a draft of four feet, seven inches. The short LCM displaced up to thirty tons, was forty-five feet long and had a draft of four feet, two inches. Both versions could do eight knots. The long LCM was armed with three 20-millimeter guns, two machine guns, and mortars. It could carry one tank or 120 troops. The short LCM was armed with one 20-millimeter gun, two machine guns, and mortars. It could carry one vehicle or one hundred troops. The LCMs were modified to provide rudimentary crew accommodations, additional armor protection, and protection from grenades in the form of a cover over the well deck.

LCM-Monitor. The LCM-Monitor, an extensively modified LCM, provided additional fire support to the units. The bow ramp was removed and replaced with a conventional bow shape and a turret containing a 40-millimeter gun and a 20-millimeter gun. Three additional 20-millimeter guns were located aft, and the covered well contained a heavy mortar. Additional armor was added to give them the capability to slug it out with Viet Minh ambushes at point-blank range. The LCM-Monitors could not carry troops.

Landing Craft, Vehicle-Personnel (LCVP). The LCVP was a small landing craft that was modified to carry out patrol duties. The LCVP was thirty-six feet long, and had a draft of less than four feet. It was armed with one 20-millimeter gun and three light machine guns.[14]

Commandament. The Commandament was an LCM modified to perform command and control functions and fire support for the *Dinassaut*, supplementing the LCI or even replacing it in shallow waters. Like the LCM-monitor, it was not intended to perform troop landings and the bow ramp was removed. It was replaced by a conventional bow with a 20-millimeter turret. There was an additional 20-millimeter turret aft of the pilothouse. The well deck contained an 81-millimeter heavy mortar, and crew living quarters. A command room was added forward of the pilothouse.[15]

The *Dinassauts* at times employed several other craft, including an indigenously produced river patrol craft known as the STCAN/FOM. This acronym comes from the first letters in the name of their builder, *Services Techniques des Constructions et Armes Navales*, and from a term meaning that they were constructed outside of France, *France Outre Mer*. Often used for minesweeping duty, the STCAN/FOMs proved especially

resilient in the face of enemy mines due to their V-shaped hull, sturdy construction, and small size.[16]

In the face of ever-increasing Viet Minh capabilities, the French identified the need for the following capabilities: larger vessels with more power and smaller, faster vessels for scouting and raids. To meet the first requirement, they recommended changing the monitor platform to the larger LCT and increasing the armor from twelve millimeters to 100 millimeters, and upgrading from a 40-millimeter gun to a 130-millimeter or 150-millimeter gun. This would give the *Dinassaut* a powerfully armed and heavily armored, shallow draft vessel that could go head to head with almost anything the Viet Minh could muster. The second requirement stemmed from the need for a swift patrol craft to conduct raids, scouting missions, and minesweeping. The vessels then in service were slower than many of the other convoy vessels, restricting the speed of the entire formation. The desired qualities were stealth, speed, and survivability. The specific requirements were: a speed in excess of twenty knots, a draft less than one meter, a range of 100 nautical miles, twin screw-twin engines with low noise signature, armor protection for key components, and armament of 20-millimeter or 57-millimeter guns, supplemented with light machine guns. Additionally, the hull design should provide good seaworthiness, a beaching capability, and minesweeping gear.[17] These craft never came to fruition, however, due to the limited French resources. Their requirements would reappear a decade later, when a new chapter in the war opened.

French River Operations

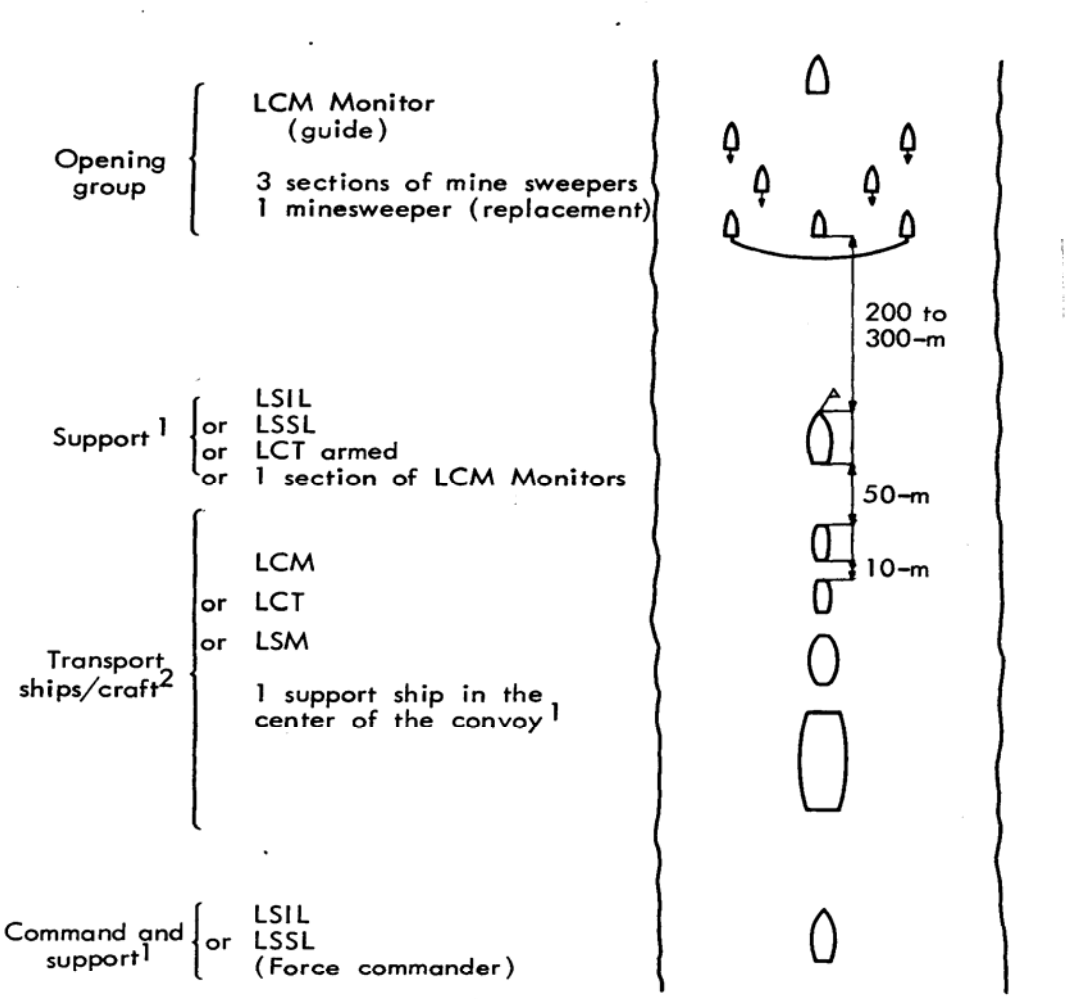
The French riverine forces originally were used to transport troops and supplies, but quickly assumed other roles. These included missions such as minesweeping, patrol

and interdiction, and fire support for ground forces. As the Viet Minh resistance increased in ferocity, the combat power of the river convoys increased as well.

The French employed a standard river formation for both logistics convoys and assault convoys (see figure 1). The Opening Group led the convoy. Three sections of minesweepers, a relief minesweeper, and a supporting LCM-monitor made up the Opening Group. The Main Body was divided into two sections, the Support Group and the Transport Group. The Support Group contained the fire support element of the convoy. This could be any combination of a section of one or more fire support ships and/or a section of LCM-monitors. The Support Group also carried the convoy commander. The Transport Group consisted of a mix of transport ships or landing craft. The convoy was normally arrayed into one or two columns. These formations provided for mutual fire support between the ships, a key factor in dealing with ambushes.

The riverine forces often encountered ambushes along the rivers and canals. There were two basic options for dealing with an ambush: neutralize it or destroy it. When under attack, a river column resorted to the "ball of fire" tactic, whereby every available gun would open fire on any possible enemy position. This vicious response to enemy fire, combined with the speed of the convoy, would neutralize the enemy and allow the convoy to continue its progress. Unfortunately, the enemy was often well protected in prepared positions, and therefore suffered little damage.[18] The other option for the convoy was to destroy the ambush by landing the infantry assault force of the escorting *Dinassaut*. The troops would land on the flanks of the ambush to encircle the enemy, while the monitors and fire support ships would fix the enemy in their ambush positions with point-blank fire. This response often resulted in heavy enemy casualties

and served as a temporary deterrent to future ambushes in the same area, but it slowed the progress of the convoy, and made it vulnerable to massed artillery and mortar fire.[19]



1 When there is but one support ship, it takes the lead and is the command ship. When there are two support ships, the command ship is in the rear. When there are three support ships, the command ship is in the center.

2 Sometimes the transport craft are in two columns, lashed in pairs.

Figure 1. Standard French River Formation
Source: V.J. Croizat, *A Translation from the French: Lessons of the War in Indochina vol. 2* (Santa Monica, CA: Rand Corporation, May 1967), 176.

Riverine operations maintained their importance throughout the French campaign in Indochina. Very rarely were the Viet Minh able to stop a river convoy, although their ferocity in trying forced the French to assemble stronger and stronger convoys. So long as an outpost could be supported by the riverine forces, it could continue to exist.

French Lessons

Although the French were unable to maintain control over their former colony, the formation of the *Dinassauts* is often regarded as one of the tactical innovations that was perfectly suited to the war in Vietnam.[20] As the pioneers of this new form of warfare, they learned many hard lessons. Some of these lessons would be incorporated into future forces. Others would be ignored, and learned again.

The major drawback to the *Dinassauts* is that although designed to provide transportation and fire support for up to a battalion, their organic, attached infantry was normally only a company-sized detachment of naval infantry or army light infantry. The remainder of the landing force was assigned as needed from other units. There were additional infantry units that regularly operated with the *Dinassauts* and formed a symbiotic working relationship, but amphibious operations were only a portion of their mission. The problem that arose from only temporarily assigning ground units to the *Dinassaut* is that it hindered the creation and maintenance of corporate knowledge. Each time a new unit would operate with the riverine unit it would have to learn all the unique characteristics of riverine amphibious warfare, such as proper assault techniques and tactics, and coordination between the ground elements and the waterborne elements. In their after-action review of the war, the French determined that in order to fully realize the *Dinassaut* capabilities, they needed to be organized into an integrated riverine

amphibious unit containing a dedicated, specially trained ground force, capable of independent, decisive operations to seek out and destroy the enemy.[21]

Although the enemy was quite effective on land, they were less effective on the waterways. The Viet Minh very rarely fought on the water, preferring to fight from the riverbanks. Although the only major waterborne threat the enemy presented was the use of swimmers against fixed bases, they were very adept at the use of ambushes, controlled and floating mines, and obstacles, sometimes in conjunction with each other. Their weakness, however, was that they often failed to effectively concentrate their firepower. For example, on the Day River in 1952 the Viet Minh massed over twenty 75-millimeter and 57-millimeter guns and over one hundred-fifty automatic weapons. This firepower was spread over a seven kilometer stretch of the river, instead of creating one devastating kill zone. This dispersal of fire meant that the French convoy could maintain local fire superiority, although on a whole they were greatly outgunned. The Viet Minh also proved effective at coordinated attacks on French outposts and the forces sent by river to relieve them.[22] Additionally, increasing enemy capabilities meant that the combat power required to escort the logistical convoys was constantly increasing. This sapped the power of the *Dinassauts*, leaving few craft for decisive operations.

The riverine forces operated from both fixed and mobile riverine bases. They were naturally tempting targets for the Viet Minh. The French employed a variety of active and passive measures to protect their bases, such as active and random waterborne and ground patrols, nets to protect against mines and swimmers, and random relocation. These measures had greatly varying degrees of success. Essential to base security was the ability to mass strong, defensive firepower. Counterbattery artillery fire was especially

important, as the bases were extremely vulnerable to enemy artillery and mortar fire. Another successful technique was to anchor the base ships in a river, vice locating along one of the riverbanks. The security problem was further simplified by not employing a ground element on the banks, because it eliminated the possibility of friendly fire incidents in the event of an attack.[23] Although the riverine bases often came under attack, sometimes with disastrous results, the enemy never fully capitalized on the attacks. The French after-action review of the war made the following observation of enemy capabilities:

> Despite occasional success the enemy did not fully exploit the possibilities of attacking our ships at anchor, and in particular never used his medium caliber artillery, whose effect on our craft would have been deadly. It should be borne in mind that an enemy who was better informed on the characteristics and capabilities of our various ships and craft, and who enjoyed resources comparable to those that the Viet Minh possessed at the end of the war, would be able to prevent us from anchoring outside of zones strongly held by ground forces.[24]

The French riverine forces, including the *Dinassauts*, conducted vital missions for the French war effort. They maintained the vital logistical links to beleaguered outposts, patrolled the key waterways, and transported large formations of troops to find and destroy the enemy. The *Dinassaut* concept continued in the newly formed South Vietnamese Navy, in the form of the River Assault Group. When the US involvement in the war intensified, the *Dinassaut* idea would be transformed and improved in 1968 into the Mobile Riverine Force.

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[2]David G. Marr, *Vietnam 1945: The Quest for Power* (Berkeley, CA: University of California Press, 1995), 14.

[3]Ibid., 19.

[4]Ibid., 28-29.

[5]Ibid., 70-72.

[6]Koburger, xxii.

[7]Robert Kilian, *History and Memories: The Naval Infantrymen in Indochina* (Paris: Editions Berger-Levrault, 1948), 1.

[8]Koburger,235-236.

[9]Kilian, 18.

[10]Ibid., 24-25.

[11]Koburger, 8-10.

[12]V. J. Croizat, *A Translation from the French: Lessons of the War in Indochina,* vol. 2 (Santa Monica, CA: Rand Corporation, May 1967), 349-351.

[13]Koberger, 119-120.

[14]Maurice Raymond de Brossard, *Dinassaut* (Paris: Editions France-Empire, 1953), 169-175.

[15]Richard T. Gray, *Revolutionary Warfare on Inland Waterways: An Exploratory Analysis* (China Lake, CA: US Naval Ordnance Test Station, January 1965), 229-231

[16]Croizat, 356.

[17]Ibid., 356-358.

[18]Ibid., 178-179.

[19]Ibid., 179.

[20]Everett Payatte, "Program Planning for Riverine Operations" in *Mekong Delta Mobile Afloat Force (MDMAF) Joint Conference of 20, 21, and 22 September 1966* (Coronado, CA: Naval Amphibious Base , 27 September, 1966), 84.

[21]Croizat, 353-355.

[22]Ibid., 173-177.

[23]Ibid., 183-184.

[24]Ibid., 185.

CHAPTER 3

THE AMERICAN EXPERIENCE

The Importance of the Inland Waterways

The waterways of Vietnam had been important lines of communication throughout the country's history and were proven to be of vital military importance during France's ill-fated campaign to maintain control over Vietnam. As the Republic of Vietnam emerged from under colonial rule, the French created a Navy for the fledgling republic. Initially, it was little more than an adjunct to the French Navy, with French officers and Vietnamese enlisted men.[1] Eventually it would develop into a truly Vietnamese navy, three distinct branches concentrating on different areas of responsibility. The branches were the Sea Force, the Junk Force, and the River Force.[2] Designed primarily to protect the Republic of Vietnam from their rival to the north, all three branches conducted patrols to interdict Viet Cong supply routes. The River Force elements, organized along the lines of the French *Dinassauts*, consisted of a River Transport Group, a River Transport Escort Group, and River Assault Groups.[3] They even used former French equipment. In August 1950, the first American advisors arrived in Vietnam and established the US Military Assistance Advisory Group-Vietnam.[4] Initially there to assist the French, the United States slowly began to replace France as the primary benefactor for the new Republic. In 1956, the French left South Vietnam completely. On 25 May 1959 permission was granted for American advisors to accompany South Vietnamese units while conducting combat operations and soon American naval advisors began to observe the operations of the new South Vietnamese Navy.[5]

As the communist opposition to the existence of South Vietnam increased, the US interest in that country also increased. US observers noted the problems faced by South Vietnam, and the tactics being employed by the insurgent forces within her borders. The waterways of Vietnam were quickly identified to be of vital importance. In 1962, the Research Analysis Corporation conducted a study of Viet Cong ambush tactics on rivers and canals in order analyze the effectiveness of current countermeasures and tactics, and to identify any required improvements.[6] Identifying the Mekong Delta as a critical area to the Republic of Vietnam and pointing to increasing exploitation by the Viet Cong, they predicted that ambushes would be an increasing problem in the Delta. In response they advocated further research into increased armor or new designs for river craft, new mine detection and sweeping techniques, and emphasized the importance of heavy suppressive fires at the onset of an ambush and the use of direct frontal attack or encirclement by troops and by fire for destruction of the ambush.[7] The validity of these recommendations would become apparent only a few short years later.

Other reports and studies further pointed out the importance of the rivers and canals of Vietnam and even identified the need for specialized craft and forces. In 1964, the Vietnam Delta Infiltration Study Group concluded that the Communist insurgents used the waterways of South Vietnam as a major supply route and recommended the use of an amphibious river force to attack these supply lines.[8] The war on Vietnam's rivers was a source of concern even at the Naval War College, where it was the subject of several research papers. Commander Jack Endacott theorized that the control of inland and coastal waters would be vital to suppressing an insurgency and warned of the need to

develop a capable, deployable riverine warfare force complete with specialized doctrine, training, weapons and craft.[9]

In January 1965, the Weapons Planning Group of the Naval Ordnance Station at China Lake released a report entitled "Revolutionary Warfare on Inland Waterways: An Exploratory Analysis." The authors of the report closely studied previous riverine campaigns throughout history, to include the American Civil War, the British campaign in Mesopotamia in World War I, and the French campaign in Indochina. Additionally, they studied the then-ongoing war within the Republic of Vietnam. Through this analysis, they were able to illustrate the importance of operations on inland waterways and the significant tactical and strategic advantages offered through the control of these waterways. Examining both the historical and current campaigns, they identified common concepts and characteristics of riverine warfare ranging from the conduct of operations, force composition, and watercraft characteristics. These concepts were readily applicable to operations in Vietnam.

The study of previous experience revealed several important lessons, such as the need for specialized craft, the importance of proper logistical support, the danger of ambushes, and the value of amphibious infantry supported by river-borne naval fire support. Most important, however, is the concept of unity of command and joint planning. [10] Most riverine operations have been or are a joint venture between Army-Navy forces. Citing several examples through history, the effectiveness of a riverine operation can be related to how well the efforts of the forces involved are coordinated. Successful operations require a cooperative effort, unified in task, purpose, and direction.

Recognizing the strategic importance of the inland waterways in Vietnam, and acknowledging the possibility of similar conflicts in other parts of the world, the Weapons Planning Group recommended or endorsed several initiatives and studies to enhance current capabilities, or to develop new ones. These recommendations included changes to equipment and weapons, as well as the development of operational concepts.

The Weapons Planning Group report identified the following desirable characteristics of riverine warfare watercraft:

1. High effectiveness in the combat area
2. Versatility, to reduce inventory and training burdens
3. High mobility, to close with the enemy in areas of difficult access
4. Personnel and critical-machinery armor, to help minimize the effectiveness of hostile fire
5. Simplicity, to reduce the logistics and training burden and to improve system reliability in a difficult environment where sophistication is rarely needed
6. Handling qualities, weight, proportion, and size that observe human, tactical, and physical-environment factors
7. Signature characteristics (noise silhouette, etc.) that do not necessarily announce the presence or intent of counterrevolutionary authority or friendly revolutionary activity
8. Low cost, compatible with the capability of the nations involved to procure and sustain these selected watercraft[11]

In light of these requirements, the Weapons Planning Group advocated both the modification of current vessels, as well as the pursuit of new vessels. Based on the experience of the French Navy and the Navy of the Republic of Vietnam, they suggested that landing craft in the US Navy inventory could be modified along similar lines to provide a riverine transport and support capability. Further refinements could include aluminum construction, silenced engines, and weedless propellers or water-jet

propulsion.[12] One capability the landing craft were lacking, however, was speed. New craft considered by the study included military craft under development at the time and commercial boats adapted for military use. These vessels were widely varied, from a 36-foot, 15 knot metal-hulled River Patrol Craft, to a fiberglass Fast River-Patrol Craft built by the Bertram Yacht Company, to the venerable Boston Whaler runabout. Some of these concepts would be explored and followed to fruition to be employed in the rivers of Vietnam.

Advocating increased emphasis on riverine operations, the Weapons Planning Group pointed to a 1962 staff paper produced by the Navy Section of the Military Assistance Advisory Group, Vietnam. This paper outlined the concept for a River Warfare Force to be used in a counter-insurgency role. Intended primarily for use in Vietnam, but applicable almost worldwide, the paper outlined the tactical, geographical, environmental, and population conditions and characteristics common to riverine operations. Analyzing the force structure, tactics, support, and logistics required, the paper recommended the creation of “River Groups”, comprised of company-sized units of light infantry, transported by a flotilla of small, swift riverine craft, and supported by a mother ship. Relying primarily on speed for protection, the boats would be capable of carrying an augmented rifle squad, and would be armed with a pair of light machineguns. The boats would provide transport and limited logistical support to the infantry, and would in turn be supported by the mother ship. The mother ship would serve as an advance base for the River Group, providing temporary berthing and messing facilities for the boat crews and infantry, medical facilities, limited repair facilities for the boats,

and logistical support. A major support ship would provide logistical and maintenance support to multiple River Groups.[13]

The mission of the River Group, as envisioned by the Navy Section of the MAAG-V in 1962, would be to fight a guerilla-style war on nearly the same terms as the insurgents. Using the mobility and logistical support provided by the river element, the infantry would be able to move swiftly throughout the area of operations in their search for insurgent units. More important than their mobility, however, they would draw strength from the local population and turn them against the insurgents. Critical to locating insurgents would be the development and collection of intelligence. To meet this requirement, and recognizing the importance of establishing good relations to gain the support of the local populace, the concept made provisions to include psychological-warfare specialists and native personnel to augment the infantry units, with two specialists assigned to *each squad*.[14] Relying on the enhanced mobility provided by their riverine transport, these units would patrol their operating area frequently to provide the local population a sense of security and to disrupt the operations of the insurgents. Sustained operations would eventually create an environment in which hostile insurgent forces would no longer have the necessary freedom and invisibility required to conduct further operations.

Although the exact impact that either the 1962 MAAG-V report or the 1965 Weapons Planning Group report had on the development of US Navy riverine forces is unclear, it is worth noting that in 1968 the River Warfare Force concept was implemented on a large scale, when the US Army and Navy collaborated to create the Mekong Delta Mobile Afloat Force concept that became the Mobile Riverine Force.

The US effort in Vietnam increased dramatically in 1965, and with it the commitment to regain control of Vietnam's waterways. In early 1965, the Military Assistance Advisory Group transitioned to the newly created Military Assistance Command Vietnam, or MACV. General Westmoreland, the commander of the Military Assistance Command Vietnam, stated that the "control of traffic on the inland waterways of the Mekong Delta is one of the key problems facing the Allied Forces in South Vietnam."[15] On 1 February 1965, the Naval Advisory Group of the Military Assistance Command Vietnam established the criteria for a riverine and inshore patrol boat in a study titled "Naval Craft Requirements in a Counter-Insurgency Environment."[16] Before the month was over, the need for such vessels would be clearly illustrated.

On 16 February 1965, while flying over Vung Ro Bay in central South Vietnam, an Army medical helicopter pilot reported sighting a camouflaged ship. South Vietnamese aircraft attacked the ship, and troops were sent to investigate the area. What they found was a treasure trove of information. On shore were large caches of Russian and Chinese equipment destined for the Viet Cong, and onboard the vessel were important intelligence documents linking it to communist North Vietnam.[17] The significance of this find was not lost on the military leaders in Vietnam: the Viet Cong were receiving large amounts of supply and support from the sea, and the young navy of the Republic of Vietnam was unable to interdict this vital supply route. Unfortunately, at the time the US Navy did not have a suitable coastal force to stop this flow of arms, either.

The Coastal Surveillance Force

Despite the numerous sources highlighting the need for the US Navy to develop an inshore and riverine capability, the requirement was not seriously addressed until after that fortuitous day in February 1965. Then, the Navy furiously tried to catch up. To cut the Viet Cong supply line along the South Vietnamese coast, the Navy commenced Operation Market Time, and formed Task Force 115 – the Coastal Surveillance Force. Ships and aircraft of the Navy would patrol the South Vietnamese coast to halt the flow of arms and material into South Vietnam. Maritime patrol aircraft would provide surveillance, in conjunction with destroyers and radar picket ships. The Vietnamese Navy Sea Force and Junk Force would patrol along the coastline. Due to the geography of the South Vietnamese coast, with its vast number of small islands, inlets, bays, and estuaries, however, the US would be required to augment the Vietnamese inshore patrols. Unfortunately, the US Navy did not possess any vessels capable of operating in the shallow waters found along the coast.

An initial request went out to the US Coast Guard to dispatch available inshore patrol boats to Vietnam, while the Navy desperately tried to develop a patrol force of its own. The Coast Guard responded in April 1965, creating USCG Squadron One and dispatching it to South Vietnam.[18] The cutters of the squadron, known as WPB's, were eighty-two foot, steel and aluminum vessels with a sixty-five ton displacement and a five and a half foot draft. Their twin diesel engines gave them a top speed of 18 knots. For duty off the Vietnamese coast they were armed with a combined .50 caliber machine gun and 81-millimeter mortar mounting on the bow, with four more .50 caliber machine guns

mounts amidships and on the fantail. These durable vessels formed the vanguard of the Coastal Surveillance Force, but would soon be superceded.

While the Coast Guard filled the gap, the Navy searched for a suitable patrol boat of its own. They found one in the form of a water taxi used to service oil platforms in the Gulf of Mexico. In June 1965, the Navy contracted Sewart Seacraft to construct an inshore patrol boat based on the design of the water taxi. The resulting craft was officially titled the Patrol Craft-Fast (PCF), but was affectionately known as the Swift Boat.[19]

As they arrived in Vietnam, the new Swift Boats were assigned to Boat Divisions within the newly created Boat Squadron One. Established on 1 October 1965, as the PCF component of the Coastal Surveillance Force, Boat Squadron One was originally comprised of five Boat Divisions numbered 101 thru 105, each assigned to a different sector along the Vietnamese coast.[20] On 1 January 1967 Boat Squadron One was redesignated as Coastal Squadron One, and the Boat Divisions became Coastal Divisions 11-15.[21] Later that year, Coastal Division 16 was added to the squadron.

The Swift Boat became the workhorse of the Coastal Surveillance Force. It was a nineteen-ton, fifty-foot, aluminum-hulled craft propelled by twin diesel engines to a top speed of twenty-eight knots. It was armed with a twin .50-caliber machine gun and a combination .50-caliber machine gun and 81-millimeter mortar. A draft of less than four feet allowed them to operate close to the shoreline. Aside from conducting Market Time patrols to intercept and inspect coastal traffic bound for South Vietnam, they also served as rescue boats for downed airmen, provided naval surface fire support to troops ashore with their mortars, and even made short forays into the coastal rivers.

Begun in March 1965, Market Time and the Coastal Surveillance Force made significant inroads to the supply lines of the insurgent forces, capturing, destroying or turning back an increasing number of vessels each month. This caused the insurgents to find other routes into South Vietnam. Many of these routes were on the rivers and canals that flowed through South Vietnam from Cambodia to the South China Sea. Allied leaders desired to broaden the scope of the interdiction effort to include the inland waterways of South Vietnam.

The River Patrol Force

To stifle the Viet Cong supply lines along the waterways within South Vietnam itself, the US Navy created the River Patrol Force, or Task Force 116. Since the Swift boats were not ideally suitable for operating in the confined rivers of Vietnam, the Navy once again needed a new combat craft. In August of 1965, the Navy began operating four boats known as Landing Craft Personnel (Large), or LCPLs, in the Mekong Delta to determine their feasibility as river patrol boats. The LCPL was a thirty-six foot steel-hulled boat designed as a command and control craft during amphibious assaults. For duty in the Delta, they were equipped with radar and a battery of searchlights and were armed with a .50-caliber machine gun on the bow and at the stern, as well as a pair of .30-caliber machine guns amidships.[22] Propelled by a single six-cylinder diesel engine and with a draft of over three feet, their performance was less than optimal for river operations. There were also very few of them available for use in Vietnam.[23] Fortuitously, a North Carolina yacht builder had a solution.

Originally vying for the Swift boat contract, Willis Slane, founder of the Hatteras Yacht Company, proposed fitting water jets to a version of his company's twenty-eight

foot cabin cruiser. Based on the lessons already learned in the Vietnamese rivers, the use of a pair of directional water jets in place of a conventional propeller and rudder promised to prevent propeller and rudder fouling from river debris and allow operation in shallower water. The Navy was intrigued, and development progressed rapidly. Only a few weeks after pitching his concept to the Navy, Willis Slane presented his prototype to the Navy, demonstrating the nimble, responsive performance provided by the lightweight hull and water jet drive. Obligated by Congress to seek competition, the Navy issued a request for a river patrol boat based on Willis Slane's prototype. In November 1965, the Navy ordered 120 boats with the designation of MK I Patrol Boat-River (PBR) from a boat builder in Bellingham, Washington.[24]

The PBRs were thirty-one foot, fiberglass-hulled boats equipped with twin diesel-powered water jets built by Jacuzzi. These water jets made the boats quite fast and maneuverable, while reducing the draft to only a few inches when at speed. They were armed with a twin .50-caliber machine gun located on the bow, and a single .30-caliber machine gun on the fantail. Mounts for additional machine guns or other weapons were provided amidships. Armor protection for the crew and vital components was provided in the form of ceramic armor, but most crews felt that their best protection lay in their speed and their ability to provide massive amounts of counter-fire.[25]

The PBRs of Task Force 116 would not go to Vietnam alone. To support the PBRs the Navy modified amphibious transports (LSTs) to serve as mobile bases of operations. The task force received its own dedicated air support as well. The French had proven the value of using light aircraft as scouts for river patrols. The Navy therefore formed a light helicopter attack squadron, the Seawolves (HAL-3), comprised of twenty-

four UH-1B "Huey" helicopters. Later, a fixed-wing attack squadron, the Black Ponies (VAL-4), using OV-10 Broncos, supplemented the helicopters.

In March 1966, River Squadron Five was created to organize the new PBRs.[26] The River Squadron was further subdivided into four River Divisions, each with three River Sections containing ten PBRs each. Originally authorized a strength of 120 boats, in February 1967, the Chief of Naval Operations authorized the River Patrol Force to increase to 250 boats.[27] This strength was reached late in 1968, and in September River Squadron Five was redesignated to River Patrol Flotilla Five. The subordinate units were upgraded as well, from River Sections to River Divisions, and River Divisions to River Squadrons.[28]

Task Force 116 began operation in December 1965, patrolling the major waterways in Vietnam, such as the Long Tau shipping canal to Saigon. This operation was named Operation Game Warden. The patrols conducted as part of operations Market Time and Game Warden were intended to cut the supply lines of the VC and NVA. A new force would be needed to go after them directly.

The Mobile Riverine Force

In the southern quarter of South Vietnam, beginning just south of Saigon, is an area known as the Mekong Delta. Created by the mouth of the Mekong River, it is comprised of a vast network of rivers, streams, marshes and swamps, and also a wide system of canals, since the Delta contained few roads. This fertile, low-lying area is an ideal rice-growing environment, and was often referred to as "the rice-bowl" of South Vietnam. It was densely populated, with more than half of South Vietnam's population living in the Delta. The strategic importance of the region was clear to US military

commanders, who recognized it as by far the most important region in South Vietnam.[29] It was also a stronghold of Viet Cong activity.

Operations Market Time and Game Warden focused on cutting the waterborne supply lines to the Viet Cong and North Vietnamese Army. A new task force would be formed to hunt them down and attack them directly. The area of operations would be the Mekong Delta. The marsh-like terrain in the Delta meant that a conventional land force would be unsuitable, but a light infantry force that moved on the waterways would be ideal. The French had developed just such a unit when they created the *Dinassauts,* and as previously stated, in 1962 the Naval Section of the Military Assistance Advisory Group had proposed a similar unit for the United States, known as a River Warfare Force. This concept offered other advantages aside from their inherent mobility offered by river transport. In the marshy terrain of the Delta, solid ground was at a premium. Placing a large unit in the Delta would require a large base, or several smaller ones, but the local inhabitants already occupied most of the firm ground suitable for a base. Any displacement of the civilian population would be viewed very negatively from a population whose support was crucial for success. One possible solution was to create suitable dry land for bases with fill obtained by dredging the river. However, dredging would take an inordinate amount of time, and the US was anxious to begin operations.[30] Again, the River Warfare Force concept that had been proposed in 1962 offered an answer: a mobile afloat base. A small flotilla of support ships would provide the berthing, command and control, and logistical facilities required for the force.

When the concept was initially proposed, the combat environment in Vietnam was much more benign, and the operational unit was envisioned as company sized. The

force envisioned in 1966, however, would be a division, with one brigade based afloat. The other brigades of the division would move into the Delta as adequate bases could be constructed through dredging.

Initially known as the Mekong Delta Mobile Afloat Force (MDMAF) the new force was created with several lessons adopted from the organizational structure and equipment used by the *Dinassauts* and the Vietnamese Navy River Assault Groups. The most notable improvement over the French concept was the inclusion of a dedicated infantry unit. The French after-action review of the war in Indochina concluded that the *Dinassaut* concept needed to be carried further to create "a fully integrated riverine amphibious force capable of independent operations to hunt down and destroy the enemy."[31] The MDMAF would do just that.

The 9th Infantry Division was reactivated for duty in the Delta, with the 2nd Brigade designated to be the afloat component. As such, their structure and equipment allocated was adjusted to conform to the new role. For instance, the majority of the vehicles normally associated with an infantry division were deleted, with the associated drivers and mechanics replaced with riflemen. As they were to be based on board the ships of the Mobile Afloat Base, they did not require any tents or galley equipment. Tailored to riverine amphibious warfare, the dedicated afloat infantry would become experts at their trade, a feature that the *Dinassauts* were never quite able to accomplish.

The craft of the MDMAF would also benefit from the experience gained since the French operated in Vietnam. In the later stages of the French campaign, the firepower possessed by the Viet Minh was such that the *Dinassauts* often had to be grouped together in order to provide ample counterfire, and the vessels required more power,

heavier armor and armament.[32] Using these lessons and the principles for riverine warfare craft outlined by the Weapons Planning Group in 1965, the US Navy created a flotilla similar to the *Dinassaut* craft, but much more powerful. To provide the desired commonality among platforms, the basis for most of the MDMAF vessels would be the LCM-6 due to its ready availability, although the LCM-8 was the preferred platform due to its larger size and capacity. The LCMs were modified into four classes: Armored Troop Carrier, Command and Control Boat, Monitor, and Refueler. All were very similar to the French versions, and in fact their planned modifications were based on the French vessels still in use in the South Vietnamese Navy.[33] Their armor was significantly improved, however. In addition to steel plate armor designed to withstand a 12.7-millimeter bullet, they were outfitted with stand-off bar armor resembling a cage around the decks of the boats. This was designed to detonate rockets and shells prior to impacting the hull structure. Other modifications included the addition of radar on all but the Armored Troop Carriers, and the addition of a landing platform for helicopters on some of the Troop Carriers. Further refinements in follow-on craft included a 105-millimeter howitzer replacing the 40-millimeter gun on the Monitors.[34]

Although the majority of the flotilla was based on the modified LCM hull, there was one craft developed specifically for the MDMAF. This was the Assault Support Patrol Boat, or ASPB. This vessel drew heavily on the STCAN/FOMs used by the French and Vietnamese, but again was much improved over its predecessor. The French identified the need for a small, swift craft to conduct raids, scouting ahead of the main force, and faster minesweeping. The ASPB filled this role. Designed on a V-hull, the ASPB was faster than the LCM-based vessels of the MDMAF, yet still had good mine-

resistance, a vital quality in a vessel intended to conduct minesweeping. It was also well suited for scouting missions because the exhaust was routed below the waterline in order to muffle the engine noise, providing the ASPB with a modicum of stealth. It was armed with a pair of machine-gun turrets, as well as a bedplate in the stern for a 60-millimeter mortar. These versatile craft proved to be ideally suited to their role in the MDMAF.

The vessels of the MDMAF were organized as Task Force 117, with the small craft assigned to River Assault Squadrons Nine and Eleven, and the base and repair ships assigned to River Support Squadron Seven. The River Squadrons comprised River Flotilla One, which was also known as Task Force 117. In 1967, the Navy and Army elements came together in Vietnam to form the newly renamed Mobile Riverine Force (MRF) and soon after began operations in the Rung Sat Special Zone, a key portion of the Mekong Delta south of Saigon.

Both the Army and Navy units were created specifically for the MRF, but although neither could function effectively without the other, they were not in each other's operational chain of command. One hundred years earlier, during the Civil War, the Union Army and Navy operated under a similar arrangement. In a series of campaigns throughout the Mississippi basin, General U. S. Grant and Captain Andrew Hull Foote (later Admiral David Porter) conducted joint riverine operations on the Mississippi River and her tributaries to regain control of these vital transportation routes and to sever the Confederacy. A flotilla of riverboats was assembled, some of which were purpose-built ironclad warships while others were modified civilian craft. These boats would provide transportation, logistical support, and artillery support to Grant's troops. Throughout their operations, beginning with the capture of Forts Henry and Donelson in

Tennessee, and culminating with the capture of Vicksburg, Grant and the naval commanders coordinated the actions of their respective ground and naval forces by relying on a spirit of cooperation, not on a unified command structure, or even a joint doctrine.[35] Although assigned to cooperate with the Army, Foote remained under the command of the Navy, with orders to "cooperate with the Army without subordinating himself."[36] The success of the campaign was dependant primarily upon the ability of the two service commanders to cooperate and to coordinate their efforts.[37] One hundred years later, the Army and Navy would again assemble a force to conduct joint riverine operations, again without the benefit of a joint command structure or joint doctrine.

As described in the planning directive of the MDMAF, the relationship between the Army element and the Navy element would be one of "coordination and/or mutual support" while each element remained under the operational chain of command of its own service. [38] Task Force 117 answered directly to the Commander of Naval Forces, Vietnam (COMNAVFORV), while the Army element was under the operational control of the Commanding General, II Field Forces, Vietnam. Because of this unique command relationship, based more on close, mutual cooperation and less on rank and operational control, certain compromises or arrangements had to be made. In the interest of unity of command and effort, there were predetermined situations where one service was designated to be in command during an operation. For instance, while relocating the Mobile Afloat Base, the MDMAF would be under the command of the senior naval officer embarked, and the responsibility for its defense would be the Navy's. While stationary, the Army would have the responsibility for defending the base.[39] The reason for the existence of the MDMAF, riverine assault operations, would also yield command

and control difficulties. The MDMAF operations would have to be planned in a joint environment involving close coordination and cooperation between the two elements. However, the planning capabilities of the two services were not equal at all echelons. The 2nd Brigade staff was roughly equivalent in capability to the River Flotilla staff, but the River Squadrons were hardly comparable to the battalion staffs, nor were their subordinate River Divisions comparable to the Army's company staffs. Therefore, most of the naval planning for operations was conducted by the Flotilla staff.[40] When conducting a riverine assault operation, the Army commander would have operational control of the Army forces involved, while the Navy commander would have operational control of the Navy forces involved.[41] Each commander at each echelon would have to coordinate with his counterpart from the other element, but here, too, differences in the services caused difficulties. For instance, each ATC could carry a platoon, but where the platoon leader was normally an officer, the boat captain was normally an enlisted man. The same inequities of rank existed at nearly every level up to the Brigade and Flotilla.[42] As a result, rank had to be put aside in favor cooperation in order to achieve successful joint operations.

Through their joint riverine operations, and in the absence of a joint riverine doctrine, the Mobile Riverine Force would develop procedures and tactics unique to their form of warfare. Additionally, they would adapt some of their craft to provide unique capabilities, and develop other specialized craft out of necessity to support the force.

At the time of their deployment, the MRF did not have an agreed upon doctrine to dictate the conduct of operations.[43] Although their operations were to be quite similar to those conducted by the Union forces on the western rivers of the Civil War, and drew

heavily on the experience of the French *Dinassauts* and their South Vietnamese successors, there was not a formalized methodology for conducting riverine operations. The lessons from previous riverine campaigns, and especially the experiences of the Vietnamese River Assault Groups, were actually included in the syllabus developed by the Amphibious Warfare School for the training the officers of the MRF. [44] Highlighting the impact of these lessons, MRF tactics closely resembled the river tactics of the French, as shown in figure 1 (see figure 2). Despite this influence, the conduct of operations was not codified into a formal joint doctrine.

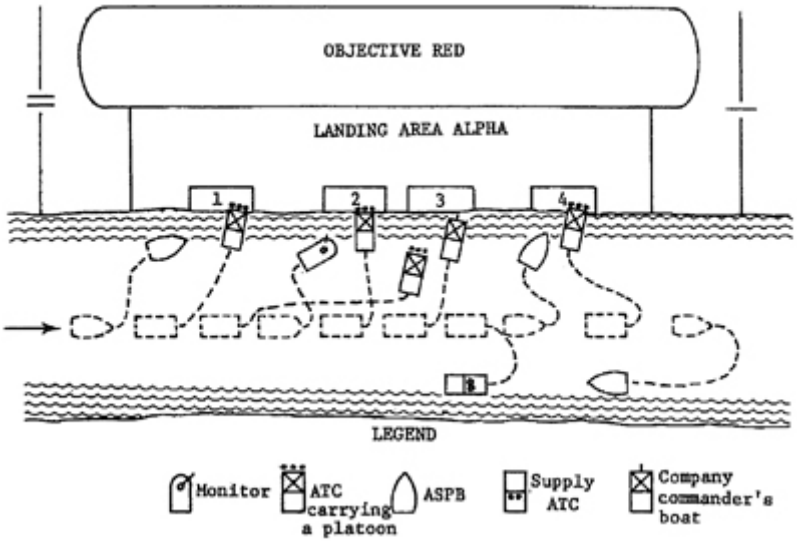

Figure 2. Typical Company Landing Formation
Source: William B. Fulton, "Riverine Operations, 1966-1969" (Vietnam Studies Monograph, Department of the Army, Washington, DC, 1973), 100.

The importance of an established doctrine lies in its use as a foundation for training. It also provides a framework for planning operations. In September, 1966, a planning conference was held at the Naval Amphibious Base in Coronado, California to

coordinate the training and preparation of the Ninth Infantry Division and River Flotilla One. While the agenda included items, such as the concepts of operations for the Army and the Navy units, equipment requirements, deployment schedules, and command relationships, it also emphasized the importance of a joint riverine doctrine. Although each service was working to develop its own doctrine, the conference participants agreed that a joint doctrine was needed and a joint working group was proposed for its development.[45] Alas, the proposed joint doctrine would not emerge prior to the MRF's deployment to Vietnam**.**

As the first modern unit of its kind in the US military, the men of the MRF proved to be quite resourceful when it came to adapting to their mission. Several modifications were made to the standard craft of the MRF to provide additional capabilities. A small flight deck was added to some ATCs in order to provided a landing site for a helicopter, creating what was called the "world's smallest aircraft carriers."[46] Other ATCs were modified through the addition of a medical aid station in their troop space, creating the "world's smallest hospital ships."[47] The MRF not only modified existing craft, but also created new ones for their force. One such creation was a mobile artillery platform carrying two howitzers. Originally, the howitzers and trucks of the artillery units were to be transported by the ATCs to the combat area, where they would disembark to establish a firebase. It was quickly realized, however, that the sponge-like terrain, tide conditions, and slippery banks would greatly limit their ability to do so. Not wanting to abandon the use of artillery or limit its use to suitable terrain only, they created the floating artillery battery.[48] Mounted on modified barges, the battery was towed into position by LCMs and secured to the riverbank, thus creating a mobile firebase. Innovations, such as these, and

the spirit of those involved, enabled the MRF to adapt to their environment and form a cohesive fighting force to contend with their slippery adversary.

Bringing It All Together

In 1968 Vice Admiral Elmo Zumwalt Jr., the newly appointed Commander of Naval Forces Vietnam, noted the success of Operations Market Time and Game Warden in disrupting the supply lines of the NVA and VC. Determined to expand on that success, he created Operation SEALORDS (South East Asia Lake, Ocean, River, Delta Strategy). SEALORDS coordinated the missions of TF's 115 and 116 with the efforts of TF 117 and the MRF into a concerted campaign to stop the flow of arms and ammunition from Cambodia into the Mekong Delta. Similar to offshore blockades, SEALORDS created a barrier patrol in the rivers along the Cambodian-South Vietnamese border in conjunction with patrols of the major waterways and sweeps by the MRF within the Delta. SEALORDS had an immediate impact on the NVA and VC ability to resupply and greatly reduced their control over the vital Mekong Delta.

Training the Brown Water Sailor

The US Navy and Army conducted extensive riverine operations during the Vietnam War, but when the war started, they had no official methodology for doing so, nor did they possess a cadre of experienced river sailors. As early as 1966, the Naval Amphibious School called for a formalized doctrine for riverine warfare and even identified many of its tenets, yet the Navy did not publish a doctrine until 1968.[49] In the meantime, the early riverine forces were left to their own devices to determine how best to fight the war. Commanders published Operations Orders, that defined the "when" and

"where," to conduct an operation, and often included operational and tactical limits known as Rules of Engagement, but for the most part the "how" was left up to the brown water sailors to determine. Although there was no formalized doctrinal publication where one could determine such things as what a proper formation should look like, how many PBRs were required to patrol a given length of river, or how to best set up an ambush, Operations Orders began to include tactics and other such guidance. Until the Navy published a doctrine of its own, it was up to the individual crews and units to develop their own tactics, and the crews and squadrons shared their best practices with each other.[50]

Despite this lack of formalized methodology, the riverine forces adapted quickly to their new environment and the tactics used by their enemy. Over time, units developed their own methods for conducting patrols, setting ambushes, and extricating themselves from Viet Cong ambushes. The methods, good or bad, were shared with other units in after-action reports and lessons learned. The successful methods quickly became standard practice and were taught to newly arriving personnel. Eventually, brown water sailors rotated out of Vietnam and some were assigned to the Naval Amphibious School, where they shared their experiences. The tactics improvised on the rivers of South Vietnam soon became part of the training curriculum for new crewmembers. In 1967, the Naval Amphibious School established the Naval Inshore Operations Training Center (NIOTC) in Alameda to train the crews of the riverine fleet and to pass on the lessons learned. The marshy environment of the upper San Francisco Bay area consisted of terrain that ideally simulated that which new crews would face in Vietnam. Eventually a doctrine did

emerge, which remains even today in the form of *Naval Warfare Publication 3-06M Doctrine for Navy-Marine Corps Joint Riverine Operations*.

Prior to direct US involvement in the war, the US Navy was centered on fighting the Soviet Union on the high seas. Accordingly, the Navy was structured around aircraft carrier battle groups, amphibious assault groups, and ballistic missile submarines. The fight was to take place on the open ocean, far from the coast. The Navy paid only cursory attention to the coastal patrol mission, assigning it to the domain of the Coast Guard. Naval capability on inland rivers was nonexistent. As the US commitment to the Republic of Vietnam increased, the need for an inshore capability became more apparent and preliminary studies were conducted to pave way for the future. When the future arrived like a thunderclap, all efforts were applied to create a complex force with many capabilities.

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[35]Scott W. Stucky, "Joint Operations in the Civil War," *Joint Forces Quarterly* (vol. 6, Autumn/Winter 1994-1995), 98.

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CHAPTER 4

US RIVERINE FORCES TODAY

Vietnam Aftermath

As the US involvement in the Vietnam War drew to a close, the US Navy turned over most of its riverine assets in Vietnam to the Vietnamese Navy through a process known as Accelerated Turnover to the Vietnamese, or "Vietnamization." The US returned to an ever-diminishing advisory role, while the mantle of fighting the Viet Cong and North Vietnamese Army was passed back to the South Vietnamese forces. The South Vietnamese Navy, and particularly the River Force would continue to play an important role in the desperate struggle to maintain the integrity of the increasingly tenuous Republic of South Vietnam. Up until 1973, the US Navy actively sought to improve its own inshore and riverine capability, but once the war was over the Navy once again concentrated on fighting the Soviets on the open ocean. The US "brown-water navy" all but disappeared.

For the art of riverine warfare, the war could not have ended at a more inopportune time. Although slow to recognize the need for a riverine capability, once embroiled in major combat on the rivers and canals of Vietnam, the US Navy pursued development of the art with vigor. The craft employed were constantly subject to evolutionary improvements that were based on the lessons learned through combat. Sailors often modified their craft in the field by adding additional weapons or stripping items not deemed necessary in search of more speed. More formal modifications were also made. For example, the original LCM-Monitors used by the Mobile Riverine Force were supplemented with versions equipped with a 105-millimeter howitzer or a

flamethrower in place of their 40-millimeter gun.[1] Subsequent models of the PBR received an aluminum reinforced hull better suited to tying vessels alongside while conducting inspections. These adaptations were necessary because many of these boats were developed quickly and rushed into service with little time for adequate testing. The product of an urgent need, initial designs were based on what had been done before or what was readily available. On the horizon were even more promising craft, specially designed for riverine combat.

During the war several new vessels were tested, such as the Patrol Air Cushion Vehicle and the hydrofoil patrol boats *Tucamcari* and *Flagstaff.* Some of these craft even saw limited service in Vietnam as part of their operational testing.[2] The next generation of riverine craft, drawing from the experience gained in combat, promised to be ideally suited to their task. Under development were replacements for the Assault Support Patrol Boat and the Swift boats, as well as a new vessel, the Coastal Patrol and Interdiction Craft. These each drew heavily on the lessons learned from their predecessors.

The next-generation Assault Support Patrol Boat promised to correct nearly all of the shortcomings of the original ASPB with higher speed, increased firepower, and better survivability. In 1969, two companies, Sikorsky and Sewart Seacraft, began work on prototype replacement ASPB's.[3] The new models boasted a shallow V-hull and were propelled by three gas-turbine engines powering three water jets. Purportedly capable of speeds of up to forty knots, they were a marked improvement over the original ASPB's fourteen knots. Mine survivability was greatly improved through the use of shock-mounting for the engine and main turret. The original ASPB was armed with .50-caliber machine guns or a 20-millimeter cannon; the replacement was much more heavily armed.

The Sikorsky model offered a main turret equipped with a 105-millimeter howitzer and a pair of 20-millimeter cannon. An additional, remote-operated turret was mounted on the bow with a pair of 7.62-millimeter machine guns. The Sewart Seacraft prototype substituted an 81-millimeter mortar for the howitzer but was otherwise identical. Both models were equipped with minesweeping equipment. The improved ASPB would provide the river divisions of the Mobile Riverine Force with a swift escort vessel, capable of scouting and minesweeping well ahead of the main force. Its speed and heavy firepower would provide a swift and powerful response to potential ambushes. Sadly, although development continued through 1973, the program was subsequently cancelled as the US turned the war over to the South Vietnamese.

The replacement for the Swift boat fared slightly better than the replacement Assault Support Patrol Boat. As is seemingly the case every time a piece of military equipment is superceded, the replacement for the Swift boat was larger and heavier than its predecessor. Two models were produced, known simply as Patrol Boat MK I or Patrol Boat MK III.[4] The new patrol boat was sixty-five foot long and had a beam of sixteen feet. Its displacement had jumped from the nineteen tons of the original Swifts to thirty-six tons. Draft increased to 4’9.’’ Now powered by three diesel engines, speed varied from twenty-six to thirty knots, depending on the model. Armament consisted of a twin .50-caliber machine gun mount and four single .50-caliber machine guns. The deckhouse of the MK III model was offset to starboard to create space on the port side of the deck for additional weapons or payload. Testing of these vessels began in 1973, and by 1975 two PB MK Is had found their way into the Naval Reserve while seventeen PB MK IIIs had been provided to the Special Boat Section to support insertion and extraction of

SEAL teams. These craft remained in service with the Special Boat Section, known today as the Special Boat Unit, until the late 1990's, seeing service in Panama and during the so-called Tanker War in the Persian Gulf.[5]

In 1973 the Navy began development of a craft appropriately designated as the Coastal Patrol and Interdiction Craft. This craft was intended primarily for export as an effective, inexpensive patrol boat for allies to patrol their coasts and inland waterways.[6] At over seventy-one tons and ninety-nine feet long, it was a relatively large craft. Three gas-turbines powered water jets gave it a speed in excess of forty-five knots. It was armed with two gun turrets, each equipped with twin 30-millimeter cannon. Additional weapons could be mounted on the side decks. This craft was evaluated for several years, then transferred to the Republic of Korea in 1975. The Koreans eventually ordered several of the new craft.[7] Although none saw service in the US Navy, their development is representative of the importance placed on riverine warfare by the Navy early in the 1970's, and the rapid waning of that interest shortly after the Vietnam War.

The Vietnam War was the highpoint for riverine warfare development, but it would not last for long. The Navy could not overcome its predisposition for fighting the Soviet Navy, and most projects pursued reflected this prejudice towards blue-water, "big-navy" combat. The Asheville-class patrol boats, built between 1966 and 1971, on paper seemingly represented a good fit for the renewed interest in coastal warfare. Designed primarily in response to the need for coastal patrol boats stemming from the Cuban Missile Crisis, these patrol vessels were "built for patrol, blockade, surveillance, and support missions." [8] Their 165-foot length and almost ten foot draft, however, made them poorly suited for work in the confining waters of a river or delta. Along with their 76-

millimeter gun, some boats were even equipped with SM-1 missiles for surface-to-surface use, hardly necessary for the type of work being conducted by the Market Time patrols off the Vietnamese coast. Indeed, these boats were far better suited for conducting quick strikes against the Soviet Navy, not for fighting insurgent forces such as those in Vietnam. Other coastal projects that emerged during the immediate post-Vietnam Navy included the Pegasus class hydrofoil. The Pegasus hydrofoils were equipped with a 76-millimeter gun and up to eight Harpoon anti-ship missiles. Once again, although designed to fill the need for an inshore patrol boat, it was focused on meeting the threat of the Soviet Navy, not on patrolling or interdicting traffic on inshore or riverine waterways. Even the replacement Swift boat fell victim to this blue-water focus, as several tests were conducted to equip the MK III Patrol Boats with Penguin missiles, a fire-and-forget, infrared homing antiship missile.[9]

When the Navy shifted back to the blue-water focus, riverine warfare slowly became a job for the Special Warfare Community. Beginning in December 1968, the US Navy began a program to turn over the responsibility for fighting the Vietnam War to the South Vietnamese Navy.[10] This program, known as the Accelerated Turn Over to the Vietnamese program, or ACTOV, would not only turn over the operational responsibility for fighting the naval war, but also included the transfer of the majority of the Navy's coastal and riverine craft and bases to the South Vietnamese Navy. As their craft were turned over to the South Vietnamese, the US decommissioned River Flotillas One and Five and their subordinate River Squadrons and River Divisions. In December, 1970, the ACTOV program was nearly complete and Coastal Squadron One was disestablished as its craft were turned over. Its sister unit, Coastal Squadron Three, equipped with

Asheville-class patrol boats, survived and shifted its homeport to Guam after their tour in Vietnam was completed. Two other units that remained at the closing phase of the war were known as Boat Support Units One and Two. In 1971 they were redesignated Coastal River Squadrons One and Two, and homeported in Coronado, California, and Little Creek, Virginia respectively. [11]

The Boat Support Units were part of the Naval Special Warfare Community and were organized to provide support to the Naval Special Warfare Sea, Air, Land (SEAL) units. During the Vietnam War, the Boat Support Units deployed Mobile Support Teams to Vietnam to provide transportation and fire support to Navy SEAL teams operating in North and South Vietnam. They tested and operated a variety of craft in this role, but their workhorse was the Nasty-class Patrol Torpedo-Fast, or PTF. The PTF was a derivative of the World War Two PT boats, but without the torpedoes. It was an eighty-five ton vessel equipped with twin-screw diesel propulsion that gave it a speed of up to forty-five knots. It was heavily armed, with one or two 40-millimeter cannon, two 20-millimeter cannon, and a combination of an 81-millimeter naval mortar and .50-caliber machine gun. The Nasty-class vessels were purchased from Norway, while Sewart Seacraft built a slightly larger version in the US known as the Osprey-class. Following the war, the remaining seventeen PTFs were distributed among Coastal River Squadrons One and Two.

The Coastal River Squadrons were further subdivided into Coastal River Divisions. At the height of the war, the US Navy fielded over 700 boats, but by 1973 this force consisted of only three ASPBs, two LCM-Monitors, one LCM-Command and Control Boat, six LCM-Armored Troop Carriers, thirty-five PBRs, seventeen PTFs, and

five Swift boats.[12] The few riverine craft remaining in the US inventory were distributed among the Coastal River Squadrons and their subordinate Coastal River Divisions, and as a result the composition of the divisions varied from unit to unit. The Coastal River Divisions were distributed across the country and were comprised mainly of Naval Reservists. One such unit, Coastal River Division Twenty-One, was commissioned 16 June 1973 at Great Lakes Naval Station on Lake Michigan with the following missions:

> to maintain craft to support coastal surveillance operations; develop small boat tactics; train personnel in the operation and maintenance of coastal craft in cold weather; conduct and support special and naval inshore warfare operations; conduct and support special psychological and tactical cover and deception operations; and train the selected reserve component to support these tasks in the event of mobilization.[13]

Coastal River Division Twenty-One was equipped with three PTF's, and three Asheville-class Patrol Gunboats. Early on they were promised three of the Swift-replacements, the PB MK III, but they never arrived. In June of 1976, after only three years, the unit was decommissioned and the PTFs and Patrol Gunboats were shipped to Little Creek, Virginia for disposal.[14]

The Coastal River Divisions were initially an amalgam of many different capabilities and given broad mission responsibilities, but the restrictions imposed by limited equipment, personnel, and funds required that they concentrate on specific missions based on the craft with which they were equipped. Units equipped with PTFs continued their close relationship with the SEALs, while some units equipped with PBRs and PCFs evolved more towards coastal and river patrol and harbor defense. Some missions were dropped completely, such as the river transport mission of the Mobile Riverine Force. Between 1976 and 1979, the remaining craft of the former MRF were all disposed of, leaving only a handful of PBRs, PTFs, and Swift Boats in service.[15] The

remaining PTFs were disposed of by 1979, but surprisingly the PBRs and Swift Boats remained in service with the Naval Reserve into the mid-90's. Over time, the mission of the brown water sailors evolved into two distinct branches, one of a defensive nature and one of a decidedly offensive nature. This would eventually lead to a reorganization of the Coastal River Squadrons and assignment of new priorities.

Separate from the Coastal River Squadrons, the Navy had created various units to provide a layer of defense to naval ports and facilities. In the period following the war they would create many more. Harbor Defense Command Units were created to coordinate the efforts of the Navy and Coast Guard units assigned to provide a force-protection role to specific harbors and facilities. Mobile Inshore Undersea Units were created to provide a deployable surveillance and detection capability for naval facilities, and Inshore Boat Units were created to provide a deployable waterborne security force. Some of these units were even equipped with PBRs and PCFs, such as the Panama Canal Harbor Patrol Unit based at Rodman, Panama. Given their heavy armament relative to their size, responsive speed, and low manning requirements, the Vietnam-era boats seemed ideally suited to provide security to friendly harbors and port facilities in the evolving role of force protection. Gradually, the ever-increasing maintenance requirements of the Vietnam-era boats forced their replacement with updated craft that were more appropriate to the police nature of the force-protection units. Today, the Harbor Defense Command Units, Mobile Inshore Undersea Warfare Units, and Inshore Boat Units have been consolidated into Naval Coastal Warfare Groups, with subordinate Naval Coastal Warfare Squadrons and Mobile Security Squadrons. Their mission, as described by Naval Warfare Publication 3-10, is

> to protect strategic port facilities, strategic commercial shipping and naval ships operating within the littoral, at anchorages, and in harbors, from bare beach to sophisticated port facilities, in order to ensure the uninterrupted flow of cargo and units to the Combatant Commander. [Naval Coastal Warfare] operations protect these transition areas and points from waterborne threats.[16]

While an important role, especially in today's environment, it can hardly be compared to conducting joint ground and riverine sweeps in the Mekong Delta or patrolling the coasts, rivers and canals in search of contraband-carrying ships and sampans while under the threat of a Viet Cong ambush.

The offensive side to the Coastal River Squadrons more closely resembles the role of the forces used in Vietnam. When the Boat Support Units transformed into the Coastal River Squadrons in 1971 their symbiotic relationship with the SEALs continued.[17] This support of Special Warfare eventually superceded the coastal patrol and riverine patrol missions, and slowly displaced them. In 1983, through a reorganization of Naval Special Warfare, the Coastal River Squadrons became Special Boat Squadrons and part of the Naval Special Warfare community. They were subdivided into Special Boat Units, and their primary role was to provide support to the SEALs. Initially, there were two squadrons, each comprised of three Special Boat Units. Of the six Special Boat Units, four were part of the Naval Reserve Force.[18] Today, after further evolution, the Special Boat Squadrons have been consolidated into one Special Boat Unit, comprised of three Special Boat Teams. These teams are operationally divided between two Naval Special Warfare Groups. Two of the teams have an inshore or coastal-focus, one on each coast. Only one team maintains a riverine-focus: Special Boat Team Twenty-Two located in Stennis, Mississippi.

Special Boat Team Twenty-Two

Special Boat Team Twenty-Two contains the Navy's Riverine Warfare experts. A component of the US Special Operations Command, they provide support to US special operations forces operating in a riverine environment. The Special Boat Teams were participants in Operations Earnest Will and Praying Mantis during the Iran-Iraq War, the US operation to escort neutral oil tankers, and the operation to destroy Iranian oil platforms used as command and control facilities to launch attacks on shipping, respectively. They also participated in the US expedition to capture Panamanian strong-man Manuel Noriega during Operation Just Cause in Panama.[19] Additionally, they have conducted numerous training operations throughout northern South America in conjunction with friendly armies and navies. Most recently they participated in the opening phases of Operation Iraqi Freedom, the US-led operation to oust Iraqi dictator Saddam Hussein.

The Special Boat Team is equipped with a specialized riverine craft known as the Special Operations Craft-Riverine (SOC-R). The SOC-R is a thirty-three-foot-long, aluminum-hulled craft propelled by two Yanmar 440 horsepower diesel engines optimized for shallow water use. The engines drive two water jets, which combined with the lightweight hull, give it a speed in excess of forty knots. The fuel-efficient diesel propulsion also gives the SOC-R a range of over 195 miles. The SOC-R has a draft of only two feet, allowing access to very shallow waters.[20] It is equipped with five weapons mounts, capable of carrying a variety of weapons, to include medium and heavy machine guns, automatic grenade launchers, and miniguns.[21] It also contains a robust electronics suite, including radar, GPS navigation, VHF, HF, and satellite communications. The

Special Boat Team is equipped with approximately eighteen of these capable craft. Interestingly, because the Special Boat Team is part of the Special Warfare community, the funding for the SOC-R did not originate from the Navy budget; it was designed and funded by the Special Operations Command.

Enlisted members of the Special Boat Teams are called Special Warfare Combat Crewmen. Following boot camp, new candidates attend Surface Warfare Combat Cremen School at the Philip Bucklew Training Center at the Naval Amphibious Base in Coronado, California.[22] Here, they learn the basics of handling and maintaining the craft common in all the Special Boat Teams, as well as weapons and tactics. It is not until they arrive at Special Boat Team Twenty-Two that they receive any specialized riverine training.[23] The training department at Special Boat Team Twenty-Two is staffed by experienced riverine crewmen. The curriculum is based on the unit's accumulated history and experience, and the tactics and procedures they have developed to conduct their unique form of unconventional warfare. Their training program is cyclic, beginning with basic individual professional skills, working up to unit level skills, and culminating with operations integrating other elements of the Special Warfare community.[24]

The riverine capability resident in Special Boat Team Twenty-Two has one focus: support of naval special warfare. They are experts at the insertion and extraction of Special Forces under all manner of conditions. Other missions include special reconnaissance, direct action, and counter-terrorism, and may or may not include embarked troops. Although highly trained, and heavily armed, the Special Boat Team is not a conventional force.[25] They are designed and equipped to conduct unconventional warfare. Although they are the organizational descendants of the Swift boat, PBR, and

MRF sailors, the crewmen are no longer trained or equipped to conduct the type of missions that Task Force 115, 116, or 117 performed.

In 2003, Special Boat Team Twenty-Two deployed to the Persian Gulf to take part in Operation Iraqi Freedom. Iraq's narrow coastline, only fifty-eight kilometers long, forms the Al Faw peninsula.[26] On the southern side of the peninsula lies the port of Umm Qasr, on the Khawr Abd Allah and Khawr Az Zubayr waterways. On the northern side of the peninsula, on the Shat Al Arab waterway lies the port city of Basrah. The capture of these two vital ports was necessary to allow humanitarian aid to be brought into the southern region of Iraq. The riverine sailors of Special Boat Team Twenty-Two played a vital role in the seizure of these two important cities. During the campaign to capture Umm Qasr, they acted as a blocking force to ensure that no enemy forces were able to approach and attack the coalition forces from the river. The Special Boat Team then moved to the Shat Al Arab waterway and conducted maritime interdiction operations during the operation to capture Basrah.[27] During these operations, the contributions of Special Boat Team Twenty-Two proved the value of an unconventional riverine force in support of conventional land forces.

Unfortunately, as riverine warfare evolved into a special operations mission, the doctrine that described its conduct languished and became irrelevant. *Naval Warfare Publication 3-10* is titled *Naval Coastal Warfare*; however, as previously stated the mission of Naval Coastal Warfare is one of force protection, not, as the name would imply, warfare in a coastal environment. *Naval Warfare Publication 3-05 Rev D* describes the components of the Naval Special Warfare community, to include capabilities and roles, organizational structure, and equipment. It does not, however,

provide guidance for the planning or conduct of operations. *Naval Warfare Publication 3-06.M, Doctrine for Navy-Marine Corps Joint Riverine Operations,* last published in 1987, and *Naval Warfare Publication 3-06.1, Riverine and Coastal Operations,* dated 1988, both still refer to the types of operations that were conducted in the Vietnam War. The Navy-Marine Corps version even goes so far as to describe a mobile riverine force exactly as was used in Vietnam, to include the mobile river base and all the associated assault and support craft.[28] Needless to say, these craft no longer exist. The joint doctrinal publication created by the Joint Chiefs of Staff to describe intra-service riverine operations, *Joint Publication 3-06, Doctrine for Joint Riverine Operations,* dated September 1991, has fared even worse than the naval doctrinal publications: it was deleted in September 2002.[29] Unfortunately, the force structure to conduct conventional riverine operations according to the existing doctrine no longer exists within the Navy.

USMC Small Craft Company

In 1991, the Marine Corps created the Small Craft Company within the 2nd Marine Division. Designed to provide a riverine transport capability to Marine Expeditionary Units and Brigades, this force is expected to provide additional "depth, flexibility, and maneuverability to the littoral regions of the world, turning the rivers from obstacles into avenues of approach."[30] Reminiscent of the Mobile Riverine Force during the Vietnam War, this company is equipped with a variety of boats designed to provide transportation and fire support to Marine infantry units. They have conducted operations in South America, Western Africa, and most recently in Iraq.[31]

The Small Craft Company is designed to provide riverine support and transportation for up to a battalion of troops, as well as a small boat capability to Marine

Expeditionary Units while deployed as part of an Amphibious Readiness Group or Expeditionary Strike Group.[32] As such, it is equipped with four different types of craft for use in the roles of troop transport, command and control, and fire support under different conditions. These craft are the Combat Rubber Raiding Craft (CRRC), the Rigid Raiding Craft (RRC), the River Assault Craft (RAC), and the Small Unit Riverine Craft (SURC).

The CRRC is smaller than the RRC, but also quieter. Its purpose is to provide stealthy transportation for conducting raids, reconnaissance, or landings. The CRRC is an inflatable boat, similar to a Zodiac commercial boat, capable of carrying up to eight Marines. It is propelled by a fifty-five horsepower outboard water jet, and is capable of making twelve knots when fully loaded. Not equipped with any armor or weapons, it is reliant upon the weapons carried by the embarked troops for survival. The Small Craft Company provides detachments of twenty CRRCs and seven Marines as technical experts to Marine Expeditionary Units deployed in support of the Sixth Fleet in Europe.[33] As such, the CRRC detachments do not normally operate in conjunction with the other craft of the Small Craft Company, but rather work in concert with the other elements in the Battalion Landing Team of a Marine Expeditionary Unit.

The Rigid Raiding Craft is the workhorse of the Small Craft Company, with approximately sixty assigned to the company's Lift Platoon. Primarily a troop transport and logistical support craft, it is similar to a commercial Boston Whaler-type craft and can carry up to ten Marines. It is eighteen feet long with a beam of seven feet, and draws only twenty-one inches when planing. It is propelled by twin outboard motors to a speed of about twenty-five knots. An austere craft, it has no organic armor or armament.[34] In a

hostile environment, the crew would rely on the weapons carried by the embarked troops for defense.

The River Assault Craft is the direct descendant of the Vietnam era PBR, but was developed in the early 1990's when the Small Craft Company was formed. Using an aluminum version of the same hull as the PBR, it is powered by twin 300 horsepower, turbo-charged diesels in conjunction with twin water jets and is capable of speeds up to forty knots. Designed to provide command and control and fire-support, it is equipped with a robust communications suite and is heavily armed, with a .50-caliber gun turret on the bow, a variable weapons turret at the stern and two additional weapons mounts amidships for a variety of weapons, including mini-guns and automatic grenade launchers.[35] Unfortunately, the aging RACs are plagued by reliability issues, the most pressing of which is their lack of a self-flushing capability for their water-jet impellers. Flotsam and debris in the water can quickly clog the impellers, leading to cooling problems for the engines and could lead to a potentially dangerous situation for a unit in combat. As a result, their use in combat has been sharply curtailed.[36]

The Small Unit Riverine Craft is the newest vessel added to the Small Craft Company fleet. It is built by SAFE Boats International, the same company that builds response boats for the US Coast Guard and the Department of Homeland Security. With its long, low hull flanked by large flotation sponsons, it appears very similar to the Rigid Hull Inflatable Boats used throughout the Navy and Coast Guard. It is, however, a purpose-designed craft with several features specified by the Small Craft Company. Conceptually, it was to be the replacement for the Rigid Raider Craft, providing improved range and speed. Working in conjunction with the Marine Corps Systems

Command, the Riverine Training Center Cadre of the Small Craft Company Marines/Special Operations Training Group assisted in the design of the new boat, ensuring that real world experience and requirements were included in its design. The SURC is thirty-eight feet long, has a beam of ten feet, and a draft of two feet when idle. It is powered by twin 440 horsepower diesel engines driving twin water jets through a reversible transmission.[37] The same propulsion setup is used in the Special Boat Team's SOC-R and the transmission gives the SURC crewmen the ability to back-flush the water-jet impellers in order to clear out debris, a capability that has since proven vital on the rivers of Iraq. The hull of the SURC is aluminum, surrounded by a removable polyethylene flotation collar that not only provides additional stability, but also minimal small-arms protection for the crew and passengers. The SURC has three weapons stations capable of accepting 7.62-millimeter and .50-caliber machine guns, automatic grenade launchers, and miniguns. A unique feature of the SURC is that it is equipped with a bow ramp, providing for easer troop embarkation and debarkation. Its only shortcoming is that it is equipped with only two VHF radios, but crews in the field have added additional communications capabilities.[38] Earning rave reviews from the Marines, the SURC has become the riverine platform of choice in Iraq, replacing even the more heavily armored RAC.

Capable of carrying thirteen fully equipped Marines in addition to the crew of five, a five-boat section is capable of inserting two complete platoons. The planned fleet of forty SURCs would have replaced all sixty of the RRCs while still maintaining the capability to transport the combat portion of an infantry battalion, however the planned purchase was drastically cut to seventeen boats. A follow-on version known as the

SURC-E and equipped with more armor and a heavier armament was to replace the Riverine Assault Craft. This version was cancelled outright.[39]

The Small Craft Company deployed to Iraq in March, 2004 in support of Operation Iraqi Freedom. As they commenced operations on the lakes and rivers, they quickly began calling themselves the "Game Wardens of Iraq," paying homage to their riverine forebears.[40] Their missions bear a striking resemblance to those conducted by the Game Warden patrol boats and Mobile Riverine Force during the Vietnam War, although on a much smaller scale.

Operating primarily on the Euphrates River, the Marines conduct a wide variety of missions to include day and night river patrols, amphibious raids, vessel searches, tactical logistical support, and security patrols for key Iraqi infrastructure. As part of their patrol missions, they may be tasked to establish surprise vehicle checkpoints on roads near the waterways, looking for insurgent forces. Additionally, they may be called upon to inspect bridges to ensure they are free of explosives prior to the passage of a road convoy or to establish a waterborne checkpoint alongside roads to prevent the placement of Improvised Explosive Devices (IEDs), the scourge of US forces attempting to rebuild Iraq. Other missions include conducting Cordon and Search operations, and the gentler version, Cordon and Knock, in search of insurgent hiding places and weapons caches. These operations may include the use of a ground combat element organic to the Small Craft Company or elements of other Marine and Army units.[41] Although exact figures relating to their effectiveness in combat remain classified, there is no question as to the tremendous capability that the Small Craft Company provides. Indeed, their services are

often requested on other rivers in Iraq, but the 1st Marine Division is reluctant to lose them for even a short time due to the impact they have in the Division's area.[42]

Although the two platoons of the Small Craft Company can each provide transportation and support for eight to ten squads, or two platoons, they are not organized with their own organic ground combat element. Their lift capability provides for flexibility in planning and conducting operations in support of other units, but it also means that for nearly every mission the Small Craft Company requires some form of augmentation. Additional capabilities that are often requested are the use of a Forward Air Controller to coordinate air support, engineer squads to search for mines or improvised explosive devises, and Human Exploitation Teams to glean information from the local population. Operations involving other units bear the additional requirement to conduct rehearsals, ensuring that all are familiar with procedures for embarkation and debarkation under fire, ambush clearance procedures, communications required, and how to deal with equipment and personnel casualties. Lasting at least one day, the rehearsals compete for time with other important activities, such as conducting river patrols or valuable maintenance.[43] If these capabilities were organic to the structure of the Small Craft Company, or if the Small Craft Company habitually worked with the same units on a routine basis, the participating units would not need to learn or relearn the basic boat skills prior to every exercise, and the rehearsals could be reduced to cover only the required elements of the upcoming operation. This was a lesson learned by the French *Dinassauts* over fifty years ago, and proven by the effectiveness of the Mobile Riverine Force in Vietnam over thirty-five years ago.

The personnel who make up the Small Craft Company are recruited from throughout the Marine Corps. They receive the same basic infantry and specialty or maintenance training that other Marines receive, until they arrive at the Small Craft Company. After arrival, they receive specialized training in topics such as navigation, boat handling, and riverine tactics. Unfortunately, because the Naval Inshore Operations Training Center has long since been closed, this training must be conducted in-house. Conducting the training is an experienced cadre of Small Craft Company Non-Commissioned Officers, using a curriculum founded in riverine doctrine, history, and corporate knowledge, and culminating in a live-fire tactical exercise that covers everything from mission planning to execution. This training also incorporates the experience gained on the waters of Iraq, to include procedures for conducting waterborne guard post missions and inspecting bridges for IEDs. Additionally, prior to the unit's deployment to Iraq, all Small Craft Company personnel received cultural awareness training, and a few members were even sent to attend the Defense Language School.[44]

The Small Craft Company bears one unfortunate similarity to its forbears that operated in Vietnam. Just as the River Assault Squadrons, Coastal Squadrons and River Squadrons were disbanded following the Vietnam War and the remnants turned over to the Naval Reserve, the Small Craft Company will also be disbanded shortly after its return from Iraq. As identified in a message from the Commandant of the Marine Corps, the Trooplist for Fiscal Year 2005 includes the "elimination of the Small Craft Company."[45] The boats currently in Iraq, including ten brand-new SURCs, will be turned over to another, as-yet unidentified unit in Iraq in order to conduct security patrols near key Iraqi infrastructure. The craft remaining at Camp Lejune will reportedly be turned

over to the Marine Corps Reserves.[46] Once again, a river warfare force has proved its worth in battle, yet its reward is to be relegated to the reserve component, where it will most likely languish and wither into oblivion due to lack of funding. When it does, the sole remaining force capable of conducting riverine operations will be Special Boat Team Twenty-Two and their small force of SOC-R craft.

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CHAPTER 5

CONCLUSIONS

Man has exploited the rivers of the world almost since the beginning of history. Throughout the world they remain one of the primary modes of transportation. In the less-developed regions of the world, or in the case of a failing state beleaguered by internal or external forces, the road network can quickly fall into disrepair and rivers may provide the only means of transportation. The ability of a military force to operate effectively in such a region may depend on its ability to use and control the rivers.

The French forces in Vietnam quickly learned the value of the inland waterways of Vietnam. They were used for transporting friendly troops and logistics and denying freedom of movement to the enemy. When the French pulled out in 1954, they left their legacy in the form of the South Vietnamese Navy, which continued to patrol the waterways and to operate *Dinassaut*-style units known as River Assault Groups. The American advisors to the South Vietnamese were well aware of their capabilities and very early on called for the creation of a similar force in the US military. Although some studies into riverine warfare resulted, these calls went largely unheeded by the US Navy.

It was not until the need for an inshore capability was made painfully obvious by the capture of a North Vietnamese supply vessel in a South Vietnamese bay that the Navy paid any more than lip service to riverine warfare. The Navy then embarked on a crash program to develop a capability to operate in the coastal waters, rivers, and canals. Out of nothing, the Navy created an armada of over 600 riverine vessels, and in conjunction with the Army created a combined arms team dedicated to riverine combat.[1] Almost immediately following the war, however, abandoning the hard lessons learned in four

years of brutal combat, this conventional riverine capability was discarded in favor of an unconventional approach to riverine warfare. While this shift may at first glance seem inconsequential, the differences between conventional and unconventional capabilities are significant. Unconventional warfare is defined by the Department of Defense as shown below:

> Unconventional Warfare--A broad spectrum of military and paramilitary operations, normally of long duration, predominantly conducted through, with, or by indigenous or surrogate forces who are organized, trained, equipped, supported, and directed in varying degrees by an external source. It includes, but is not limited to, guerrilla warfare, subversion, sabotage, intelligence activities, and unconventional assisted recovery.[2]

Generally, unconventional operations are conducted by small units relying on stealth and surprise for success. Conventional operations, on the other hand, often involve much larger units with a much broader capability set. While both unconventional forces and conventional forces may seek to use an inland waterway as an avenue of approach, only a conventional force could have the capability to actually control and fully exploit the waterway. While Special Boat Team Twenty-Two is ideally suited to provide support to small units engaged in unconventional operations, the only unit in the US military prepared to provide the same level of support to conventional units is in the US Marine Corps.

In the mid-90s the Marine Corps picked up the standard for conventional riverine warfare when they created the Small Craft Company, which has proven its worth in the waters of Iraq. There, they conduct missions nearly identical to the missions conducted thirty years prior in Vietnam. Yet, once again, when their mission is completed in Iraq the conventional riverine warfare capability will be discarded and the Small Craft Company will be disbanded.

Despite the repeatedly proven value of a conventional riverine capability, the US, and the Navy in particular, have not given this facet of warfare the attention it deserves. Instead of maintaining a viable conventional riverine warfare capability, the Navy has consistently chosen to create and maintain such forces when needed, then discard them immediately when the requirement has passed. This formula worked during the Vietnam era, mainly due to the large numbers of suitable ships and craft remaining in the inactive mothball fleets following the Second World War. Today, the large numbers of surplus landing craft do not exist. In order to recreate a river warfare force, new craft would have to be planned and constructed. According to SAFE Boats International, the builders of the Small Unit Riverine Craft, it takes approximately thirteen weeks to produce two SURCs.[3] With the pace of events in today's operating environment, by the time sufficient numbers of craft would become available to reconstitute a river warfare force, the crisis requiring them could well have progressed to a point at which success would be much more difficult to achieve than if the river warfare force was available at the outset. Instead of relying on a buildup of forces when needed, the US should maintain a river warfare capability greater than that resident in a single Special Boat Team.

At the end of the Cold War, the Navy acknowledged the need to focus more effort in the littoral regions of the world, yet the actions of the Navy belie this commitment. Writing in the paper *Naval Power 21…A Naval Vision*, Secretary of the Navy Gordon England laid out the naval strategy for the new century. The Navy (and Marine Corps) will "develop tactics, operating concepts and equipment to operate most effectively in the littorals" and "capabilities to increase operational reach and mobility for the projection and forcible entry of expeditionary land combat power."[4] The littoral region is

specifically defined as the region between the low tide mark and the high tide mark, but in naval terms, it is the coastal areas of the world that are within the striking range of naval power. In line with this new emphasis, the Navy is constructing a new class of vessel called the Littoral Combat Ship. Yet despite its name, it is ill suited to carrying out this function. The design requirements for the ship specify a draft of less than twenty feet. [5] Although this is an improvement over current combatants whose draft averages thirty feet or more, the new ship would still be restricted in its ability to operate near the coasts and its use in major river systems would be severely limited. Operations in these areas would be limited to the Navy Special Boat Teams and the Marine Corps Small Craft Company, each seemingly ideally suited to provide the capability to increase the operational reach and mobility for an expeditionary land force. Yet the Special Boat Teams are limited by their small numbers and their unconventional warfare focus, while the Small Craft Company will soon cease to exist. It appears that the Navy Department's vision of *Naval Power 21* is somewhat less than 20/20.

A harbinger of the future, the 1965 Weapons Planning Group report predicted that the type of war being fought on the rivers of Vietnam could occur in other regions of the world. Adding poignancy to this hypothesis, the authors pointed to the large Soviet inventory of patrol boats and watercraft that could be provided to insurgent forces, and the Communist philosophy of expanding communism worldwide through the support of revolutionary forces.[6] Today, the danger is not from the spread of communism, but rather the spread of fundamentalism and the instruments of terror.

The Global War on Terrorism being fought today has touched nearly every corner of the globe. International terrorist organizations normally establish themselves within a

state undergoing internal disputes or containing a remote interior, taking advantage of the ability to either influence the local government or hide from them. Within the remote areas, they often co-opt the local population for support and for security. From these sanctuaries they plan and coordinate their attacks on the rest of the world. To date, the countries that terrorists hide and operate in have included Afghanistan, Iraq, Indonesia, Pakistan, the Sudan, and the Philippines. Several of these nations contain significant rivers or coastal waterways that form major transportation links into otherwise remote interiors. In the war on terror, these waterways could provide an additional avenue of approach in the assault on terrorist networks

As the pressure on the terrorists builds, they will look for new safe havens, perhaps in Africa, perhaps in South America. Internal struggles are underway in many nations on both continents, and both offer remote, inaccessible interiors. Both continents also contain major river systems. In South America, the Orinoco River and Amazon Rivers provide river transport to much of the interior. The Amazon basin covers over 2,500,000 square miles and includes the countries of Peru, Venezuela, Columbia, Brazil, Bolivia and Ecuador. Both the Amazon and Orinoco are navigable along much of their length, and vessels with a draft of up to fourteen feet can reach Peru from the Atlantic Ocean.[7] In Africa, major rivers include the Nile, the Niger, and the Congo. The Congo stretches over 2,700 miles long and its basin covers nearly 1,425,000 square miles and includes the countries of the Congo, Cameroon, Burundi, the Central African Republic, Tanzania, Zambia, and Angola. The Congo and its tributaries contain over 9,000 miles of navigable waterways.[8] Africa, with its nearly perpetual turmoil, could well prove to be

the next front in the war on terror, and its rivers would prove to be important battlegrounds for a river warfare force.

Recent military operations have proven the military value of the world's rivers, and the operations in Iraq show its relevance even in today's world of precision weapons and devastating airpower. The common characteristics of counter-revolutionary riverine operations that were applicable in 1962 are just as applicable to today's Global War on Terror. Identified by the 1962 staff study by the Navy Section of the Military Assistance Advisory Group-Vietnam, the important geographical and population factors are:

a. Areas having extensive river and canal systems are most likely to be flat and to include areas of agriculture, forest, tropical jungle, and/or swamps; with a minimum of land transportation, extremely limited communications facilities, and perhaps sparse population.

b. Such areas have limited technology and little facility for support or maintenance of a river force and its equipment.

c. The population would be of such race and culture that Americans would be readily identifiable. A language barrier would exist.[9]

The following characteristics of counterinsurgency operations were also identified by the 1962 study:

a. Counter-insurgency operations require control of the people, not of static land areas. Such control can best be implemented by providing a maximum of security to the population with limited forces, by denying the guerrilla units into regular military forces by repeated actions against them.

b. Military forces regardless of size are ineffective unless they can locate and destroy the insurgents and their support

c. Guerrilla forces operate and live on shore. The effective capability of the river forces would be exercised ashore.

d. Use of the waterways by guerrilla units is limited to occasional sporadic crossings with no regular patterns. Craft used may include water boats, sampans, rafts, and the like, commandeered or fabricated for one-time use.

e. Guerrilla control over the population is exercised through terror as well as other means.[10]

By substituting the words “antiterrorism” and “terrorist” for the terms “counter-insurgency” and “guerrilla” in the above examples, the statements become perfectly applicable to today’s operations. In light of the above conditions, the solution recommended by the study was to develop a force specialized for combat in a riverine environment, called the River Warfare Force. The French had created such a force when they formed the *Dinassauts* for use in Indochina. The US eventually created its own river warfare force for the Vietnam War, called the Mobile Riverine Force. However, it was quickly disbanded as the war drew to a close. The Marine Corps also developed a component of such a force when they created the Small Craft Company. It proved its usefulness in the war in Iraq during Operation Iraqi Freedom. It will also be disbanded when it completes its phase of the war. Yet the relevance of such a force, and the probability that it will be needed in the future, will not go away.

A river warfare force can be used in a multitude of roles across the broad spectrum of military operations. In addition to conducting combat operations, and drawing a lesson from the French *Dinassauts*, a river warfare force can provide logistical support to conventional, land-based forces. Operations in Iraq have proven the vulnerability of road bound logistical convoys to insurgent actions. Waterborne logistical columns, escorted by riverine combat vessels would be a challenging target for insurgents, while the ground element of the escorting river warfare force could be quickly deployed to deal with an ambush. Such operations would also have the benefit of reducing the impact on local daily life as well, since the large vulnerable road convoys and their restrictive traffic control procedures would be replaced by a river convoy. Other

possibilities for using a riverine force include non-combatant evacuation operations, humanitarian assistance, peace operations, and a variety of other missions. In situations where a conflict or natural disaster may have rendered roads impassable, a river warfare force can provide a degree of mobility to an operation that would be difficult to match.

The maintenance of a river warfare force has several advantages. In addition to the obvious advantage of having a force ready for immediate employment, the maintenance of a river warfare capability would ensure that doctrine and equipment remains up-to-date. The current doctrine for conducting riverine operations has not changed considerably since the end of the Vietnam War, even though the type of force and the equipment it refers to no longer exists. A standing river warfare force would be the natural proponent of riverine doctrine, thereby ensuring that the doctrine actually reflects the way they intend to conduct operations. Additionally, a standing river warfare force would ensure that suitable craft were readily available should a conflict arise. Through their peacetime exercises, the craft would evolve as experience is gained, with improvements made experimentation and the incorporation of new technology as it becomes available. This is far better method of improving the riverine craft than learning of required improvements during a conflict. Finally, a standing river warfare force would ensure that when the need for their services arises, there is a trained and capable cadre of experienced operators to man the force. Having a standing river warfare force would allow continual evolution, and avoid stagnation between conflicts. There would be no desperate attempts to jump-start a force based on the lessons and capabilities existent at the end of the last riverine conflict.

A standing river warfare force should be well versed in the conduct of psychological operations and civil affairs. Even in the 1965 report "Counter-Revolutionary Warfare on Inland Waters" by the Naval Ordnance Station, the importance of addressing the psychological and economic factors of warfare were emphasized:

> Graduated inland-waterway military capabilities must be readily available to contend with the various stages of revolutionary-warfare escalation. During incipient revolutionary warfare, the need for a capability to support psychological or economic operations would probably transcend in importance the need to conduct combat operations. Following escalation, the reverse could be true.[11]

Recognizing the vital role that good relations with the local population would play in combating an insurgency, they asserted that the riverine forces would add significantly to the stability and support operations inherent to a counter-insurgency campaign. The conceptual Riverine Warfare Force of 1962 included psychological-warfare personnel and indigenous personnel at the squad level. This element of the River Warfare Force was designed to foster good relations with the local populace and extract information regarding the enemy's movements, intentions, and influences. Proving its relevance today, for all missions the Marine Corps Small Craft Company carries out in Iraq, augmentation by Human Exploitation Teams is requested from their higher headquarters. Today's Human Exploitation Teams are designed to make contact with the local population in the hopes of gaining intelligence on the enemy. This is a capability that should reside in any force designed to fight an elusive unconventional enemy.

The River Warfare Force is a capability that should be maintained by the United States, in a form and strength larger than a single Special Boat Team. At the time of writing this paper, the Chief of Naval Operations Strategic Concepts Branch was reviewing the possibilities and future of riverine warfare in the US Navy.[12] Of particular

concern is how the riverine environment, and especially conventional riverine operations, will be addressed in a joint war-fighting environment.

There is no question as to the effectiveness of the riverine forces that operated in Vietnam, both under the French flag and under the American flag. The riverine forces of the French Navy guaranteed the ability to supply and support remote outposts, and ensured a secure means of escape if necessary. American coastal and riverine forces put a veritable stranglehold on VC supply routes and severely restricted their ability to operate in the Mekong Delta. Likewise, there can be no question as to the value added in Iraq by the Special Boat Team Twenty-Two and the Marine Corps' Small Craft Company. Riverine forces have proven their worth not only in battle, but also to an overall strategic campaign. They deserve a place in the future US Navy force structure.

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[1]Thomas J. Cutler, *Brown Water, Black Beret*, (Annapolis, MD:Naval Institute Press, 1988), 352.

[2]Department of Defense, *Joint Publication 1-02: Department of Defense Dictionary of Military and Associated Terms* [book on-line] (Washington, DC: Department of Defense, 12 April, 2001, amended through 30 November, 2004); available from http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf; Internet; accessed 21 March, 2005, 554.

[3]Curt Mauck, Project Manager for SURC, SAFE Boats International LLC, telephone interview by author, Leavenworth, KS, 25 March 2005.

[4]Gordon H. England, *Naval Power 21, …A Naval Vision*, (October 2002), [official USN website]; available from http://www.chinfo.navy.mil/navpalib/people/secnav/england/navpow21.pdf; Internet; accessed 21 March 2005.

[5]Program Executive Office Ships, "LCS Design Concept" [official USN website]; available from http://peoships.crane.navy.mil/lcs/seaframe.htm; Internet; accessed 21 March 2005.

[6]Richard T. Gray, *Revolutionary Warfare on Inland Waterways: An Exploratory Analysis* (China Lake, CA: US Naval Ordnance Test Station, January 1965), 202.

[7]*Columbia Electronic Encyclopedia*, 6th ed., s.v. “Amazon River.”

[8]*Columbia Electronic Encyclopedia*, 6th ed., s.v. “Congo River.”

[9]Gray, 56.

[10]Ibid., 56.

[11]Ibid., 3.

[12]Peter Swartz, *The US Navy and Riverine Operations* (Research Study, draft, Alexandria, VA: The CNA Corporation, Center for Strategic Studies, February 2005).

APPENDIX A

NAVY COASTAL AND RIVERINE WARFARE UNITS SINCE THE VIETNAM WAR

1969	1973	1979	2005
Boat Support Unit One	Coastal River Squadron One	Special Boat Squadron One	Naval Special Warfare Group 3
Mobile Support Team	Coastal River Division 11	Special Boat Unit 11	
	Coastal River Division 12	Special Boat Unit 12	Special Boat Team 12
	Coastal River Division 13	Special Boat Unit 13	
Boat Support Unit Two	Coastal River Squadron Two	Special Boat Squadron Two	Naval Special Warfare Group 4
Mobile Support Team	Coastal River Division 21	Special Boat Unit 20	Special Boat Team 20
	Coastal River Division 22	Special Boat Unit 22	Special Boat Team 22
		Special Boat Unit 24	
Coastal Flotilla One			
Coastal Squadron One			
Coastal Division 11			
Coastal Division 12			
Coastal Division 13			
Coastal Division 14			
Coastal Division 15			
Coastal Division 16			
Coastal Squadron Three	Coastal River Squadron Three		
Coastal Division 32			
River Patrol Flotilla Five			
River Patrol Squadron 51			
River Patrol Division 511			
River Patrol Division 512			
River Patrol Division 513			
River Patrol Squadron 52			
River Patrol Division 521			
River Patrol Division 522			
River Patrol Division 523			
River Patrol Squadron 53			
River Patrol Division 531			
River Patrol Division 532			
River Patrol Division 533			
River Assault Flotilla One			
River Support Squadron Seven			
River Assault Squadron Nine			
River Assault Division			
River Assault Division			
River Assault Division			
River Assault Squadron Eleven			
River Assault Division			
River Assault Division			
River Assault Division			

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