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Improving the U.S. Navy Riverine capability lessons from the Colombian experience

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IMPROVING THE U.S. NAVY RIVERINE CAPABILITY: LESSONS FROM THE COLOMBIAN EXPERIENCE

by

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In 2005, the Center for Naval Analyses (CNA) conducted a review of the Navy's "past, current, and future" riverine capabilities and identified key gaps, specifically in counterinsurgency and Line of Communication operations. Using the CNA study as the baseline, this thesis will examine Colombia's 50 year riverine experience combating insurgent guerrillas and providing security along its 15,000 kilometers of rivers. This research will address the capability gaps identified in the CNA study. It is based on interviews conducted in Colombia of U.S. military and Colombian personnel, and research of Colombian naval archives obtained during a September, 2007, visit to the country.

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IMPROVING THE U.S. NAVY RIVERINE CAPABILITY: LESSONS FROM THE COLOMBIAN EXPERIENCE

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ABSTRACT

Since the end of the Cold War, United States naval forces have had to adapt to a rapidly changing security environment. To better contribute to the U.S. War on Terror, former Chief of Naval Operations, Admiral Vern Clark and his successor, Admiral Mike Mullen, decided in mid 2005 to rebuild the Navy's riverine forces. Such a capability, with limited exceptions, had not been emphasized since the end of the Vietnam War.

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LIST OF ABBREVIATIONS AND ACRONYMS

ARC	*Armada República de Colombia*
AUC	*Autodefensas Unidas de Colombia* (United Self-defense Forces of Colombia)
BAF	*Botes de Apoyo Fluvial* (Riverine Support Boats)
BACRIM	*Banda Criminal* (Criminal Band)
BAFLIM	*Batallon Fluvial de Infantería de Marina* (Marine Infantry Riverine Battalion)
BASFLIM	*Batallon de Asalto Fluvial de Infantería de Marina* (Marine Infantry Riverine Assault Battalion)
BRIFLIM	*Brigada Fluvial de Infantería de Marina* (Marine Infantry Riverine Brigade)
C2	Command and Control
C3	Command Control and Communication
CF	*Cañonero Fluvial* (Riverine Gunboat)
CF	*Capitan de Fragata* (Lieutenant Commander)
CNA	Center for Naval Analyses
COIN	Counter-Insurgency
CTIM	*Capitan de Infantería de Marina*
ECF	*Elemento de Combate Fluvial* (Riverine Combat Elements)
ECFP	*Elemento de Combate Fluvial Pesado* (Heavy Riverine Combat Element)
ECFL	*Elemento de Combate Fluvial Liviano* (Light Riverine Combat Element)

ELN	*Ejército de Liberación Nacional* (Army of National Liberation)
EMAF	*Estación Móvil de Apoyo Fluvial* (Riverine Support Station)
FARC	*Fuerzas Armadas Revolucionarias de Colombia* (The Revolutionary Armed Forces of Colombia)
GAF	*Grupo de Asalto Fluvial* (Riverine Assault Group)
GCF	*Grupo de Combate Fluvial* (Riverine Combat Group)
LOC	Line of Communication
NECC	Naval Expeditionary Combat Command
NEO	Noncombatant Evacuation Operations
OPNAV	Office of the Chief of Naval Operations
ONT	*Organización Narco-Terrorista* Narco-Terrorist Organization
PAF	*Patrullera de Apoyo Fluvial* (Riverine Support Patrol Boat)
PAFP	*Patrullera de Apoyo Fluvial Pesado* (Heavy Riverine Support Patrol Boat)
PAFL	*Patrullera de Apoyo Fluvial Liviano* (Light Riverine Support Patrol Boat)
PF	*Patrulleras Fluviales* (Riverine Patrol Boat)
PFA	*Puesto Fluvial Avanzado* (Riverine Advanced Post)
PRF	*Patrulleras Rápidas Fluviales* (Fast Riverine Patrol Boats)
RF	*Remolcadores Fluviales* (Tugboats)

RIVGRU	Riverine Group
RIVRON	Riverine Squadron
SA	Security Assistance
SIS	Surveillance, Interdiction, and Security
TBT	*Transportes Blindados de Tropa* (Armored Troop Carriers)
TF	*Teniente de Fragata* (Lieutenant Junior Grade)
TTP	Tactics, Techniques and Procedures
VBSS	Visit, Board, Search, and Seizure

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I. INTRODUCTION

The nature of the United States naval force has changed in response to world and national events. The end of the Cold War and the decline of the Soviet Union in the early 1990s removed the defensive focus of a single source threat. The Navy, in response, sought to diversify its forces away from massed formations and increased the development of its littoral assets.[1] Nearly a decade later, another momentous event would bring forth a similar transformation. The attacks on the United States of September 11, 2001, altered the Navy's focus once again as the United States entered into a new war. All efforts would now have to converge on defeating terrorism in an environment of asymmetric warfare. This required the U.S. Navy to restructure its force in order to confront a new enemy and better address the needs of the nation. On July 6, 2005, Admiral Vern Clark, the then Chief of Naval Operations (CNO), issued a memorandum by which he took the first steps of reorganization. In it he declared the need to "expand the Navy's capabilities to prosecute the GWOT [Global War on Terrorism]."[2] The actions he called for, including the establishment of a riverine force, were to be completed in various stages between 2005 and 2007. As his successor, Admiral Mullen, took office, he concurred with Admiral Clark's views. He understood the need for a "green water capability…and [believed] our Navy [was] missing a great opportunity to influence events by not having a riverine force."[3]

On October 1, 2005, the Naval Expeditionary Combat Command (NECC) was informally stood up. Among the NECC's first priorities was the development of a new riverine force. In March of 2006, the NECC was also given the goal to

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[1] Robert Benbow, Fred Ensminger, Peter Swartz, Scott Savitz and Major Dan Stimpson, "Renewal of Navy's Riverine Capability: A Preliminary Examination of Past, Current and Future Capabilities," *Center for Naval Analysis Corporation* (March 2006): 6.

[2] Ronald O'Rourke. "Navy Role in Global War on Terrorism (GWOT) – Background and Issues for Congress," *Congressional Research Service* (February 2006): 3.

[3] Benbow, et al. 5.

having an operational unit by March of 2007.[4] They accomplished both milestones on time. In the early morning of March 8, 2007, the 150 personnel that form Riverine Squadron 1, a subset of Riverine Group One, was deployed to western Iraq. Their mission was to secure the Euphrates River, a task performed by the Marine Corps since the beginning of the war.[5] To date, the U.S. Navy, through the NECC, has formed a Riverine Group with three riverine squadrons. Each squadron is expected to have 224 personnel and 16 multi-mission Riverine craft.[6]

A. PROBLEM STATEMENT

By law every four years, senior members of the Department of Defense (DOD) must come together and assess the status of the department and its performance in meeting the security challenges shaping the world. In 2005, civilian as well as military personnel from DOD reviewed the conclusions of the 2001 Quadrennial Defense Review, applied lessons learned from the previous four years, and drew assumptions regarding the changing nature of the world we now live in. It is important to note that the QDR is not a "programmatic or budget document." Rather, it embodies the current thinking of DOD leadership as it attempts to transform itself by evoking a "shift of emphasis to meet the new strategic environment."[7] In May of 2005, the CNO assembled a Global War On Terrorism (GWOT) Working Group to aid in this shift.[8] At day's end, the GWOT working group defined six overarching GWOT missions. The group also

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[4] Benbow, et al. 7.

[5] Andrew Scutro. "First riverine unit deploys to Iraq," *Navy Times,* (March 2007). http://www.navytimes.com/news/2007/03/ntrivron070308/ (accessed September 18, 2007).

[6] "What will the riverine mission encompass?" *Navy Expeditionary Combat Command*, http://www.necc.navy.mil/ (accessed October 3, 2007).

[7] Department of Defense. "*Quadrennial Defense Review Report*," (Washington, February 2006): v-vi.

[8] Benbow, et al. 6.

identified 19 tasks and 107 capabilities specific to the Navy.[9] Most importantly, the working group found that the Navy lacked the capability to conduct riverine operations.

The findings of the GWOT working group prompted the Chief of Naval Operations to reestablish the U.S. Navy's riverine capability. Soon after, the Director of Deep Blue (OPNAV N3/5) asked the Center for Naval Analyses (CNA) to conduct a study of the potential riverine resources available and the potential capability gaps that might arise once this force would be established.

The CNA developed an "analytical methodology [in order] to determine the riverine requirements."[10] They defined riverine tasks, conditions, standards, and resources as the basis from which to evaluate future riverine capabilities. This analytical structure was then used to assess the Navy's riverine resources to determine its capabilities across the range of military operations (ROMO) as defined by the Joint Requirements Oversight Committee (JROC). The CNA study concluded that in FY07 a newly established riverine force would give the Navy a substantial capability to accomplish security assistance (SA), humanitarian assistance (HA), and counter-drug (CD) operations. In the same timeframe, the Navy would only have a limited capability to support unconventional warfare, GWOT, and counter-insurgency (COIN) operations. Credible capability gaps were identified in the Navy's riverine ability to execute major combat operations (MCO) and line of communication (LOC) protection (river control and security). The Navy's noncombatant evacuation operations (NEO) capability was almost negligible.

The majority of the recommendations offered by the March, 2006, CNA report, as a form of redress, involved the use of previously established tactics, techniques, and procedures (TTP). In addition, the CNA considered accessing other resources organic to the U.S. Navy, such as those found within the Navy

[9] Benbow, et al. 6.

[10] Benbow, et al. 2.

Expeditionary Combat Command (NECC). Not much attention, however, was given to external organizations that could expand the Navy's knowledge base of riverine operations. Within the western hemisphere, Colombia has had a long standing struggle, lasting over 50 years, against insurgent guerrillas who have made great tactical use of the country's over 12,000 kilometers (km) of navigable waterways to operate in ungoverned areas of the country and fund their operations through the drug trade. In response, the Colombian Navy (COLNAV) developed a rudimentary riverine force in the 1950's, which was then consolidated and further formalized by the 1970s. Colombia's development of an experienced and combat tested riverine force, in an effort to curtail the country's insurgency problem, is a credible and accessible source of potential lessons for the U.S. riverine force and, as such, merits further study.

B. COLOMBIAN RIVERINE FORCES

Colombia has been actively engaged in riverine operations for over fifty years. Their history dates back to 1956 and the creation of the *"Flotilla Avispa"* ("Wasp Flotilla"). This nascent amphibious force began operations with 13 foot aluminum boats armed with M-1 rifles and one Browning machinegun. They were created to regain "control of the public order and guarantee the national sovereignty"[11] in the remote rivers of southern Colombia. As part of the Colombian Marine Corps (COLMAR) they formed part of the governmental response against the insurgent violence of the 1950s. Their humble beginning was marked by bravery, heroism and innovation; attributes made necessary by an inhospitable environment while engaged in an unconventional war. The Wasp

11 "Quinto Aniversario de la Brigada Fluvial de I.M," *Armada Nacional de Colombia,* (August 2004). http://www.armada.mil.co/index.php?idcategoria=54687, (accessed January 29, 2007).

Flotilla of the 1950s became the government's front line in a push outward to establish a presence along remote forward areas like Tumaco, Buenaventura, Cartagena, and Bogotá.[12]

Their mission grew further as Colombia experienced a resurgence of violence during the 1980s. The appearance of narco traffickers coupled with the actions of guerrilla groups during this period demanded that the government, vis-à-vis the military, again seek to exert greater control and jurisdiction of the outlying territories. Extension of the riverine forces into these areas meant that they would have to contend not only with experienced insurgent enemy forces but also manage and adapt to Colombia's extensive riverine structure. Colombia is composed of 30 principal navigable rivers and 68 principal river mouths, this net of rivers totals 15,774 km of which 12,660 km are considered navigable.[13] It was in this expansive environment and against a battle hardened enemy that the Colombian riverine forces began to develop innovative techniques in riverine warfare.[14]

In 1989, under the Andean Ridge Initiative and a renewed surge against the war on drugs, the United States increased its interaction and support of the Colombian efforts. The U.S. Marine Corps provided the Colombian riverine forces with a higher degree of training and advanced equipment. To date, the Colombian Marine Corps has grown to be the second largest in the world; standing at 23,200 strong. More importantly, the COLMAR now possesses the largest riverine force in the world.[15]

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12 Armada Nacional de Colombia. *La Infanteria de Marina Colombiana: Trascendencia e Imagen del Cuerpo de Tropa de la Armada Nacional,* (Colombia, June 2006), http://www.armada.mil.co/ (accessed May 23, 2007).

13 Armada Nacional de Colombia. "Importancia de la I.M. en el Desarrollo del Poder Naval," (Colombia, May 2004): 22.

14 CC Orlando Cubillos, Armada Nacional de Colombia. Interview by author, Monterey, California (May 9, 2007).

15 "Operaciones Fluviales: Infanteria de Marina," *Armada Nacional de Colombia,* (June 2007): 12.

With a history dating back nearly 50 years, the Colombian Marines have been able to develop a force highly capable at riverine warfare. Between 2002 and 2007, the riverine forces systematically regained control of major principal rivers in the country after a period in which the national government had neglected this area. For example, the forces have secured the Magdalena River, which runs vertically in the Caribbean part of the country for nearly 890 km and serves as a main throughway for transportation and subsequent export of national resources like oil. The actions of the Riverine Battalion 30 (BAFLIM 30) have allowed the increase of legitimate free commerce to return to the river as well as local communal fishing and trade. No other currently active riverine force has experienced such an extended and dynamic struggle against insurgent subversive guerrillas. The harsh and diverse environment forced the innovative development of ships and mobile riverine stations. The Nodriza, for example, is a ship that was developed and manufactured in Colombia and serves as a formidable replenishment, support, and attack unit that is key to the success of the Colombian riverine strategy.

Their innovation, operational success, and decades of experience make the Colombian riverine forces a pertinent case to study. Information garnered form Colombia will offer a mixture of lessons that should prove invaluable as the U.S. Navy begins to rebuild its riverine capabilities and faces new challenges.

C. PURPOSE OF RESEARCH

The purpose of this research is to provide a relevant case study from which to address some of the capability gaps found by the CNA report. In particular, the thesis will examine the current capabilities of the Colombian riverine forces as they pertain to counterinsurgency and line of communication operations (river control and river security).

Addressing these capability gaps will be a major undertaking for the newly formed riverine forces. The Colombian riverine force, and its experience spanning over five decades, stands as a suitable source of credible, established,

and current information. A look into its tactics, techniques, and procedures (TTPs) and manner in which they conduct operations across the range of military operations (ROMO) would be beneficial. Specifically, a study of their progress with counterinsurgency and line of communication operations, for both river control and security, would further aid the proper development of the U.S. riverine force. An in-depth look into their rich history against a world renown and competent foe would garner constructive and invaluable lessons.

Learning the doctrine and techniques used by Colombia's riverine force is not only applicable to the current development of the U.S. force. Colombia's diverse climate, topography and extensive riverine systems make these lessons applicable to various regions of the world where the U.S. might become engaged in the future. Harnessing that knowledge now and imbedding it into the training of the U.S. force at its infancy will only better prepare it for future unknown contingencies.

D. METHODOLOGY AND SOURCES

This thesis will first examine the capability gaps identified by the CNA study presented on March 2006. Chapter II begins with a detailed description of the methodology used by the Center for Naval Analyses and describes the U.S. riverine capability gaps identified by the CNA report. This thesis will specifically focus on the gaps found within counterinsurgency and line of communication operations.

Chapter III discusses Colombia and its merits as a suitable case study. It provides a developmental history of the country's riverine forces, from their initial formation in the mid 1950s to their present standing as a formidable and proficient force. This chapter showcases the various adversaries the Colombian riverine forces have had to contend with, reaffirms Colombia's need for a continuous and well developed riverine force and the wealth of knowledge that resides therein as a consequence of it. Chapter IV provides a more detailed assessment of the recent successes of the riverine forces and the approaches

that made this possible. It describes Colombian riverine tactics and operations and highlights the many innovations developed by the Colombian forces. The Riverine Support Patrol Boat, for example, is an innovation that provides the riverine force with defensive and logistical support along with overwhelming firepower. Colombia's use of these capabilities coupled with the targeting of natural and trafficking choke points has allowed them to control and secure their country's riverways against guerrilla forces.

The primary source to identify the capability gaps in the U.S. riverine force will be the CNA report that was presented to the Chief of Naval Operations on March 2006. Unfortunately, very few books specifically discuss the development of the Colombian riverine force. Two books, however, authored by the Colombian Navy, offer an in-depth look at the influence of the Colombian Marines in the history of the country. They represent the most reliable data from which to construct a historical timeline specific to their riverine force. Input and assistance from the U.S. Marine branch of the Military Group stationed in Colombia has been critical to this research. They provided current data on Colombian operations from the U.S. perspective and facilitated interviews with various key personnel in the Colombian riverine force during my visit to the country in September of 2007.

II. U.S. RIVERINE FORCES AND THE CAPABILITY GAP

The nation's call for the development of a riverine force during times of war is nothing new. As would be expected, difficulties associated with the creation of a brand new force have been experienced during each occasion. As it stands, it seems that the 2005 decision to expand the U.S. Navy's capability into the riverine environment will suffer from similar growing pains. This chapter is divided into three sections. The first presents a brief history of U.S. involvement in wartime riverine operations, highlighting the lessons to be learned from past campaigns. It also provides a timeline of the formation of Riverine Group One and a description of the current force as it stands.

The second section of the chapter reviews the methodology used by the CNA in their assessment of the Navy's future riverine capabilities. The CNA study was conducted from early 2005 to March 2006 to examine how the Navy's projected stand-up of its riverine capability might fare against the range of military operations in FY07 and FY10. The final section of the chapter describes the capability gaps identified in the CNA study and presented to the CNO in March 2006. Specifically, it will focus on two military operations of interest, COIN and LOC operations. Naval riverine support of either of these military functions in FY07 was judged by the CNA to be "limited" to "negligible." In contrast, COIN and LOC protection, both in river control and security, are functions in which the Colombian Riverine force is experienced and successful. As such, they represent the two areas where considerable gains can be made.

A. U.S. NAVAL RIVERINE FORCE

Riverine operations are not a recent phenomenon. U.S. history is replete with examples of military operations and involvement in its rivers. The nation's military recognized early the tactical advantage and strategic value to be gained from operations within the riparian environment. In almost every major conflict or crisis, the U.S. has required the development of a riverine force. Examples

include the Second Seminole Indian War (1835-1842), the Civil War (1861-1865), and most recently the Vietnam War (1965-1972).

The Second Seminole Indian War was fought for seven years in the heart of the Everglades of south Florida. The Seminole refusal to relocate away from their ancestral lands and into remote reservations west of the Mississippi became the spark that ignited the war. Outnumbered and outmatched, the Seminole Indians exploited the terrain of the Everglades and through small unit tactics engaged in efficient guerrilla (unconventional) warfare. The U.S. military, both Army and Navy, failed numerous times to engage the enemy in a decisive battle. The Navy's efforts were concentrated in the littoral environment. Specifically, they attempted to exert a type of blockade, to include coastal and inland waterways, in order to stop the flow of illegal weapons to the Seminole Indians. Supply depots were also set up along navigable rivers from which the Army could initiate land campaigns. The Navy was charged with the re-supply of these bases. Poor coordination among both services, however, derailed this strategy; leaving the Army incapable of penetrating deep into Seminole territory. For two years the Seminoles were successful in this type of guerrilla warfare. It was not until September of 1837 when Navy Lieutenant Levine M. Powell proposed a concept that would later become the basis from which to develop a riverine force.[16]

The initial riverine force was comprised of 200 soldiers, including sailors and marines. Under the command of Lieutenant Powell, this force was to engage the Seminoles warriors and direct their movements towards awaiting conventional forces. Powell was an aggressive leader who believed in confronting the Seminoles on their turf. Among the many skirmishes, Lieutenant Powell and his riverine force saw battle in 1838 in the St. Lucie and New Rivers. Both of these engagements proved essential in the development of riverine tactics. The New River encounter in March of 1838, specifically, showed the

16 Mark Freitas and Braddock W. Treadway. *Stygian Myth: U.S. Riverine Operations Against the Guerrilla* (Monterey: Naval Postgraduate School, December 1994): 23-26.

effectiveness of mounting small naval artillery on shallow draft boats. It wasn't until 1839, however, with the formation of the "Mosquito Fleet," that the United States was finally able to project superior firepower in direct engagement with the Seminole Indians. Lieutenant McLaughlin, in charge of the new Mosquito Fleet, led this force in various expeditions throughout the Everglades. From 1839 to 1842, McLaughlin's force did not engage in major battle nor encounter large enemy forces. Instead, he found several "encampments and destroyed vital resources."[17] During his campaign, he ruined hidden cultivation sites critical to the survival of the Seminole warriors and their families. On May 10, 1842, direct action against the Seminoles ceased. By that date, the riverine force had grown to "twelve small sailing vessels, a few barges, 50 officers, 582 enlisted men, and 140 dugout canoes."[18] By June of that same year, the riverine force was disbanded. In his ventures, Lieutenant McLaughlin not only proved the capability of riverine forces to conduct sustained operations but, more importantly, demonstrated the devastating effects of an attrition strategy.

Much like the Second Seminole War, the requirement for a riverine capability during the American Civil War did not come until after the commencement of hostilities. Once the war started, both the Union and Confederate sides recognized the potential in riverine operations. As a result, each side moved quickly to develop and build their new force.[19] There were clear differences, however, between the North and the South in terms of resources and industrial capacity. The Union's initial strategic plan, the "Anaconda Plan", sought to further deprive the Confederacy of resources by enacting a naval blockade and to use the Mississippi and Ohio rivers as venues from which to launch offensive operations. This plan gave the emerging riverine force the necessary direction and needed end state around which to develop its

17 Freitas and. Treadway, 30.

18 Ibid.

19 Michael C. McCurry. *Riverine Force: A Vital Navy Capability for the Joint Force.* (Newport: Naval War College, February 2006): 6.

capabilities. On the other hand, the South's lack of industry and scarce resources undermined the Confederate fleet before it even started. They were not capable of sustaining a fleet size necessary to contend with the North. Ultimately, the Union became successful at riverine operations and used them efficiently to divide the South along the Mississippi River.[20]

One of the important riverine developments of the American Civil War was the use of ironclads for many functions. These flat-bottom vessels were well designed for riverine operations, permitting access to diverse locations along the riverways and serving as a transport unit for Army land operations. They also became well adept at providing fire support for ground units, thus increasing the attack capabilities that were crucial to the Union's campaign. As sections of the river came under Union control, the riverine forces began to develop counterinsurgency patrolling tactics. The requirements made by Rear Admiral Porter, calling for a constant patrol of the rivers, enabled the new force to become adept at reconnaissance and interdiction operations. During this conflict, the Union military also experimented with different command and control structures. The norm of those times was for the riverine element to be under the command of the Army field commander. An innovation in thinking pushed this capability under the command of the Navy and made its service to the Army on a "not-to-interfere" basis only. This realignment was quite revolutionary for the time and paved the way for future command and control structures.[21]

At the onset of the Vietnam War, the "[U.S.] military did not have an organic riverine capability when one was needed."[22] As a result, the U.S. Navy found itself once again "forced to jumpstart the program." In order to allow sufficient time to develop its riverine capability, the U.S. Navy first assumed the role of advisor to the Vietnamese Navy (VNN) in 1964. This role both provided the VNN with the professional development of its officers and enlisted personnel

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[20] McCurry, 6.

[21] McCurry, 8.

[22] McCurry, 10.,

and offered the U.S. Navy some much needed riverine experience.[23] The U.S. riverine experience in Vietnam differed in scope and scale from any previous wars. The tenacity and persistence of the Viet Cong (VC) forces made this war the setting "for America's most intensive riverine warfare experience against an unconventional opponent."[24]

The use of American riverine forces in the Mekong Delta lasted from 1965 to 1969. During this time, the Navy developed its riverine capability through the engagement of three distinct operations: MARKET TIME, GAME WARDEN, and SEALORDS.[25] Each of these three operations provided the Navy with an opportunity to learn tactics and develop innovations in riverine warfare. Operation MARKET TIME initiated a seaborne blockade off the coast of South Vietnam. Its main purpose was to deter or intercept provisional shipments from the North Vietnamese Army (NVA). The blockade was maintained through the duration of the war. It, however, did not completely diminish the infiltration of war materials from the NVA to the Viet Cong. As a result of the blockade, enemy forces shifted their focus further inland along the shallow and coastal waters of the Mekong Delta. In response to this strategic maneuver, the U.S. Navy launched operation GAME WARDEN. This operation made use of shallow draft boats called "Swift" boats to engage the enemy along inland waterways. What is important about operation GAME WARDEN is the introduction of helicopters (35 by 1966) in direct support of riverine operations.

By late 1966, the enemy had increased operations along the Rung Sat Special Zone. At that time, neither the U.S. Navy nor Army was heavily engaged in that zone. The absence of ground troops in the area made the riverine units vulnerable to riverbank incursions and attacks. This weakness further prevented American units from engaging the enemy further inland. As a result, General Westmoreland, Commander U.S. Military Assistance Command Vietnam

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[23] McCurry, 10.

[24] Freitas and Treadway, 51.

[25] McCurry,10.

(COMUSMACV) approved a new concept and developed the Mobile Riverine Force (MRF). This new force would be comprised of an Army-reinforced brigade and two supporting Navy River Assault Groups. These innovations gave General Westmoreland the flexibility of a self contained unit able to engage the enemy at a location and time of his choosing. The capabilities of the MRF increased over time and elements such as artillery, armored troop carriers and helicopters expanded the unit's ability to execute rapid troop movements and medical evacuations and to provide massive fire support.

A look into each of these historic cases offers a glimpse into the development of U.S. riverine warfare. Notable trends emerge and repeat themselves during each crisis. The importance and need to use the rivers, for example, has been recognized only after the nation was engaged in war. This observation implicitly exposes the fact that the U.S. military has not sustained a credible riverine capability during times of peace. During each crisis, be it the Seminole, Civil, or Vietnam War, it took years and massive mobilization of resources to develop and begin to exploit the benefits of a riverine force.

Several lessons can also be learned from these crises. The Second Seminole War proved the riverine force does not need to directly engage or destroy the enemy. Attrition strategies aimed at restricting the resources vital to the enemy can be just as crippling and effective. This event also proved that riverine fleets can be summarily capable when fitted with weapons capable of providing supporting fire. During the Civil War, the importance of developing a sizeable force that was sufficient to engage the enemy could not be overstated enough. The lack of resources and industrial capability hampered the Confederate ability to develop a credible riverine force. As a result, they were vulnerable to a mobile and lethal force capable of dictating terms by having unrestricted freedom to choose the time and location of battle. The innovations in terms of technology, structure and function of the Union riverine forces were also impressive and endured to become the basis of future riverine development. Finally, the Vietnam War exposed the immense advantage that is gained when

riverine forces are provided with direct aerial support. Most importantly, the Mobile Riverine Force showed that mobility, self-containment, and fire power can be applied with great success to the riverine environment.

Following Vietnam, the riverine forces were quickly dismantled as war budgets decreased and the immediate need for such a force diminished. The capability resurfaced in the early 1980s and 1990s, to a much lesser scale, within the Special Forces and Marine Corps. The U.S. war efforts since 2001 to counter terrorism have, once again, made riverine operations increasingly relevant. U.S. operations in Iraq have seen the need for a riverine capability able to engage the enemy along the Tigris and Euphrates Rivers. The 2005 Quadrennial Defense Review sought to "provide a riverine capability for river patrol, interdiction and tactical troop movement on inland waterways."[26] The U.S. Navy saw this as an opportunity to become further engaged in the Global War on Terrorism

By January 13, 2006, the Naval Expeditionary Combat Command (NECC) formally attained its charter as "a stand alone command."[27] This signified a momentous shift that legitimized the existence and commitment toward a newly formed U.S. naval riverine force. By May 25 of the same year, Riverine Group (RIVGRU) 1 and Riverine Squadron (RIVRON) 1 were formally established. Development of RIVRON 1 became the stepping-stone that served as the foundation and template for future growth. This end-state goal, as outlined by the CNO, called for one Riverine Group composed of 800 personnel dispersed among three riverine squadrons.[28]

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[26] Department of Defense. "*Quadrennial Defense Review Report*," (Washington, February 2006): 48.

[27] "*How did the NECC come into existence?*" *Navy Expeditionary Combat Command*, http://www.necc.navy.mil/ (accessed on June 12, 2007).

[28] "U.S. Navy Riverine Group: Concept of Operations." *Commander U.S. Fleet Forces Command*, (September 2006): 27.

Each riverine squadron would consist of 12 riverine craft, organized into 3 detachments of 4 boat teams each.[29] The force structure, at both the crew and squadron level, is designed to support continuous operations. Manning at the crew level consists of two crews of Active Duty personnel per riverine craft. This translates to an arduous two-shift duty section with long-term implications that might be difficult to maintain. At the squadron level, the structure in place allows for at least one squadron to be continuously deployed to "one contingency at a time."[30] Among the two remain squadrons; one would be dedicated to unit level training and maintenance in accordance with the Fleet Response Plan while the other would maintain "surge" status.[31] Riverine Group One has achieved tremendous milestones in a compressed period of time. In just over a year, RIVGRU 1 has grown from "a small group of Sailors in Little Creek…to three active squadrons."[32] One of those squadrons, RIVRON 1, was deployed on March 8, 2007, and is currently active in Iraq. The two remaining squadrons were to be active by Fiscal Year (FY) 09 and Fiscal Year (FY) 10. This timeline was met ahead of schedule as Riverine Squadrons 2 and 3 were established on February 2, 2007 and July 6, 2007, respectively.[33]

B. CNA STUDY METHODOLOGY

In May 2005, a GWOT Working Group was assembled to support the Quadrennial Defense Review (QDR) of that same year. The Working Group addressed the Navy's mission and capabilities as a whole and identified

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[29] Benbow, et al. 8.

[30] "U.S. Navy Riverine Group: Concept of Operations." *Commander U.S. Fleet Forces Command*, (September 2006): 11.

[31] The Navy delineated three types of "surge status." Units under surge status remain obligated for a period of time before and after their assigned deployment schedules that allows for a more flexible and contingency ready force. http://www.globalsecurity.org/military/ops/frp.htm (accessed June 12, 2007).

[32] Benbow, et al. 8.

[33] Senior Chief Mass Communication Specialist (SW/AW) Dave Nagle. "Riverine Force Marks One-Year Anniversary," Navy.mil, (Norfolk, Virginia, June 7, 2007), http://www.navy.mil/search/display.asp?story_id=29926, (accessed July 25, 2007).

capability gaps in riverine operations. As a result, the Director of Deep Blue (OPNAV N3/5) asked the Center for Naval Analyses (CNA) to conduct a further review of the Navy's "past, current, and future" riverine capabilities. Specifically, they analyzed the force capabilities for 2007 taking into consideration existing resources.

The findings of the GWOT Working Group laid a generalized and basic framework from which the CNA conducted its more detailed study. The CNA study was requested by the Navy to better develop a riverine capability integral to the transforming vision of the CNO. The CNA study offered an unbiased outside look specifically focused on the Navy's riverine force. Having this perspective applied to the problem provided a degree of legitimacy and, more importantly, credibility to the results of the report. This section discusses the terminology and methodology used in the report.

1. Tasks

Riverine tasks refer to both operational and functional tasks. The operational tasks listed in Table 1 are an amalgam of the most likely tasks to be performed by a riverine force. These were obtained from doctrinal and tactical sources such as the Universal Joint Task List (UJTL) and its service derivative the Universal Naval Task List (UNTL). It is important to note that this table is not all-inclusive as operations can be affected by innumerable variations of implied and specified tasks. The functional tasks presented in Table 2, on the other hand, are used to connect the operational tasks with the conditions and standards set by the commander. Functional tasks allow the commander, or in this case the CNA study group, to reduce the number of tasks into a more convenient form. With a more defined and manageable set of tasks, it is easier to derive the needed resources and requirements.[34]

[34] Benbow, et al. 51-56.

Table 1. Operational Tasks Relevant to Riverine Units

Operations Category	Operational Tasks	Significant Subtasks
Offensive Operations	Riverine Assault/forcible entry	Attack, insert/extract
	Raid	
	Movement to contact	
	Demonstration	
	Exploitation and pursuit	Interdiction, attack
Defensive Operations	Area security, including: River control (along and across thewaterway) River denial (a form of control)	Patrol (mobile); attack; interdiction; visit, board, search and seizure (VBSS); waterborne guard post; control point; and counter-mobility (obstacles, mining)
	Security escort (convoys, high-value assets)	
	Mine countermeasures (MCM) and breaching	
	Retrograde	Delay, withdraw, retirement
Operations other than war	Peace operations	Peacekeeping
		Peace enforcement
	Show of force	Combined exercises
		Riverine Training Teams; Riverine Operations Seminar Teams
		Support to foreign planning, intel, logistics, and/or effects
	Support to counter drug operations	
	noncombat evacuation operations (NEO)	
	Humanitarian assistance/disaser relief (HADR)	(SAR, security, transport/distribute personnel and supplies, etc.)
Additional tasks in support of miscellanious operations	Deploy and redeploy riverine forces	
	Search and rescue (SAR), Combat SAR (CSAR)	
	Civil support (civil defense, disaster relief)	

Source: Benbow, et al, 52-53

Table 2. Functional Tasks for Riverine Units

Functional Task Categories	Example Functional Tasks
Waterborne mobility	Operate and maneuver watercraft
	Maintain watercraft
	Navigate waterways (day, night, weather)
	Provide waterborne lift for insert/extract of personnel and gear associated with: GCE, reconnaissance and survailance, NSW, SAR, EOD, combat and civil engineers, NEO.
Intelligence, survailance, and roconnaissance (ISR) in vicinity of waterways	Employ visual and electronic sensors
	Employ human exploitation team (HET) to collect HUMINT
	Coordinate with rotary-wing (RW) recon support for river patrol
Target effects	Direct fire support (up to heavy machine guns)
	Forward air control for fixed-wing (FX) or RW close air support (CAS)
	Act as forward observer for indirect fires
	Conduct information ops in vicinity of (IVO) waterways
	Employ non-lethal weapons IVO waterways
Command, control, and communications (C3)	Conduct joint missions planning, including employment of joint intel products
	Provide C2 organic fires and maneuver
	Integrate direct fires and maneuver w/adjacent GCE
	De-conflict organic direct fires w/friendly forces and facilities IVO waterway
	Provide initial terminal guidance for helo landing zone (LZ) IVO waterways
Logistics	Plan, coordinate, and conduct sustainment and resupply
	Salvage equipment and watercraft
	Manage transportation and distribution of humanitarian aid/disaster relief supplies
	Manage casualties (medical capability)
	Evacuate casualties via waterways
	Trasnfer casualties to over-land or RW transport
Force protection or security	Protect against direct fire and rocket porpelled grenades (RPG)
	Protect against indirect fire (targeting operating base, landing site, or river chockepoints)
	Operate in a mining/IED environment
	Operate IVO small boats of unknown disposition
	Protect against attack-swimmer threat
	Recover personnel and critical equipment and watercraft under fire
	Patrol (coordinate with GCE to patrol) river banks IVO river ops

Source: Benbow, et al, 55-56

2. Conditions

Changing environmental factors will affect the resources and requirements needed to perform a given task. Table 3 lists those conditions outlined in the UJTL as well as a couple added by the CNA working group, such as Time and Weather. The UJTL mentions other physical characteristics such as climate, foliage, and noise.

Table 3. Condition Categories

Condition categories	Sub categories
Physical Environment	Land
	Maritime
	Air (and weather, etc.)
	Space
	(Time)
Military Environment	Mission
	Forces
	C3
	Intelligence
	Deployment, movement, & maneuver
	Firepower
	Sustainment
	Threat
	Conflict
Civil Environment	Political
	Cultural
	Economic

Source: Benbow, et al, 57

The UJTL and similar planning publications go into great detail to explain how these conditions affect functional tasks. The CNA report creates a similar, yet more compact, system that takes into consideration the "primary factors that affect the range of desired riverine capabilities." The following discussion addresses the manner in which conditions might affect the functional tasks contained in Table 2 (Mobility, ISR, target effects, C3, logistics, and force protection).

Mobility can be affected by natural obstacles such as rocks and heavy brush or by man-made counter mobility obstacles such as mines. Also factored

into these conditions is the organization's access to organic resources, such as combat engineers, that can be used to counter these obstacles. The resource requirements that arise from these conditions must also "address operating range, speed, maneuverability, water depth, capacity (Passenger seats, cargo size, weight), and hours the resource can operate."[35]

Intelligence, surveillance, and reconnaissance (ISR) are affected by the "local language, availability of non-organic sensor information, weather conditions (visibility), and terrain."[36] Target effects are affected by such factors as "availability of indirect fire support or close air support, weather and visibility, urban terrain features adjacent to a waterway, rules of engagement (ROE) and collateral damage, restrictions, and language considerations."[37]

Command, control and communications (C3) are a more abstract task. Conditions that can affect the completion of this task range from the structural composition of the organization to information flow within the chain of command to physical obstacles and terrain. In addition to the examples mentioned above, the CNA lists the following conditions affecting C3: transmission concerns (foliage, urban structures, solar activity); enemy interception or jamming; frequency conflicts among operations; language; availability and location of re-transmitters; distance to support base; standard operating procedures (SOP) for communication; and joint familiarity of terms within coordinating units.[38]

As defined in the CNA report, logistics might be affected by the type of medical equipment needed, the length of operations before re-supply, proximity to basing, availability of air assets and boats for re-supply, enemy threat to logistical lines of communication (LOC), and ability to set up intermediate supply sites. Finally, the conditions that affect force protection include: the presence of attack swimmers and floating mines, visual and audible watercraft signals, armor

35 Benbow, et al. 58.

36 Ibid.

37 Ibid.

38 Ibid

against direct fire or rocket propelled grenades (RPG), and availability of combat engineers to support survivability operations.[39]

3. Standards

The Mission-Essential Task List (METL) defines a standard as "the minimum acceptable proficiency required in the performance of a particular task under a specified set of conditions."[40] Standards are further defined by measures and criterion. A measure is the way to describe the varying levels of task performance. For example, the task from the Marine Corps Task List (MCTL) 2.5 *Disseminate and Integrate Intelligence* might measure its performance by the speed of information transmitted and the accuracy of communications. A criterion sets the parameter for acceptable level of performance, encompassing factors such as time, percent, distance, number, and rate of movement. The commander has the authority and responsibility to assess each specific mission under pertinent operational conditions. His concept of operations must, therefore, determine the appropriate standards against which to measure mission success.[41]

4. Resources

The CNA's discussion of resources is comparable to the military established assessment tool DOTMLPF.[42] In the CNA's paradigm, resource

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[39] Benbow, et al. 58-59. The manner by which conditions affect the functional tasks lie at the core of the "system of analysis" used by the CNA to determine the capabilities and subsequent gaps that currently exist.

[40] Ibid., 59

[41] "Marine Corps Task List (MCTL)," OPNAVINST 3500.38B/MCO 3500.26/USCG COMDTINST M3500.1B, (Washington: December 2005): 4-B-79. Other definitions are attained from the document *METL Development Information.doc,* a training aid from the Marine Corps Combat Development Command, a secured site requiring login and password. Document is unclassified at http://www.cecer.army.mil/pl/project/index.cfm?RESETSITE=metl (accessed June 14, 2007).

[42] DOTMLPF stands for Doctrine, Organization, Training, Material, Leadership and Education, Personnel, and Facilities.

needs include “doctrine and procedures, personnel and organizations, education and training, and facilities, equipment, and supplies.”[43]

Doctrine and procedures are the “non-material resource” that is integral to the planning and success of the operation. A unit that is equipped with established doctrine and proven Tactics, Techniques and Procedures (TTP) is better poised to accomplish its objective. The Navy itself has as episodic involvement with riverine operations. This dictates that in order to assess and develop its capabilities it must “[update] the literature to reflect current operational concepts, threat projections, and technology improvements.” More importantly, the CNA report concludes that the Navy must have an experimental test bed from which to update its doctrine and procedures.[44]

The type and number of personnel in the unit is also important. Having enough people in the appropriate specialties is essential to accomplishing the objective. The internal and external structure of organization is also a determinant of success. The organization must be task organized properly and its supported and supporting relationships must be clearly defined.

Education and training must be afforded and sustained at the individual level for it to contribute to the unit’s capability. This includes “specific training” and exercises of operational tasks to maintain an appropriate level of proficiency. The facilities, equipment, and supplies category includes the capability of “the supporting infrastructure…[the equipment’s] durability and required maintenance support….[and the] analysis of re-supply requirements.”[45]

In summary, the CNA’s analytical method “defined a capability set as the ability to execute operational tasks given a set of conditions and standards set by

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[43] Benbow, et al. 61.

[44] Ibid.

[45] Ibid., 62.

the commander."[46] Resources allow for the employment of the capability sets in support of the range of military operations set by the Joint Requirements Oversight Committee (JROC).

This method was applied to examine "how the Navy's projected stand-up of its riverine capability" might fare against the range of military operations in FY07 and FY10. At the time of the study, March 2006, the Navy's plan called for an initial operational capability (IOC) of one squadron comprised of 12 boats and roughly 200 people by FY07. Its full operational capability (FOC) would add two more squadrons bringing the total number of boats to 36 and roughly 700 people by FY09/FY10.[47] The CNA study found that in FY07 the Navy would have a substantial capability to accomplish security assistance (SA), humanitarian assistance (HA), and counter-drug (CD) operations. In the same timeframe, it would only have a limited capability to support unconventional warfare (UW), GWOT, and COIN. Credible capability gaps exist in major combat operations (MCO), line of communication (LOC) protection (including river control and security), and noncombatant evacuation operations (NEO) where the capability is almost negligible. As the remaining two squadrons come on-line in FY10, however, capabilities that were previously negligible are all expected to improve to a limited capability.

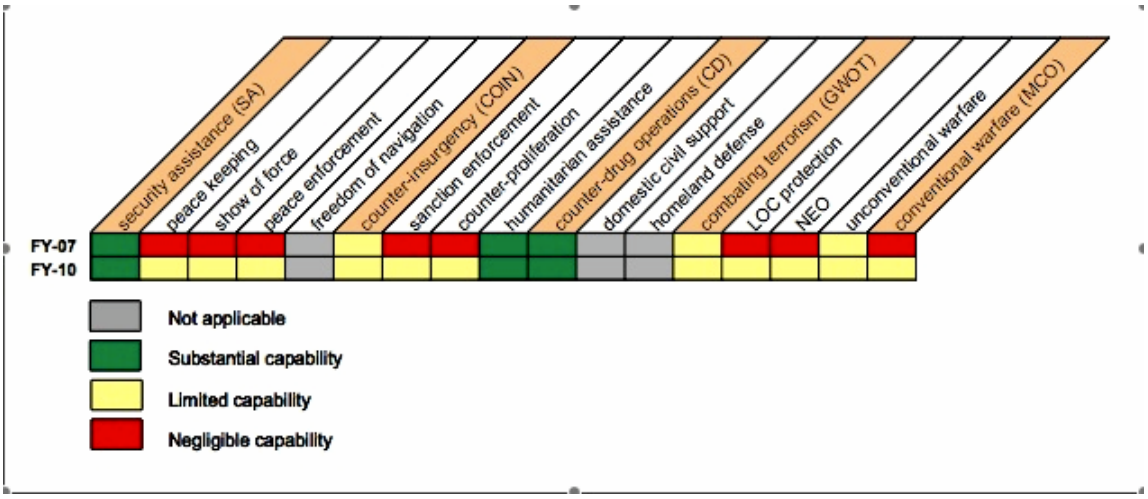
Figure 1 provided below is a summary of the CNA findings. The CNA study took into account the three-year timeframe between the Navy IOC and attainment of FOC. The rapidity with which RIVGRU 1 grew was not expected nor accounted for in the CNA assumptions. It should not be assumed, however, that the early establishment of the 2 riverine squadrons necessarily correlates to the CNA results expected for FY10. On the contrary, it is likely that the speed with which the two squadrons were brought on-line precluded the resolution of all

[46] Ibid., 63.

[47] It should be noted that Riverine Group 1 is ahead of schedule. Its first squadron (RIVRON 1) deployed on March 2007, RIVRON 2 was established on February 2007, and RIVRON 3 was scheduled to stand-up early July 2007.

the identified capability gaps. Nonetheless, the scope of this thesis will focus on the capability gaps identified by the CNA for FY07.

Figure 1. Riverine Capabilities Across the Spectrum of Military Operations



Source: Benbow, et al, 65

C. GAPS ANALYSIS

The study conducted by the CNA addressed the riverine capability gaps across the range of military operations for FY07 and FY10. This section will concentrate on the capability gaps found for FY07 in counterinsurgency and line of communication operations (comprised of area security and river control). The Navy's capability to support these military operations will be limited to negligible in FY07. The Navy is fortunate in that it can draw support from existing organizations such as the Naval Coastal Warfare Group (NCWG) and the Special Missions Training Center (SMTC) for training, knowledge and experience to support the RIVGRU requirements. In a similar fashion, the Colombian Marine Corps (COLMAR) should be utilized as an extensive source of information. The COLMAR riverine force, specifically, has over 50 years of experience in performing area security and river control against combatant guerrilla forces. As such, they are poised to provide current and applicable information. Their well-developed TTPs as well as their innovations in equipment should be studied and applied where appropriate.

1. COIN and LOC Protection – Area Security

The focus of this operational task is the defense of a high-value asset or infrastructure and would require possible execution of the following sub-tasks: patrol, interdiction, VBSS, and attack. This would also include completion in varying degrees of all the functional tasks included in Table 2 (e.g., Mobility, ISR, and C3). The requirements to accomplish this mission include protection of a 5,000 meter area with a layered defense capable of conducting operations 24/7. It is assumed that sufficient boat crews and assets are employed to minimize risk. In this case, four boat teams would be engaged in area security with two additional boat teams used as a Quick Reaction Force (QRF).[48] Considering that RIVRON 1 has 3 detachments with 4 boat teams each, for a total of twelve boats, this task would require the use of half of the assets assigned to the squadron.

The CNA report states that the current manning and organizational structure proposed for the riverine group is considered to be sufficient to perform this task. Once engaged in the security of this asset, however, the riverine force would be incapable of properly fulfilling other operational missions due to its small number of units. The study also cites that doctrine is already "in place" and that TTPs are also "well developed;" calling for the Riverine Group to draw on "the experience and knowledge" of commands within the NECC as valuable sources of easily accessible expertise. Though these sources of information should be extensively utilized, they will not provide the necessary breadth and depth of experience and knowledge as compared with what could be gained by a study of the Colombian riverine force. None of the commands within the NECC have experienced combat operations to the degree and duration experienced in Colombia. Colombian riverine forces have been engaged in the protection of ports and high value assets since their inception in the early 1950s. For over 50 years they have confronted a longstanding, well armed, and ruthless dissident

[48] Benbow, et al. 68.

guerrilla. In that time, they have been capable of demonstrating growth and proficiency by systematically establishing and protecting over 20 naval bases and ports along the three major rivers in Colombia and their corresponding tributaries. These efforts would provide the Navy's Riverine Group with knowledge and experience applicable to many other current situations in the developing world.

2. COIN and LOC Protection – River Control

The operational task for river control, like area security, concentrates mainly on a defensive posture and includes the same sub-tasks and functional tasks: for example mobility, ISR, and C3. Waterway security, the act of establishing and maintaining control, is of primary concern. This scenario is designed with two basic assumptions. First, it assumes that "the riverine environment is not occupied by major enemy forces." As friendly forces gain ground and exert pressure, it also assumes that the enemy force would begin to make use of the inland waterways for "transportation, communication, and escape and evasion routes."[49] The manner in which the CNA constructed this scenario made it explicitly analogous to the environment that the Colombian riverine force has been engaged in for the last 50 years.

The resources and capability gaps afflicting area security also affect the river control mission, but are even more severe. Personnel and organization will be undermanned as six boats are engaged in area security and only one detachment will remain to conduct river control. The length of river segment that can be effectively controlled is severely diminished due to this lack of assets. Colombian riverine operations could provide an important gauge to determine the required assets necessary to conduct this operation efficiently. Currently, their riverine forces employ a structure similar to that of U.S. forces, making it easy to apply direct comparison. Despite this, their areas of control are divided into smaller elements differing in length and forces assigned – variations that might prove instructive for the United States. The riverine area in the Pacific, for

[49] Benbow, et al. 71.

example, expands 102 kilometers and includes the rivers *Patia, Mira, Guapi, San Juan, and Baudo* and two brigade size units. A look into how they use their forces and to what effect would prove fruitful.

D. CONCLUSION

The U.S. Navy has entered a new phase in its history. The changes in the national state of affairs prompted adequate and corresponding changes to make the naval force current and relevant. A key aspect of this shift was the CNO directed creation of the U.S. Naval riverine force. As with any other change, the Navy expected various obstacles to arise. These obstacles were defined by the CNA study as capability gaps inherent to the timeline and available resources devoted to the development of this new force. Capability gaps were identified to be significant in the areas of river control and area security and this thesis focuses on redressing these gaps.

Addressing these gaps will be a major undertaking with significant consequences for the Riverine Group. The Colombian riverine force and its experience stand as a suitable source of credible, established, and current information. A look into its TTPs, use of equipment, and manner in which they conduct operations across the range of military operations (ROMO) would be beneficial for the proper development of the U.S. riverine force. An in-depth look into their rich history against a world renown and competent foe could garner useful lessons.

III. OVERVIEW OF COLOMBIAN RIVERINE FORCES

The Colombian riverine forces have been at the service of the country for over 50 years. From the creation of the *"Flotilla Avispa"* (Wasp Flotilla) in 1956 to the current force structure, theirs has been a struggle to adapt and evolve with every national crisis. The riverine force forms an integral component of the Colombian Marine Corps (COLMAR). The COLMAR, since their most recent establishment in 1937, has in turn been a subset of the Colombian Navy. In order to understand the current riverine force, it is important to first go back and look at its history. This chapter will be divided into two separate sections. The first section will present a timeline of key events in the history of Colombia and indicate the corresponding riverine transformation associated with each. Four specific events will be addressed: the period of *La Violencia* that took place from 1948 to 1957; the rise of the revolutionary groups like the ELN and FARC during the 1960s and 1970s; the rise and fall of the drug cartels during the 1980s and 90's, respectively; and finally the evolution of what is currently referred to as narco-terrorism during the 1990s to the present. The second section will describe the riverine force structure as it stands today, with a focus on their units and their capabilities.

By looking back into their history, one can begin to understand the progression in transformation that this force has accomplished. The force has not been dismantled after every conflict but instead has augmented its capabilities over time to deal with diverse threats. As a result, the force currently possesses an institutional memory that envelops over fifty years of actively engaged experience. As chapter 4 will show, these events and circumstances comprise finite points of a greater tale that has led the Colombian riverine force to become one of the most effective and largest in the world.

A. EVOLUTIONARY RESPONSE TO THREATS

The history and development of the Colombian Marine Infantry dates back to the War of Independence that began in 1810. The call for liberation from colonial Spain was lead mainly by Simón Bolívar and Francisco José de Paula Santander. These leaders quickly recognized the need for an amphibious force capable of exerting power from the sea which led to the prompt formation of a marine infantry. By November 22, 1812, the improvised force received a baptism by fire as they sailed from *Cartagena* and successfully captured the towns of *Tolú* and *Cispatá*. Several victories followed through their many engagements in regions such as the *Magdalena* River and Caribbean coast. Their utility and success was rewarded by an increase in capital ships and marine infantrymen as they sought greater participation in major operations. Their pinnacle contribution came in the decisive victory over the Spanish during the Battle of *Maracaibo* on July 24, 1823.[50] Their heroic involvement and contribution is considered vital to the initial consolidation of *Gran Colombia*.

Nearly two decades later, the country would find itself in the throes of another crisis, this time internal in nature. Political and military jealousies between the Liberal and Conservative parties within Colombia had been afflicting the country since the 1830s. These political battles reached a zenith in 1840 and launched the country into civil war. The country suffered severe consequences that affected its "nascent industrial development, disrupted trade, and discouraged local enterprise."[51] The country plunged into an economic crisis. As a result, the government of General Tomás Cipriano de Mosquera decreed the suppression of the Colombian Naval Armada and subsequently the dispersion of the marine infantry on November 25, 1845.[52] All the ships

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50 Armada Nacional de Colombia. *La Infantería de Marina Colombiana: Trascendencia e Imagen del Cuerpo de Tropa de la Armada Nacional,* 19.

51 "Colombia." Encyclopedia Britannica. (Encyclopedia Britannica Online: 2007) http://www.britannica.com/eb/article-25337, (accessed October 18, 2007).

52 Armada Nacional de Colombia. *La Infantería de Marina Colombiana: Trascendencia e Imagen del Cuerpo de Tropa de la Armada Nacional,* 21.

belonging to the Colombian Armada were disarmed and sold at public auction and its marine personnel were retired.[53]

It took nearly one century before the country would find the need to reconstitute its marine forces. In September 1932, a group of civilians from *Perú* took by surprise the town of *Leticia* capturing all the Colombians therein. The preceding years of internal struggles had distracted the country from issues concerning external defense. Finding itself unprepared, Colombia would quickly have to assemble a maritime force and a marine infantry to reclaim its sovereignty. The new flotilla, under the command of General Alfredo Vázquez Cobo, included two bombardment units (*Santa Marta* and *Cartagena*), four motorized boats, 12 row-boats, and one transport unit (*Sinchi Roca*). The military detachment assembled in the *Putumayo* River included 1,858 men.[54] The amphibious assault that followed, aided by the aerial support of six aircraft, quickly defeated the entrenched Peruvian forces at Fort *Güepi*. By March 1933, Colombia had regained its lost territory. Most importantly, the country was again reminded of the value and need of an amphibious force capable of safeguarding the integrity of its national borders.

On April 29, 1936, Congress approved law 105 which, under Chapter VIII, provided the fundamental framework for the creation of a Marine Infantry. Decrees No. 50 and No. 93, of January 12 and 14, 1937, respectively, formalized the Marine Infantry of Colombia and mandated the formation of two Companies each assigned to Naval Base MC *"Bolivar"* and Port *Ospina* along the *Putumayo*.[55] These congressional decrees allowed for the growth and consolidation of the Colombian Marine Corps as a viable component of the armed forces. Their strong roots based in defense of the country provided the foundation from which the riverine forces would emerge nearly two decades later.

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[53] Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* 53.

[54] Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* 54.

[55] Armada Nacional de Colombia. *La Infantería de Marina Colombiana: Trascendencia e Imagen del Cuerpo de Tropa de la Armada Nacional,* 21.

1. La Violencia

The same political turmoil between Liberals and Conservatives that afflicted the country in the early 1830s flared up once again in 1940s Colombia. The struggle between the two political adversaries had been brewing since the early 1920s and revolved primarily around land reform. The presidency of Liberal Alfonso López Pumarejo (1934-1938) promoted a series of reforms that used occupancy as the basis for peasant rights to property, thus allowing squatters the opportunity to gain unused land.[56] These types of policies were meant to decrease the inequality gap between the haves and have-nots. Instead, they increased the already fervent alienation and social rift between the peasantry and the landed elite. The Conservatives, for their part, drew much opposition for their role in the suppression of labor unions. They were vilified following their involvement with the United Fruit Company against the banana unions in 1928.

The 1930s and early 1940s was politically dominated by the Liberal party. The elections of 1946 divided the Liberal party between Gabriel Turbay and Jorge Eliéser Gaitán. Gaitan's presidential bid for the presidency proposed abandoning "Colombia's semi-feudal economy in favor of workers and campesinos" with a strong focus on land and labor rights.[57] The politically alienated Conservatives took advantage of this fissure in the Liberal vote and secured an electoral victory. The ascent to the presidency of Conservative Mariano Ospina Pérez in 1946 opened the door to a "series of crude reprisals against the Liberals."[58] The retribution from a decade long political sidelining, biased policies, and abuses achieved new heights on April 9, 1948. On a day that would later become known as the *Bogotázo,* Liberal candidate Jorge Gaitán

56 "Colombia." Encyclopedia Britannica. (Encyclopedia Britannica Online: 2007) http://www.britannica.com/eb/article-25337, (accessed October 18, 2007).

57 Luis Angel Saavedra. "In Colombia, Violence is a Way of Life," *National Catholic Reported.* (Oct 1999).

58 "Colombia." Encyclopedia Britannica.

was shot to death in broad daylight on the streets of *Bogotá*. This event polarized the citizenry. Revolts in *Bogotá* were widespread costing the city nearly $570 million dollars in damages.[59] In the country side, the event galvanized the rural populace and a series of armed bands began to form. By 1952, these gangs grew in numbers and aggressiveness, often engaging with formal guerrilla tactics. From the Colombian military perspective, the armed groups along the *Llanos Orientales* (Eastern Plains) of Colombia were nearly uncontrollable.[60]

The Colombian Armada, up until that time, was the service least involved in the internal political problems of the country. As a result, the national government assigned them the mission of "restoring the order and guaranteeing the peace along the rivers along the eastern plains."[61] Institutionally, the Colombian Armada created the *Commando de la Fuerza Naval de Oriente* (FNO). Two marine infantry platoons were assigned to the region equipped with transport ships, canon boats (*cañoneros*) and motor boats. Soon after, the Naval Base ARC "Santander," along the river *Meta*, and the Advanced Post *Puerto Carreño* were created (see Figure 2). By 1955, the National Police and Army removed a high percent of their troops leaving the Navy with sole jurisdiction of the oriental region.[62] In addition, the Armada and its marines were also serving important functions along the southern rivers of the country. It was from this region and through the initiative of two marine officers that a new capability would be introduced into the Colombian Armada. Marine Captain Aurelio Castrillón Muñoz and Lieutenant Rafael Grau Araujo were both assigned to Port *Leguízamo* along the shores of the river *Putumayo*.[63] In September, 1956, in an exhibition on the same river, they demonstrated the increased velocity and

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59 Ibid.

60 Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* 72.

61 Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* 73.

62 Ibid.

63 Armada Nacional de Colombia. *La Infantería de Marina Colombiana: Trascendencia e Imagen del Cuerpo de Tropa de la Armada Nacional,* 26.

maneuverability capabilities gained by using small armed boats and hence marked the beginning of the Colombian riverine history.

What later became known as the *"Flotilla Avispa"* (Wasp Flotilla) was comprised of 7 small armed boats (see Figure 3); six boats would form the task force and one would function for command and control. The boats used were made of aluminum, 13 feet long, capable of carrying over 1700 pounds of cargo (800 kilos) and manned by six marines. The armament included; 60 and 81 millimeter mortars; .30 caliber Browning M-1919 machine guns; MK-2 hand grenades and grenade launchers; Garant M-1 rifles; and 9 millimeter pistols.[64]

Their newfound capability allowed them to better confront the rising problem of armed gangs in the countryside. They maintained this rudimentary 7 ship organization until 1971 when the force organization and equipment were no longer adequate to contend with the organized formation of subversive guerrillas.

[64] Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* 76.

Figure 2. Political Map of Colombia

Source: Paul F Willey. *The Art of Riverine Warfare from an Asymmetrical Approach* (Monterey: Naval Postgraduate School, March 2004): 26

Figure 3. Boats of the Flotilla Avispa

Source: Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* (Colombia, June 2006): 76

2. Armed Revolutionary Groups

The period of *La Violencia* that began in 1948 had a significant impact on Colombia. Though this period is said to have ended in 1957 with the Declaration of Sitges and the formation of the National Front government[65], over 200,000 lives were lost in just over nine years of struggle. Most importantly, this era of violence brought forth the formation of guerrilla movements that would endure to this day.[66]

By 1964 two distinctly different revolutionary guerrilla groups had formed, both with the mainstay of their support rooted with the peasantry in the countryside. The Revolutionary Armed Forces of Colombia (FARC) was officially

65 The National Front was a period from 1958 to 1974 when both the Liberal and Conservative parties agreed to let the opposite party govern by alternating power every four years.

formed in response to the attacks on the town of *Marquetalia*.[67] From this valley a group of nearly 100 peasants escaped a military attack and joined others in the "liberated zones" of the southern countryside becoming mobile guerrilla groups. While the FARC was influenced by the Communist Party, The Army of National Liberation (ELN) was heavily influenced by the Cuban revolution. Led mainly by student radicals organized around Santander and Cauca, this group exerted their presence in rural areas of the northern regions.

The era of the National Front brought superficial stability by reducing political infighting. Societal violence, nonetheless, was clearly delineated along class lines and continued to increase. The existence of two established subversive groups trained in guerrilla tactics provided the government with a more formidable opponent. As a result, the Ministry of War sought to once again "make use of the Marines…in the control of national order."[68] By the 1970's Marine units had a presence in 10 forward stations including *Tumaco, Buenaventura, Cartagena, Bogotá*, and various other ports. The riverine force of the *"Flotilla Avispa"* would also experience a transformation. Congressional Resolution No. 8511, enacted on December 14, 1971, approved the creation of the *"Comandos de Selva"* (Jungle Commandos). The end of the decade saw the emergence of a unit of amphibious troops that could operate along the rivers (see Figure 4). The Jungle Commandos would receive psychological, tactical, and technical training specific for riverine combat. The decade of the 1970s became better known as the time of "War on the Rivers." Among the many battles fought by the Jungle Commandos, Operation *Anorí* in 1973 was their most successful in that they nearly eliminated the National Liberation Army (ELN).[69] By the end of the decade the Colombian Marine Corps had grown to

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66 "Colombia." Encyclopedia Britannica.

67 "Colombia." Encyclopedia Britannica. (Encyclopedia Britannica Online: 2007) http://www.britannica.com/eb/article-25337, (accessed October 18, 2007).

68 "Historical Review of the Colombian Marine Corps," translated by U.S. Military Group Colombia (Colombia, January 2007): 2.

69 Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* 85.

the size of a Brigade comprised of four rifle battalions, a training base in *Coveñas*, and a Non-Commissioned Officer training school.[70] Concurrently, the riverine force had grown to eight riverine elements that deployed along the *Magdalena, Cauca, Meta, Guaviare, Inírida, Putumayo, Caguán*, and *Orteguaza* rivers.

Figure 4. Jungle Commandos

Source: Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* (Colombia, June 2006): 85, http://www.armada.mil.co/ (accessed October 28, 2007)

3. Drug Cartels

The end of the National Front government came in 1974. The return to competitive elections between the Liberal and Conservative parties was relatively smooth. Following the Counter-Insurgency (COIN) efforts of the 1960s, many

[70] "Historical Review of the Colombian Marine Corps," 1.

analysts and the government thought the rural guerrilla problem had been largely resolved by the early 1970s. The following decade would prove otherwise.

Narcotics took center stage by the 1980s as Colombia took on the role of the main supplier of cocaine to the international drug market. Increased interdiction efforts launched by the Mexican government in 1975 allowed Colombia to gain nearly 70 percent of the marijuana trade entering the United States. With this niche safely secured, the drug cartels of *Medellín* and *Cali* turned their attention to cocaine and made Colombia the "intermediary production and distribution center."[71] Coca leaf, grown in the neighboring countries of Perú and Bolivia, would enter Colombia from the south for processing. The chemicals used in processing were smuggled from the United States, Europe and China. Once the processing was complete, large quantities of cocaine would leave the country via the Caribbean en-route back to the United States and Europe.[72] The river systems of the country, its coastal waters and access to the sea were integral to this process.

The government understood clearly the importance of the water environment and turned again to the Navy and its Marine Corps to regain control of outlying areas of the country. Accordingly, the Navy was given the responsibility for 2900 kilometers of land along the Pacific and Atlantic coasts, the southern and eastern borders, as well as the entire network of rivers.[73] In 1979, specifically, the Marine Infantry assumed responsibility for all the riverine waterways within Colombia (see Figure 4).[74] The country has an extensive riverine structure that is composed of 30 principal navigable rivers and 68

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71 Colombian Government Trade Bureau. "About Colombia," Colombia Trade News (Washington, DC) http://www.coltrade.org/about/factors.asp, (accessed October 16, 2007).

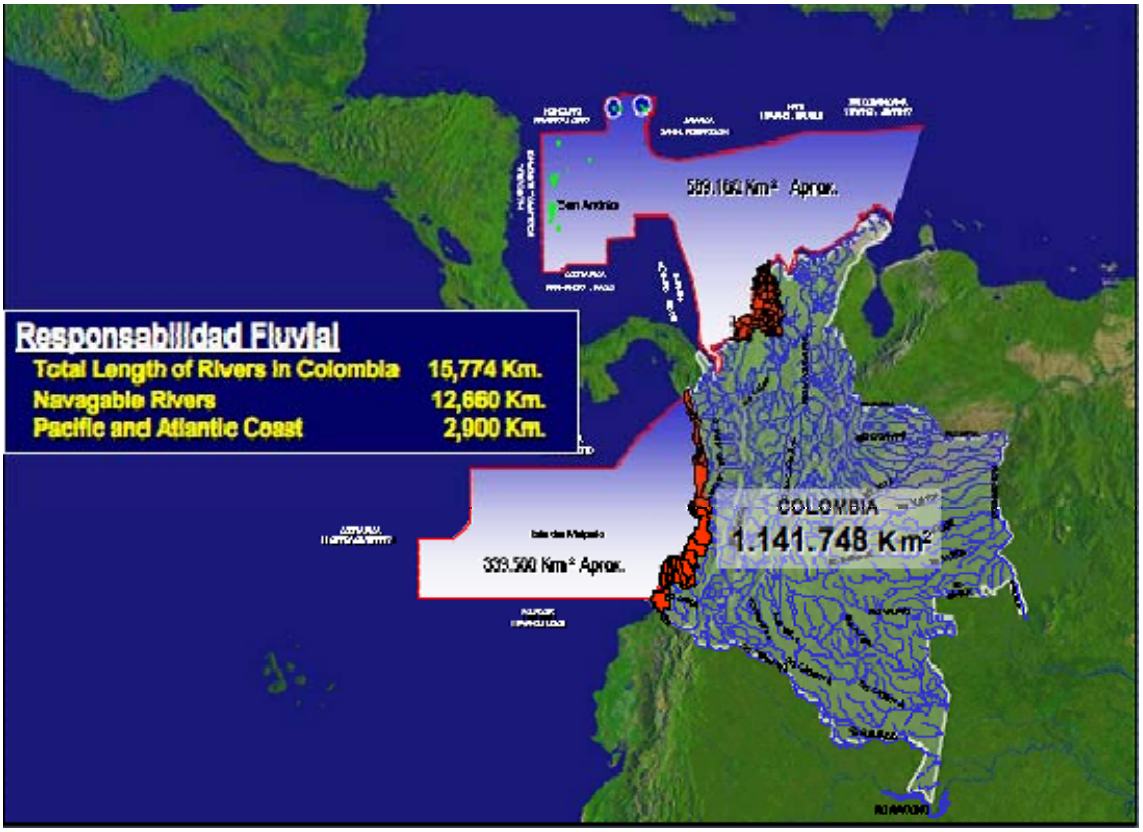
72 Colombian Government Trade Bureau. "About Colombia."

73 "Historical Review of the Colombian Marine Corps," translated by U.S. Military Group Colombia (Colombia, January 2007): 2.

74 Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* (Colombia, June 2006): 89, http://www.armada.mil.co/ (accessed October 28, 2007).

principal river mouths. These form part of a 15,774 kilometers-long network of rivers, of which 12,660 kilometers are navigable.[75]

Figure 5. Naval Responsibilities



Source: Armada Nacional de Colombia. "Presentacion CODENAL 2007," (Colombia, June 2007): 14

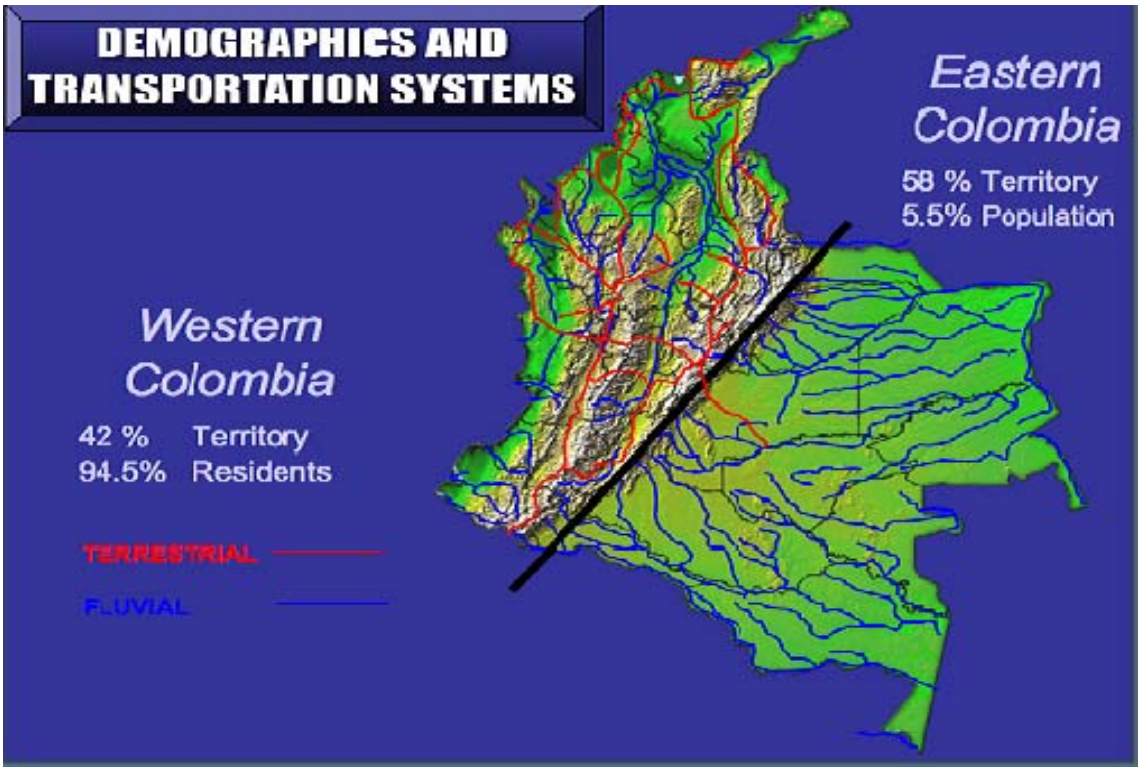
Colombia's diverse geographical make-up of jungles, mountains, and river systems that cover over 50 percent of the country, "make it an ideal haven for illicit products and means."[76] To better understand the riverine environment of Colombia, the country can be divided into an Eastern and Western region. From Figure 6 one can begin to understand the expanse of the Colombian river system. Its lack of a road infrastructure makes the fluvial waterways the principal

[75] Armada Nacional de Colombia. "Importancia de la I.M. en el Desarrollo del Poder Naval," (Colombia, May 2004): 22.

[76] Paul F Willey. *The Art of Riverine Warfare from an Asymmetrical Approach* (Monterey: Naval Postgraduate School, March 2004): 25.

route of transportation for illicit activities within the Eastern territory. The Jungle Commandos of 1971 were initially deployed to the area in the Guaviare, Meta, and Orinoco rivers. They were tasked to regain control of this guerrilla-occupied territory "where there had never before been state presence."[77]

Figure 6. Colombian River Systems and Transportation System



Source: "Information Brief for Mr. Brick Scoggins," U.S. Military Group (Bogotá, Colombia: January 2006): 3

The addition of drug cartels to the already existing problem of the guerrillas, however, meant that the Jungle Commandos would have to undergo another change to confront their new enemies. Therefore, in 1980, under the direction of Brigadier General Numa Pompilio Rojas Currea, the small riverine fleet began to change its structure and organization. The 13-foot aluminum boats acquired in 1956 were replaced by 13 and 17-foot boats made of fiberglass

77 "Historical Review of the Colombian Marine Corps," translated by U.S. Military Group Colombia (Colombia, January 2007): 2.

and given stronger 55 horse-power engines. More significantly, the basic combat element of the riverine force would be comprised of four tactical boats (13-foot boats) and one logistical and administrative unit (a 17-foot boat).[78] The riverine combat school would adjust its tactics and doctrine to accommodate the new basic fighting element. By 1981 the formal re-designation of the Jungle Commandos to Riverine Combat Element (Elemento de Combate Fluvial ECF) completed the transformation and closed another distinguished chapter of Colombian riverine history.

By 1989, the new Colombian riverine force had grown to 18 riverine combat elements and was active over a great part of Colombia's river system. Also in 1989, the United States became heavily involved in Colombia as part of its longstanding War on Drugs. Under the Andean Initiative, the U.S. Marine Corps (USMC) reinvigorated the Colombian Riverine Program.[79] Under this program the Colombian Marines (COLMAR) received U.S. assistance in "boat procurement, riverine seminars, infrastructure development, and establishing a new Colombian riverine school."[80]

4. Narco-terrorism

The Colombian struggle of the 1980s and 1990s against the drug cartels came at a high cost of human life from both the civilian and military sectors. The U.S. entrance into the conflict near the end of 1989 changed the way Colombia would confront its war on drugs. From 1990 to 1998 they would concentrate on attacking the leadership of the cartels of *Medellín, Cali*, and the Caribbean coast. By 1994 they had become largely successful in diminishing the power and presence of the cartels, which were soon replaced by smaller, more mobile and

78 Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* (Colombia, June 2006): 89, http://www.armada.mil.co/ (accessed October 28, 2007).

79 Benbow, et al. 126.

80 Benbow, et al. 127.

internationally connected networks.[81] These became inconsequential by comparison to the gains made by the revolutionary guerrilla groups. In Colombia, the destruction of the cartels created a power vacuum prime for the already established guerrillas like the FARC and ELN to step into. Their presence created an "explosion in the cultivation of coca and the production of narcotics."[82] By taking over some of the operations of the cartels, the guerrillas acquired a lucrative funding source that allowed them to increase their military strength. The Colombian Ministry of Defense calculated that the FARC grew from 5,800 members in 1990 to 11,930 members by 1998.[83] The resurgent predominance of the guerrillas led to a corresponding increase in the size and number of paramilitary groups, comprised of a mix of peasants, landowners, and drug traffickers. The *Autodefensas Unidas de Colombia* (United Self-Defense Forces of Colombia or AUC), formed in April 1997, battled guerrillas for control over the drug trade and by and large was responsible for more deaths than either leftist guerrilla group. Political murder, assassination, bombings, extortion, and kidnappings became the norm.

In August 1998 Andrés Pastrana, a member of the Conservative Party, won the presidency by defeating Liberal contender Horacio Serpa. His platform advocated the peaceful resolution to the internal civil conflicts of Colombia and full cooperation with the United States in the war on drugs. By the end of 1999, President Pastrana unveiled Plan Colombia. This integrated strategy looked to "restore security, strengthen the justice system, eradicate coca cultivation, develop the infrastructure and economy, and restore social order and peace in Colombia."[84] The plan also drew greater financial and direct support from the

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[81] Colombian Government Trade Bureau. "About Colombia," Colombia Trade News (Washington, DC) http://www.coltrade.org/about/factors.asp (accessed October 16, 2007).

[82] John A. Cope. "La Guerra de Colombia: Hacia Una Nueva Estrategia," *Strategic Forum, Institute for National Strategic Studies No. 194/*S (October, 2002): 4.

[83] John A. Cope. "La Guerra de Colombia: Hacia Una Nueva Estrategia," *Strategic Forum, Institute for National Strategic Studies No. 194/*S (October, 2002): 8.

[84] Christopher W. Muller. *USMILGP Colombia: Transforming Security Cooperation in the Global War on Terrorism.* (Monterey: Naval Postgraduate School, December 2006): 92.

United States. Since three of these goals were directly supported by the Colombian riverine forces, Plan Colombia would lead the force to undergo its latest transformation.

On August 4, 1999, Puerto Leguízamo, along the river Putumayo, became the stage in the inaugural ceremony of the first Marine Infantry Riverine Brigade. This ceremony, attended by President Pastrana, was of historic significance. The new Riverine Brigade united the 30 existing riverine combat elements (RCE) and 9 deployed detachments into five riverine battalions[85] and was given total responsibility for the riverine security in Colombia. With this act, the Riverine Force was transformed from an operational arm of the Marine Infantry into a national strategic entity.[86]

B. CURRENT FORCE STRUCTURE

The events of 1999 constitute the latest installment in a series of changes that shaped the current structure of the Colombian riverine force. Since 1999, the Colombian Riverine Force has increased in size and is organized to include two Riverine Brigades with eight Riverine Battalions (BAFLIM), three Riverine Assault Battalions (BASFLIM), 63 Riverine Combat Elements (ECF), and Advanced Riverine Posts (PFA) and naval bases used for logistical support.[87] The first segment of this section examines the riverine units, their method of employment and their characteristics. The second summarizes the forces' various operational and organizational structures.

85 "Historical Review of the Colombian Marine Corps," translated by U.S. Military Group Colombia (Colombia, January 2007): 3.

86 Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* (Colombia, June 2006): 108, http://www.armada.mil.co/ (accessed October 28, 2007).

87 Armada Nacional de Colombia. *Cerrando Espacios: Rumbo al Futuro*, Revista Armada (Colombia, June 2007): 23-25.

1. Units and their characteristics

The Colombian riverine force contains two types of units differentiated by size and capacity. The units of large displacement and greater capacity include the Riverine Gunboats (*Cañonero Fluvial* CF) and both the Heavy Riverine Support Patrol Boat (*Patrullera de Apoyo Fluvial Pesado* PAFP) and the Light (*Patrullera de Apoyo Fluvial Liviano* PAFL). Their main purpose is to provide logistical support and troop transport and to facilitate operations of long duration and autonomy. The smaller riverine vessels include the Riverine Patrol Boat (*Patrulleras Fluviales* PF), the Fast Riverine Patrol Boat (*Patrulleras Rápidas Fluviales* PRF), Armored Troop Carriers (*Transportes Blindados de Tropa* TBT), tugboats (*Remolcadores Fluviales* RF), the Riverine Combat Elements Heavy (*Elemento de Combate Fluvial Pesado* ECFP) and Light (*Elemento de Combate Fluvial Liviano* ECFL), Riverine Support Boats (*Botes de Apoyo Fluvial* BAF), and Riverine Support Stations (*Estación Móvil de Apoyo Fluvial* EMAF).[88]

The Riverine Gunboats (*Cañonero Fluvial* CF) currently operating in Colombia date back to 1956 and the times of the *Flotilla Avispa*. There are currently three in service: ARC *Arauca*, ARC *Riohacha*, and ARC *Leticia*. After 50 years of service, these units are capable of providing medical support to the troops and basic repair for the Riverine Combat Elements (*Elemento de Combate Fluvial* ECF). They provide troop transport for up to one platoon of marines. These units can remain autonomous for 30 days and can best serve as a Command and Control platform for continuous joint operations. Though they are used in conjunction with ECFs, these gunboats can only carry 2,000 gallons of gasoline, thus limiting the operational range of the combat elements. Their armament includes two MK-19 grenade launchers, two .50 caliber machineguns, and two cannons (40 and 50 millimeter shells). Their greatest weakness, however, stems from their lack of maneuverability, speed, and protective armor. As such, they are extremely vulnerable when ambushed or under enemy fire,

88 Armada Nacional de Colombia. *Operaciones Fluviales,* 16.

and require good intelligence and land support when trying to control riverine lines of communication (LOC).[89]

The Heavy Riverine Support Patrol Boat (*Patrullera de Apoyo Fluvial Pesada* PAFP) is frequently referred to by its more common name *Nodriza* (see Figure 7). These boats perform several integral combat functions of security, control, riverine interdiction operations, and logistic support. They form part of a Riverine Combat Group and provide direct support to the Riverine Combat Elements. Much like the Riverine Gunboats, these vessels provide an infirmary for troops, engine repair capabilities, and can function as a Command and Control platform. The design also includes a landing platform for mid-sized helicopters. This makes the PAFP an excellent asset for medical evacuation as well as joint operations requiring aerial support. These units have served well during the initial engagements along the principal rivers. This success, however, prompted a shift by the guerrillas away from the principal waterways and into the more shallow and narrow primary and secondary tributaries. The boat's minimum draft of 0.75 meters (2.5 feet) forced a shift to the use of lighter units. The Light Riverine Support Patrol Boats reduced their draft to 0.40 meters, or nearly one foot, making them capable of engaging the enemy in shallower rivers. Both type vessels are restricted by their maximum velocity which ranges from 9 to 12 knots. This is compensated, however, by their heavily reinforced armored shell and overwhelming fire power. Each unit only requires a complement of 16 officers and enlisted personnel to operate. It is capable of housing and sustaining 39 fully equipped troops for up to 15 days. This, and its 1800 nautical mile range, makes it a superbly capable unit apt for the riverine environment.[90][91] For various reasons, the PAFP is considered a success story in the evolution of Colombian riverine history. Chapter IV will provide greater detail as to the development and capabilities of this unit.

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89 Armada Nacional de Colombia. *Operaciones Fluviales,* 20.

90 Armada Nacional de Colombia. *Cerrando Espacios: Rumbo al Futuro*, 46.

Figure 7. Riverine Support Patrol Boat Heavy

Source: Armada Nacional de Colombia. *Cerrando Espacios: Rumbo al Futuro*, Revista Armada (Colombia, June 2007): 46

The Fast Riverine Patrol Boats (*Patrulleras Rápidas Fluviales* PRF) are divided into three classes: the *Río* Class (PRF-CR), the *Tenerife* Class (PRF-CT) and the *Magdalena* Class (PRF-CM). There are currently 3 *Río* Class fast patrol boats, 9 *Tenerife* and 16 *Magdalena* units in the Colombian inventory.[92] These types of boats were used by the United States during Vietnam. Today, they usually form part of a Riverine Combat Group (GCF) and are tasked and accomplish the same missions as the Heavy Riverine Support Patrol Boat (*Patrullera de Apoyo Fluvial Pesado* PAFP). Unlike the PAFPs, however, these vessels are light and have a shallower draft. The PRF's size and draft allow it to

91 CF Jaime Hernando Jiménez, Commercial Department Manager-COTECMAR. Interviewed by author, (Colombia, September 17, 2007).

92 "Information Brief for Mr. Brick Scoggins," U.S. Military Group Colombia (Bogotá: Colombia, 9 January 2006).

navigate along most of the primary tributaries of the country. Unfortunately, they are not heavily armored and do not provide much protection to the embarked elements. Their maximum speed, depending on the type of unit, ranges from 8 to 16 knots making it extremely vulnerable in narrow rivers where maneuverability is restricted.[93]

Figure 8. Fast Riverine Patrol Boat (PRF-CT)

Source: Armada Nacional de Colombia. *Cerrando Espacios: Rumbo al Futuro*, Revista Armada (Colombia, June 2007): 47

The Armored Troop Carriers (*Transportes Blindados de Tropa* TBT), Tugboats (*Remolcadores Fluviales* RF), and Riverine Support Boats (*Botes de Apoyo Fluvial* BAF) function as their name implies. The TBTs have a maximum velocity of 26 knots and provide transport, including embarkation and debarkation capabilities, to 14 fully equipped troops. These units are equipped with one M-79 grenade launcher, two M-60 machineguns, and five assault rifles. The tugboats are capable of transporting troops (up to 12 fully equipped), goods and fuel. They mainly operate as a support unit for the Advanced Riverine Posts (*Puesto*

93 Armada Nacional de Colombia. *Operaciones Fluviales,* 29-34.

Fluvial Avanzado PFA). Their functions are limited to the riverine environment.[94] The BAF is capable of transporting troops, fuel, ammunition, and food to land units in places where the Riverine Support Patrol Boat (*Patrullera de Apoyo Fluvial* PAF) cannot reach due to its size. The boat itself is not armored nor does it have much firepower. As a result, it requires an escort to conduct its mission.

The Riverine Combat Element is the basic building block of the Colombian Riverine Force. There are two types of Riverine Combat Elements that, depending on their technical and tactical characteristics, can be characterized as Heavy or Light. Both provide "speed, maneuverability, flexibility and firepower, [and] adaptability."[95] Their primary task is to provide riverine control by executing interdiction and assault operations. As a result, these vessels are highly susceptible to attack and ambush.[96] The ECFs are the tactical combat units and cannot provide a reconnaissance function. Their greatest limitation is their fuel consumption. Figure 9 depicts the standard make-up of a Heavy Riverine Combat Element (*Elemento de Combate Fluvial Pesado* ECFP).

94 Armada Nacional de Colombia. *Operaciones Fluviales,* 36.

95 Armada Nacional de Colombia. *Operaciones Fluviales,* 38.

96 Armada Nacional de Colombia. *Cerrando Espacios: Rumbo al Futuro*, 47.

Figure 9. Riverine Combat Element

Source: Armada Nacional de Colombia. *La Armada Nacional en la Guerra Contra el Narcotrafico,* (Colombia. April 2004): 21

The Heavy Riverine Combat Element (ECFP) is made up of three tactical boats and one boat in charge of command and control (C2) (see Figure 10). There are two types of tactical and C2 boats. The 25 foot command and control boat is essentially a larger and slightly improved version of the 22 foot tactical boat. Both vessels carry the same name, *Piraña*, have a fiber glass hull and were built in the United States. Their main propulsion consists of two outboard motors of 150 to 175 horsepower that can reach a maximum speed of 32 to 37 knots. The bigger 25 foot *Piraña* can remain on station for 7 hours at maximum velocity, one hour longer than its smaller counterpart. Their size and power give these craft great maneuverability. The armament onboard -- composed of .50 caliber and 7.62 millimeter machineguns, two grenade launchers (smoke and fragmentary), and six rifles -- gives the *Piraña* great lethality. The second type of tactical and C2 boats both carry the namesake *Caribe*. Just like the *Piraña*, the

26 foot C2 boat is an improved version of the 23 foot tactical vessel. These boats are both built in Colombia, are made of fiber glass, and carry two outboard motors that can reach up to 35 knots. Their firepower is the same as the *Piraña*, but both *Caribe* type boats time on station is slightly longer at 8 hours.[97]

Figure 10. Command and Control Boat

Source: Armada Nacional de Colombia. *Cerrando Espacios: Rumbo al Futuro*, Revista Armada (Colombia, June 2007): 47

The Light Riverine Combat Element (ECFL) (see Figure 11) is a special type of unit that is capable of conducting operations in shallow and more restricted waterways because of its shallow draft. This capability allows these units to conduct operations during dry or wet seasons (winter or summer). Each element is comprised of four 17-foot tactical boats each with two 40 horsepower outboard motors. These units are employed for special operations, day or night. Normally they form part of a Riverine Combat Group (GCF) and provide the following capabilities. They provide support in line of communication (LOC)

97 Armada Nacional de Colombia. *Operaciones Fluviales,* 40-42.

operations and they act as escort for units conducting transport or logistical support, and units performing ground troop insertion operations.[98] Their low fuel consumption and ease of transportation into different theaters of operation make them extremely affordable and tactically useful.

The ECFL is limited to quick-strike and assault operations. Its limited capacity to carry supplies, munitions, and fuel reduces its autonomy and ability to conduct secondary operations. The operational success hinges greatly on the element of surprise and consequently on the quality of intelligence. Due to its size, low firepower, and lack of speed this unit is highly vulnerable if it comes under direct fire or if confronted with an ambush situation.

Figure 11. Riverine Combat Element Light

Source: "Information Brief for Mr. Brick Scoggins," U.S. Military Group Colombia (Bogotá: Colombia, 9 January 2006

Of the units that perform support functions, the Riverine Support Mobile Station (*Estación Móvil de Apoyo Fluvial* EMAF) is an innovation worth noting (see Figure 12). The EMAFs are an asset designed, developed, and built in Colombia. These floating hangars entered the force in 2002 as part of the

98 Armada Nacional de Colombia. *Operaciones Fluviales,* 45.

Riverine Battalion No. 50 in Port *Inírida*.[99] In just over five years they have increased in number to 12 and seen drastic improvements on the initial design. The EMAF is capable of housing the 25 marines of an ECF and their four boats in addition to one platoon of combat ready marines. The hangar serves as a logistic, medical, and sanitary support unit that is also capable of conducting basic engine repair.[100] The unit can be easily transported via tugboats and provide the riverine force with a rapid and inexpensive forward staging capability from which to launch future operations. Additionally, its presence downriver in areas where permanent infrastructure cannot be established is a welcoming sight to marines seeking rest or refuge following combat.[101]

Figure 12. Riverine Support Mobile Station

Source: Armada Nacional de Colombia. *Cerrando Espacios: Rumbo al Futuro*, Revista Armada (Colombia, June 2007): 48

99 Armada Nacional de Colombia. *La Infantería de Marina Colombiana: Trascendencia e Imagen del Cuerpo de Tropa de la Armada Nacional,* 43.

100 Armada Nacional de Colombia. *Operaciones Fluviales,* 50.

101 CF Jaime Hernando Jiménez, Commercial Department Manager-COTECMAR. Interviewed by author, (Colombia, September 2007).

2. Organizational Structures

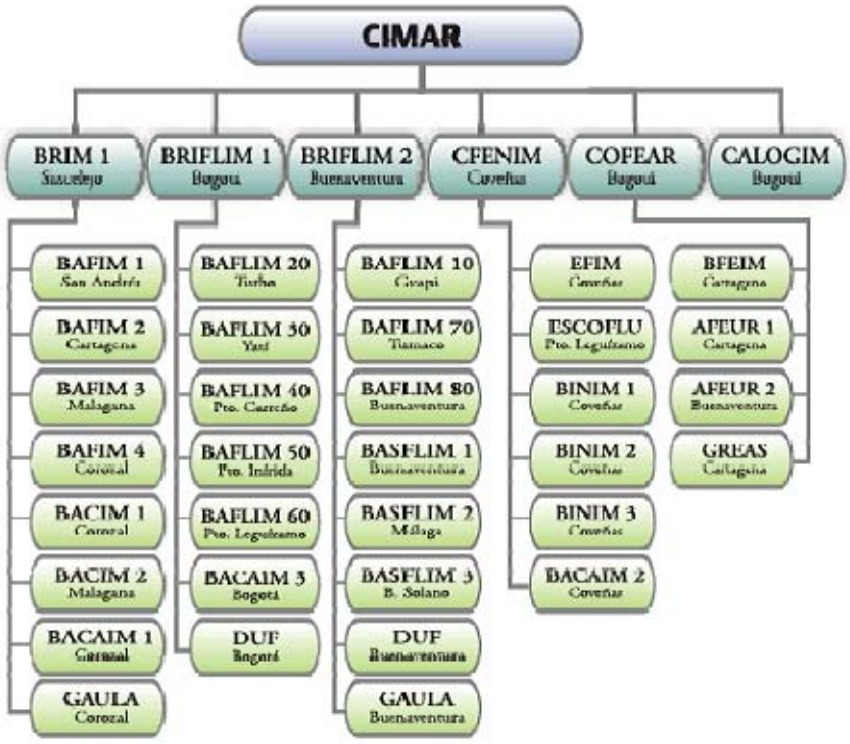
The Marine Infantry underwent two major reorganizations in the last decade, one in 1999 and the other in 2004. In 1999, the Riverine Brigade was a subordinate command under the Marine Infantry Brigade. By 2004, the riverine force nearly doubled in numbers, noted by the formation of the second brigade, and gained greater notoriety and importance. This was clearly evident when in 2004 both Riverine Brigades attained the equivalent status of the Infantry Brigade and became subordinate to no other command than that of the General Commander of the Marine Infantry (see Figure 13).[102] To date, the two Riverine Brigades are comprised of a total of eight Riverine Battalions and three Riverine Assault Battalions.

The Marine Infantry Riverine Brigade (*Brigada Fluvial de Infantería de Marina* BRIFLIM) is an operational unit that is in charge of providing support to the Army when required, exercising control of the rivers, and maintaining Colombia's sovereignty along its riverine borders. At its core, each BRIFLIM command is comprised of Riverine Battalions (*Batallon Fluvial de Infantería de Marina* BAFLIM) and Riverine Assault Battalions (*Batallon de Asalto Fluvial de Infantería de Marina* BASFLIM).

The Riverine Battalion is a tactical component of the BRIFLIM. The BAFLIM is composed of one Advanced Riverine Post and has the ability to form Riverine Combat Groups. Riverine Combat Groups are by nature temporary. They are comprised of one Gunboat or one Riverine Patrol Support Boat, two Riverine Combat Elements, and one Riverine Assault Group.

[102] Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* 51.

Figure 13. Colombian Marine Infantry Structure[103]



Source: Armada Nacional de Colombia. *La Infantería de Marina en la Historia de Colombia,* (Colombia, June 2006): 51

The Advance Riverine Post (*Puesto Fluvial Avanzado* PFA) is an organic unit of the BAFLIM. This post has a defined riverine area of responsibility. Its purpose is to maintain the lines of communication (LOC), maintain control of the rivers along a strategic area, and serve as a launching base for other operations. A PFA will execute some of the tactical missions of larger commands, such as a BAFLIM. As such, it must possess security and defense systems, provide a credible riverine force, and have the sufficient combat power to be decisive in battle.[104]

A Riverine Combat Group (*Grupo de Combate Fluvial* GCF) (see Figure 14) is organized solely for combat. Its command and control platform will be one

[103] Acronym definitions: CIMAR (Marine Infantry Command) BRIFLIM (Riverine Brigade), BAFLIM (Riverine Battalion), BASFLIM (Riverine Assault Battalion).

[104] Armada Nacional de Colombia. *Operaciones Fluviales,* 16,19.

riverine boat type -- CF, PAFP, PAFL, or PRF. Additionally, it will contain two Riverine Combat Elements (ECFP or ECFL), one to two Riverine Assault Groups,[105] and one Riverine Support Boat for troop transport.[106]

Figure 14. Riverine Combat Group

Source: Armada Nacional de Colombia. *La Armada Nacional en la Guerra Contra el Narcotrafico,* (Colombia. April 2004): 22

Once formed, a GCF provides the BAFLIM with various capabilities. These capabilities include:

- Establish and maintain control of the riverine lines of communication (LOC).
- Perform interdiction and security operations as well as assault and support operations.

[105] A GAF is a contingent of 22 marines that embark the three tactical boats of an ECF.

[106] Armada Nacional de Colombia. *Operaciones Fluviales,* 60.

- Provide direct fire support to land and riverine units.
- Transport units, material and fuel.
- Conduct night insertion operations.

The GCF is limited by its size making it only able to conduct operations during summer months (wet periods) and in riverine areas with enough depth and width for all its units. If operational requirements make it necessary to enter restricted waters, then the GCF requires absolute control of the land area along the rivers or the support of air assets to neutralize enemy action.[107]

Riverine Assault Battalions (*Batallon de Asalto Fluvial de Infantería de Marina* BASFLIM) are also tactical in nature. This element is responsible for land operations in support of riverine operations. There are two types of BASFLIM. Both, type A and B, are mainly composed of four Riverine Assault Companies. Their difference resides in the size of their security and support units; type B is larger than type A.[108] Figure 15 below shows the locations of each BRIFLIM, BAFLIM, and BASFLIM. Each battalion is strategically placed along the main rivers and tributaries of the Colombian countryside.

[107] Armada Nacional de Colombia. *Operaciones Fluviales,* 61.

[108] Armada Nacional de Colombia. *Operaciones Fluviales,* 17.

Figure 15. Riverine Brigades and Battalions

Source: Armada Nacional de Colombia. *Cerrando Espacios: Rumbo al Futuro*, Revista Armada, (Colombia, June 2007): 25

C. CONCLUSION

The history of the Colombian Marine Infantry dates back over 70 years to January 1937. It took nearly two decades and a struggle of the magnitude and complexity of *La Violencia* to prompt Colombia into creating a riverine force. Since 1956 and the creation of the *Flotilla Avispa*, it is evident that Colombia's Riverine Force has been closely tied to the political and social history of the country. One need only look at the timeline of significant events that have transpired in Colombia to recognize the corresponding and reactionary development and evolution of the riverine force. Over their 50 year history, the Colombian riverine force have evolved to face a series of diverse threats, ranging from armed peasant uprisings, to organized and well funded subversive guerrillas, to ruthless drug cartels, and narco-terrorist organizations.

At each stage of crisis, the Colombia government recognized the need for a riverine solution. Consequently, nearly after each passing decade the riverine force experienced an increase in manning and a redefinition of its responsibilities. Notably, in their 50 year history, the Colombian Riverine Forces have not been disbanded nor reduced to inoperable numbers. As a consequence, this has allowed for a continuous and gradual development of a formidable force with an incredible wealth of institutional knowledge present within the system.

The following chapter will discuss Colombia's tactical and operational application of its riverine forces in their largely successful effort to regain control of the riverways from their latest adversaries as well as some of the innovations that have contributed to success in this struggle.

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IV. ASSESSMENT OF RIVERINE OPERATIONS, 2002-2006

The unveiling of Plan Colombia by the Pastrana administration in 1999 had a significant effect on the development of the Colombian Riverine Force. Plan Colombia allowed for the development of a Riverine Brigade that unified the country's Riverine Combat Elements and formalized its ranks into five combat oriented battalions. In the three years that followed, however, the riverine forces, or any other military branch of government for that matter, were not used to their maximum effectiveness. The Colombian government at that time had placed negotiated peace with the guerrillas as the principal political objective. As a result, appeasing gestures like creating a 40,000 square kilometer demilitarization zone (*Zona de Despeje*) in the states of *Meta* and *Caquetá* became the primary vehicles for peace. The continuing offensives by the FARC combined with hijackings, high profile kidnappings, and murders, proved that dialogue with an emboldened enemy were futile. By the end of his term, much of the peace initiatives envisioned by President Pastrana had failed. Colombia saw its economy at a standstill and its security much more threatened than before. President Pastrana's approval rating drop, from 67 percent to nearly 30 percent, was a clear signal that the Colombian people were dissatisfied with the status quo and were in need of a new vision.[109]

On May 2002, Álvaro Uribe won the Colombian presidential election with over 50 percent of the vote. He ran his candidacy as an independent liberal with a platform focused on confronting the national ailments caused by illegal organizations such as the FARC, the AUC and the ELN. In an interview with BBC News, he noted that "We can no longer have a country [threatened] by guerrillas or defended by paramilitary groups. We need central control."[110] This

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109 "Colombia." Britannica Book of the Year, 2000. Encyclopedia Britannica Online (2007). http://www.britannica.com/eb/article-9342409 (accessed November 11, 2007).

110 "Uribe Defends Security Policies," BBC News, (November 18, 2004). http://news.bbc.co.uk/2/hi/americas/4021213.stm (accessed November 11, 2007).

central control would come via a new security strategy that emphasized a greater military role. Decisive military action, he hoped, would defeat the enemy and force them to address options for conflict resolution and subsequent peace.

This chapter will assess the effectiveness of the riverine operations that were part of Uribe's new security strategy. The first section presents the strategic visions laid out in the Naval Strategic Plan and the subsequent Naval Strategy against Narcoterrorism. These two strategies formed the basis from which riverine forces launched their tactical fight to retake the rivers of Colombia. The second section provides a brief description of the riverine environment of Colombia which, by all accounts, is quite diverse. The country can be divided into three distinct regions: the Pacific Coast, Caribbean Coast, and Eastern and Southern plains. Each region is distinct from the other in every manner from its climate, foliage, and rainfall to the varied types of riverine systems and harbors it contains. This section will provide a sense of the magnitude of the problem posed by nature in Colombia, as well as suggest that the lessons learned from the diverse Colombian experience might be applicable in a wide range of riverine environments.

The third section, entitled "Retaking the Rivers", describes the capabilities, tactics and methodology of the riverine forces that have allowed them to regain control of the national waterways. Although this success has been overshadowed by the constancy of the overall war on drugs, Colombian riverine forces have been able, in the short span of five years since 2002, to regain control and project state presence to nearly 70 percent of the navigable waters of the country.[111] Their operations constitute, on average, 5 to 10 percent of the

[111] Armada Nacional de Colombia. "Presentación CODENAL 2007," (Colombia, June 2007): 16. Based on total length of navigable rivers given as 12,660km and claim of control of 8,685km.

overall operations against drug trafficking.[112] More directly, their control and security over the primary riverways has forced narco-terrorist organizations to relegate their activities to the secondary and tertiary riverways. These results have been, in great part, the principal contributors to the noticeable shift in operations and drug routes toward the southern regions of Colombia.

Colombia's great success on the rivers can be attributed largely to Counterinsurgency (COIN) and Line of Communication (LOC) operations, two of their riverine core capabilities. U.S. riverine capabilities in COIN and LOC were judged by CNA to be "limited" and "negligible", respectively. Colombia, in this case, stands to offers a template from which to study type and force size requirements, and tactical lessons of controlling natural and human nodes of flow.

A. NAVAL STRATEGY

On July 2003, the Colombian Armada published its Strategic Naval Plan (*Plan Estratégico Naval*). This plan took into consideration the diverse threats currently facing Colombia and the most probable scenarios the Armada might find itself engaged in the future. This document was a tool used to align the Armada's strategic goals to the Colombian national interests set by the new president. Its timeline was ambitious. As noted in its Vision Statement, "By the year 2010 the National Armada through decisive and forceful operations will have contributed to the recovery and consolidation of peace and Colombian democratic security."[113] Securing the maritime and riverine systems within

[112] This average was attained from figures contained in Ministerio de Defensa Nacional. "Avance de la Politica de Defensa y Seguridad," (Colombia, August 2007), Brigada Fluvial de Infantería de Marina. "Resultados Op 2003-2004-2005-2006 BRIFLIM1," (Colombia, November 2006), and Brigada Fluvial de Infantería de Marina, "Resultados Operacionales Año 2007 BRIFLIM1," (Colombia, July 2007). Operations included in this average include, but are not limited to, captured cocaine, base coca leaf, heroine, marihuana, and precursor chemicals.

[113] Armada República de Colombia. "Plan Estrategico Naval 2003-2010," (Colombia, July 2003): 10. Translation by author. It is interesting to note that the projected 2010 deadline for victory, decided back in 2003, corresponds to the end of Uribe's second presidential term, which he attained in 2006 and is currently serving.

Colombia will contribute directly to peace by weakening the threat from armed actors. It would also contribute indirectly by enabling greater economic growth which would, in turn, "help reduce the levels of poverty, strengthen democratic stability, reduce the intensity of the terrorist threat, and reduce the crime and violence index"[114] within the country.

The Strategic Naval Plan went further and identified the following threats:

- Terrorism
- Trafficking of Illicit Drug
- Illicit Finances
- Trafficking of Arms, Munitions, and Explosives
- Kidnapping and Extortion
- Homicide

All these elements were categorized as threats to Colombian National Security and are carried out by Narco-Terrorist Organizations (Organización Narco-Terrorista or ONT) such as the FARC, ELN and AUC.[115] As a result, the Colombian Armada developed a specific naval strategy to combat narco-terrorism called *Closing the Gap (Cerrando Espacios)*. This strategy was recently revised in June 2007 and is "aimed at denying narco-terrorism the use of the maritime, riverine, and land areas, under Colombian Navy responsibility."[116]

Colombia's rivers, in total, extend a length of 15,774 kilometers. Of these, 12,660 kilometers, or approximately 80 percent, are considered navigable.[117] The Narco-Terrorist Organizations (ONT) have exploited these routes to nourish their actions by producing and trafficking narcotics as well as smuggling other necessary goods like precursor chemicals, arms, munitions, explosives, and

[114] Armada República de Colombia. "Plan Estrategico Naval 2003-2010," 4.

[115] Armada República de Colombia. "Plan Estrategico Naval 2003-2010," 6.

[116] Armada República de Colombia. *Cerrando Espacios: Rumbo al Futuro*, v.

[117] Armada Nacional de Colombia. "Presentacion CODENAL 2007," 14, 16.

gasoline. A study on the FARC and its financial expenditures and revenue was conducted by the Joint Intelligence Board (*Junta de Inteligencia Conjunta*) in 2005. This study found that the FARC's main expenditure, nearly 39 percent of their total budget, was spent in the acquisition of precursor chemicals.[118] Their number one form of revenue, on the other had, is in the production and commercialization of coca derivatives. The production of cocaine has the ability to generate great revenue along every stage of production. As such, the FARC has allocated approximately 5,000 men to the illicit cultivation of coca and has been able to exploit 70 percent of the total crops grown in its area of influence. In return, the sale revenues from this activity represent a 46 percent of the total income of the FARC.[119]

The rivers in the Eastern and Southern plains, most notably the *Putumayo, Inírida, Orinoco, and Caquetá*, have become the main venues used to smuggle precursor chemicals into Colombia. The rivers also play an important role in the production and distribution of the narcotic. A large part of the paste production laboratories, crystallizing stations, collection and distribution bases, just to name a few, are all positioned along or near the river banks. The naval strategy is aimed at reducing the narco-terrorist use of "these [venues] for the transportation of supplies and products from the cultivation areas and production centers in the interior of the country, to the collection, storage, and delivery points in the Colombian coasts."[120] This is a strategy of attrition reminiscent to the one fought by Lieutenant McLaughlin in the Second Seminole Indian War. As the Colombian riverine gains control over the rivers of the country, it will slowly starve organizations like the FARC and ELN of vital resources necessary for their

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[118] Junta de Inteligencia Conjunta. *Estimación de los Ingresos de las FARC Durante 2003 Basados en Información de Inteligencia Recolectada por las Agencias del Estado,"* (Bogotá: Colombia, February 24, 2005): 5. The precursor chemicals included in this study are cement, potassium permanganate, gasoline, sulfuric and hydrochloric acid, acetone, methyl acetone, and ethyl acetone.

[119] Junta de Inteligencia Conjunta. 9.

[120] Armada República de Colombia. *Cerrando Espacios: Rumbo al Futuro*, vii.

existence.[121] Consequently, the Navy's strategic plan mandated the strengthening of the riverine program and called for its engagement along three operational environments: the Pacific Coast, the Caribbean Coast, and the Eastern and Southern Plains.

B. OPERATIONAL ENVIRONMENT

Colombia is host to an extremely diverse climate, geography, and environment. The country itself has two coasts that access both the Caribbean Sea and the Pacific Ocean. Down the center of Colombia run the Andes Mountains, considered the highest coastal mountains in the world, divides the country from north to south. The majority of Colombians (95 percent) reside along the Caribbean coast and the central valleys of the Andes. Of this large majority of the population, 70 percent live in just 10 cities. The remaining 5 percent of the total population live along sparse towns in the Amazon region.[122]

As a landmass, Colombia encompasses 1,141,748 square kilometers (440,831 square miles);[123] making it roughly one-and-a-half times the size of Texas (266,807 square miles).[124] In terms of waterways, Colombia has "the world's fourth-largest water reserves, with 4,500 micro-basins, 1,200 rivers, 1,600 lakes, 1,900 marshes and two oceans."[125] Confronted with this diverse riverine environment, the Colombian Riverine Forces defined their areas of operation simply into two types. One type is the Riverine Area and the other is the Riverine Basin. The Riverine Area is defined as the internal area, to include the intersection of ocean and riverine waters, and consists of the internal riverine

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121 LTC Mike Brown, Army Section Chief, U.S. Military Group Colombia. Interview by author, Monterey, California (February 22, 2007).

122 From Colombian Government Trade Bareau "About Colombia," Colombia Trade News (Washington, DC). http://www.coltrade.org/about/index.asp (accessed October 16, 2007).

123 Armada Nacional de Colombia. "Presentación CODENAL 2007," 14.

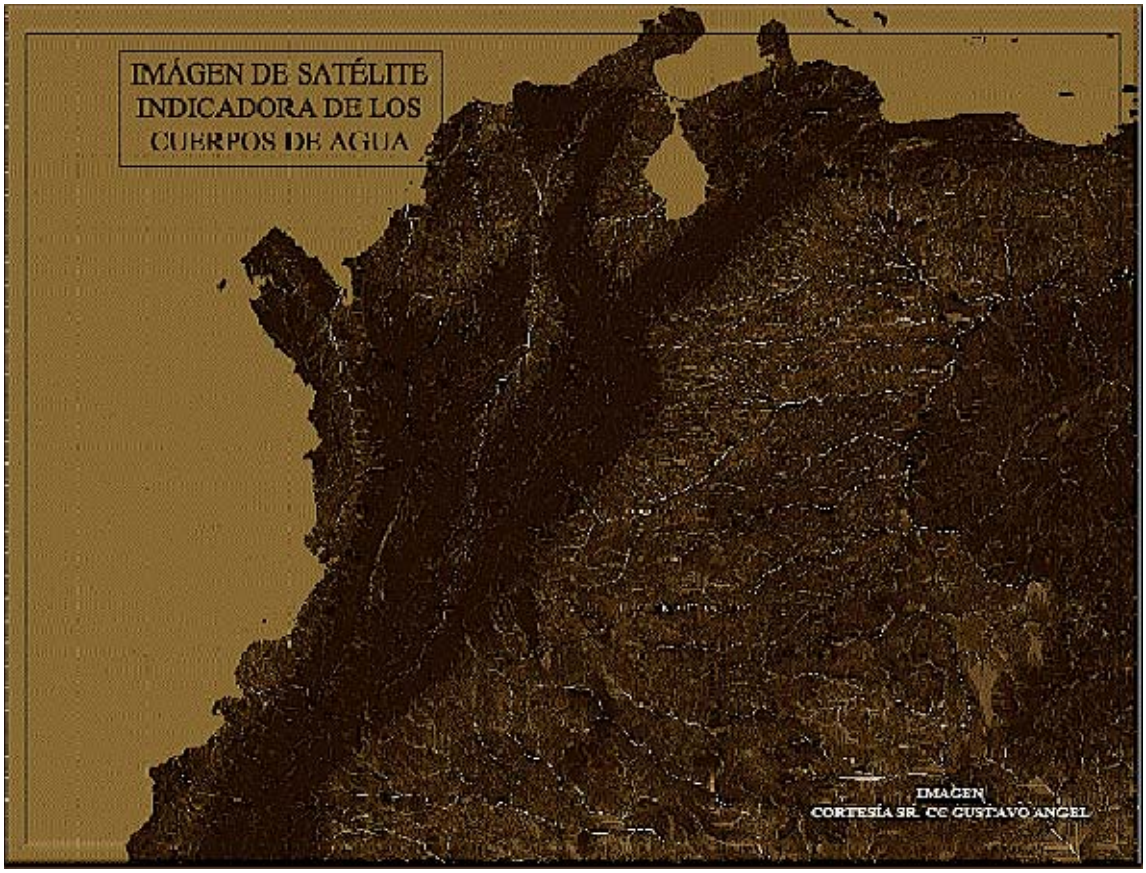
124 "Texas: Location, size, and extent," City-data.com, http://www.city-data.com/states/Texas-Location-size-and-extent.html. (accessed September 21, 2007)

125 From Colombian Government Trade Bareau "Colombian Exports by Region 2001-2005," Colombia Trade News (Washington, DC) http://www.coltrade.org/tradedata/worldstats.asp (accessed October 16, 2007).

waterways that provide natural routes of transportation and communication. This area can include “rivers, islands, river deltas, coasts adjacent to rivers, land areas close to rivers, lakes, lagoons, swamps, and canals.” The River Basin is comprised of the principal rivers and the tributaries and includes the land area that interacts with the river system.[126] These river basins and river areas are present, to varying degrees, in all three sections of the country. Figure 16 below is a satellite picture of one of those sections. The northern part of Colombia is considered arid by comparison to other areas of the country. Yet, every filament depicted in this picture is considered part of, if not the whole, of a principal waterway or river. This picture helps put into perspective the vastness of the bodies of water that exist in Colombia. If one adds to these the land area that interacts with the river system, as included in the definition of a river basin, the operational area charged to the riverine forces begins to encompass a large percentage of the overall landmass of the country.

[126] Armada Nacional de Colombia. *Operaciones Fluviales,* 15.

Figure 16. Satellite Photo of Northern Rivers Colombia



Source: Armada Nacional de Colombia. "Importancia de la I.M. en el Desarrollo del Poder Naval," (Colombia, May 2004): 52

The climate and environment of the Caribbean coast is one of the most arid in Colombia. Figure 17 shows the level of aridity of the area. Figure 19 depicts the average annual rainfall of 1000 millimeters (39 inches) of the region as well. As a result, dense vegetation is not a major obstacle like in other regions, but the area's extensive beaches provide multiple launching points for drug traffickers. The Caribbean coast offers other advantages to organizations like the FARC, ELN, and AUC. First, it is in close proximity to commercial trade routes traveling to and from the Panama Canal. Secondly, it is geographically close to other Caribbean islands and several Central American countries, making travel distances short. The natural make-up of this region in addition to its close

"geographical proximity to consumer markets"[127] provides an excellent logistical launching point and advantage. It is no surprise, then, that drug trafficking is the ONTs' most lucrative activity in the Caribbean coast. This allows organizations like the FARC, ELN, and AUC to use a myriad of methods such as "fast boats, coastal fishing boats, merchant ships and submersibles" [128] to conduct successful operations. The riverine operations, concentrated along the main rivers in the area -- *Magdalena, Cauca, and Atrato* -- have been essential to the Armada's success in the region. Overall, Colombian riverine forces are in charge of providing control and security to a total of 2,219 kilometers (1,379 miles) of primary riverways in this area.[129]

The Eastern and Southern plains are often referred to as one geographical region.[130] These portions of the country are covered by the Amazon's dense, triple canopy tropical rain forests. Even though this area contains nearly 58 percent of the country's territory, only 5 percent of the country's population resides there.[131] This vast and under-populated land is extremely difficult to access. Historically, this led to very little State presence and infrastructure development such as "public institutions, roads, schools and utilities."[132] As such, the rivers became principle routes of access and transportation. Most of the population, hence, can be found settled "on or near the riverbanks."[133]

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[127] Armada República de Colombia. *Cerrando Espacios: Rumbo al Futuro*, vi.

[128] Armada República de Colombia. *Cerrando Espacios: Rumbo al Futuro*,19.

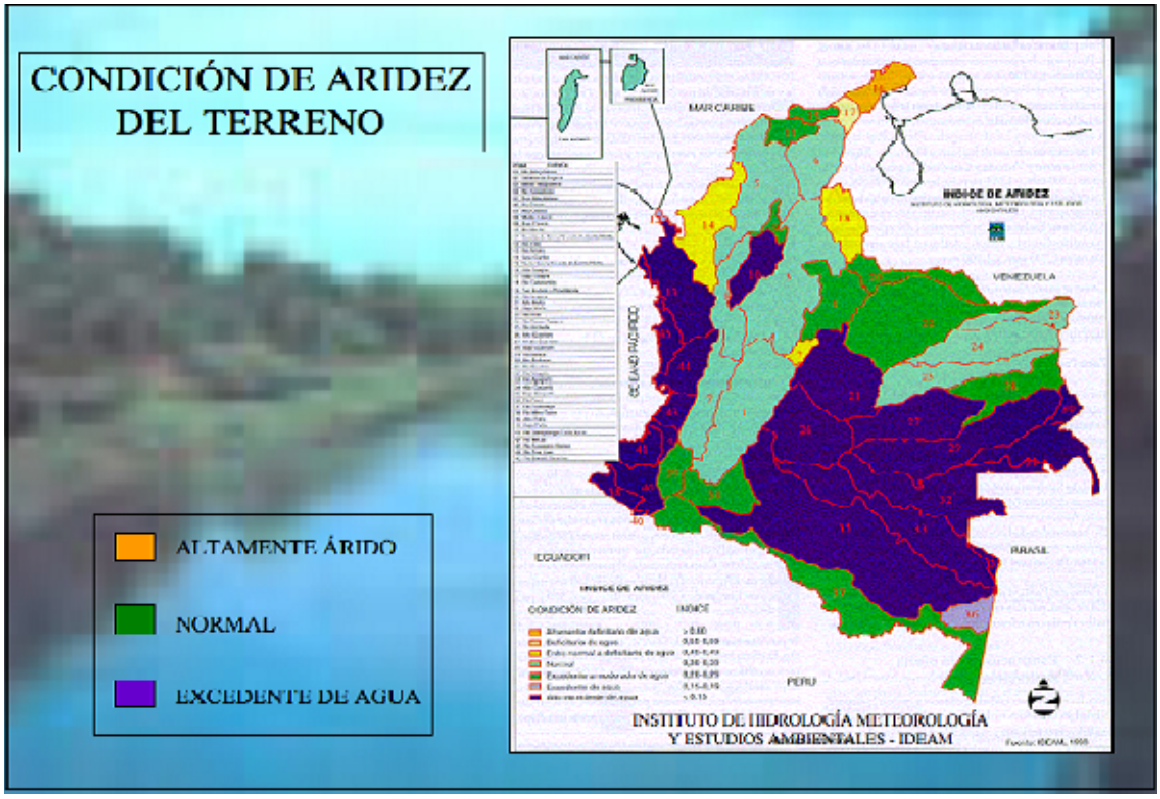
[129] Armada Nacional de Colombia. "Presentación CODENAL 2007," 56, 58.

[130] This is most common when referring to the region in terms of military operations. The distinction originated due to the natural boundary formed by the Andes Mountains that crosses Colombia almost from North to South.

[131] From Colombian Government Trade Bareau "About Colombia," Colombia Trade News (Washington, DC). http://www.coltrade.org/about/index.asp (accessed October 16, 2007).

[132] Ibid.

Figure 17. Water Levels Colombia

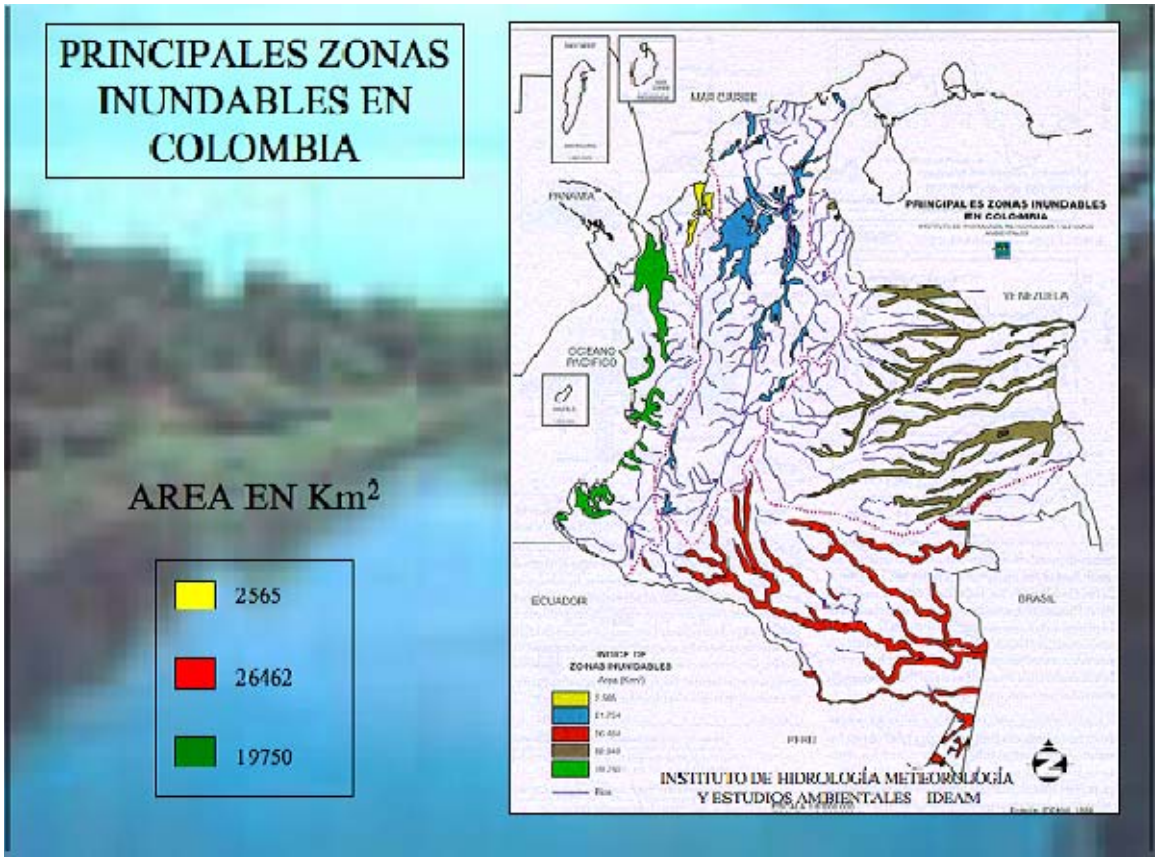


Source: Armada Nacional de Colombia. "Importancia de la I.M. en el Desarrollo del Poder Naval," (Colombia, May 2004): 56

In terms of climate and fluvial environment, however, the Eastern and Southern regions are a little different. The Eastern plains consist of three major rivers, the *Orinoco, Meta and Arauca*. From November through March, sections of the riverways in this region dry up making them impassable with waterborne crafts. Nonetheless, these riverways supply the area with average levels of water (see green shaded areas on Figure 17) that provide sufficient irrigation for the land making it highly fertile. The Southern region, shaded in purple, contains on average an excessive amount of water. This makes the rivers there highly fluvial and more conducive to riverine operations.

133 Willey. 28.

Figure 18. Flood Zones in Colombia

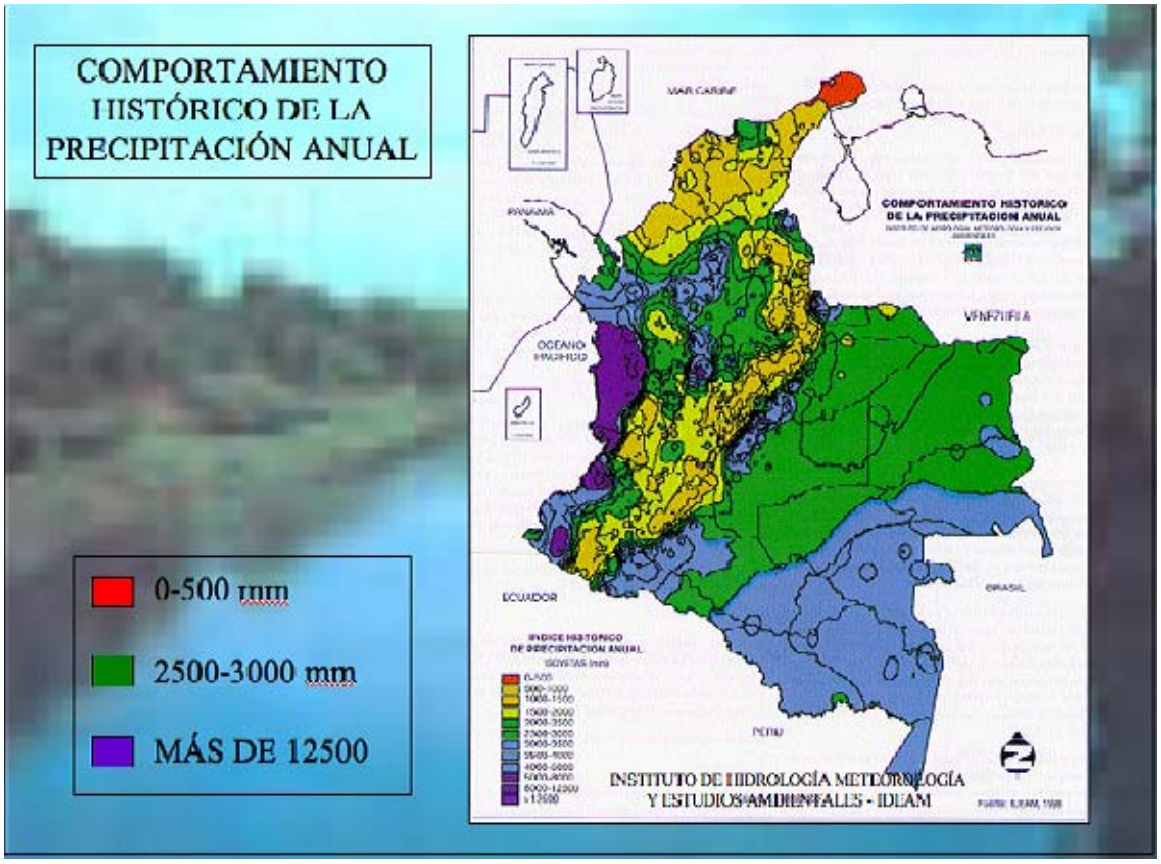


Source: Armada Nacional de Colombia. “Importancia de la I.M. en el Desarrollo del Poder Naval,” (Colombia, May 2004): 57

The variant that affects both regions tremendously are their seasonal rainfalls. The Eastern and Southern regions receive nearly 2500 millimeters (98 inches) to 4000 millimeters (157 inches) of rain respectively (see Figure 19). This excess water makes each region highly susceptible to seasonal flooding (see Figure 18). As a consequence, riverine operations, especially in the Southern part of Colombia, become constrained. Though excessive flooding does permit greater riverine access, it also hinders other aspects of riverine operations. The river’s safe navigable routes, for example, shifts when it floods. This makes river markings futile and results in a greater need for local

intelligence in the form of river pilots. Further, land operations[134] are also affected by making this environment even more hostile and difficult to traverse. Finally, flooded waterways become more useful to ONTs since they make secondary waterways more accessible and often even create tertiary rivers which are inaccessible to Colombian forces.

Figure 19. Average Rainfall Colombia



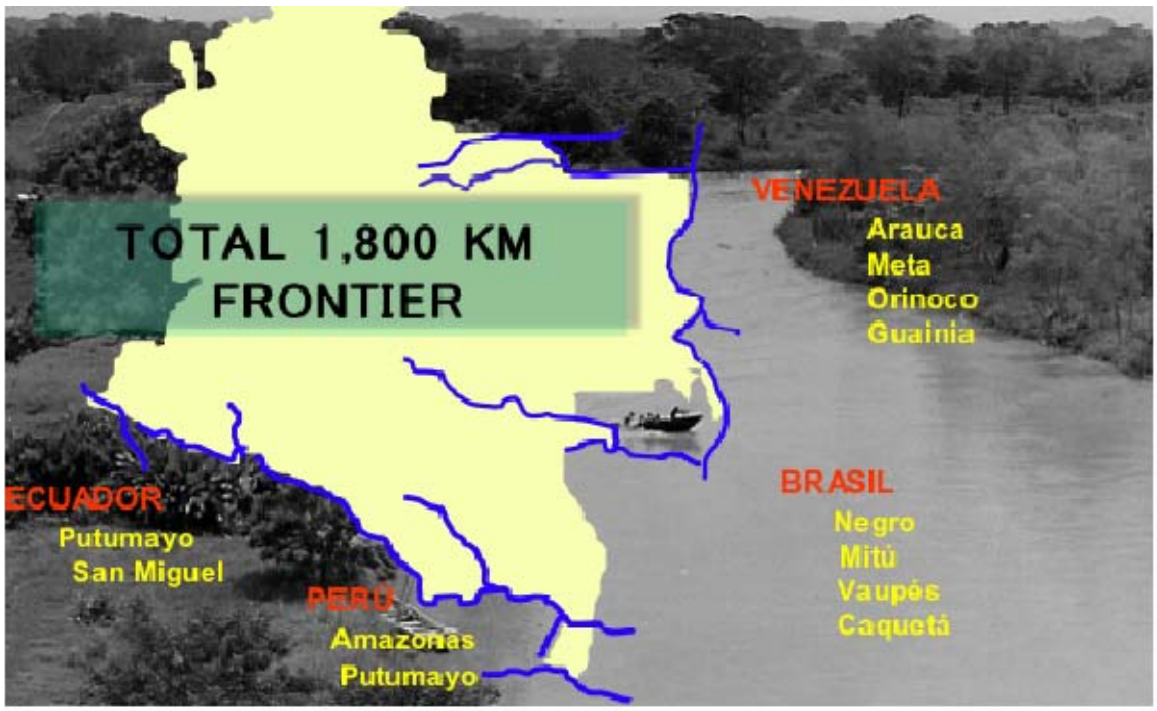
Source: Armada Nacional de Colombia. "Importancia de la I.M. en el Desarrollo del Poder Naval," (Colombia, May 2004): 53

The Eastern and Southern regions are also unique because the majority of the rivers in this area form a big part of Colombia's national and natural boundaries (see Figure 20). This makes riverine operations there not only important in the fight against narco-terrorism, but also crucial for safeguarding

134 Land operations are integral to the development of riverine operations by safeguarding the area further inland of the riverways.

the sovereignty of Colombia. The 1800 kilometer riverine frontier, however, places an increased requirement for forces directly involved with border security; this reduces the availability of units for conducting operations against subversives.

Figure 20. Colombian Natural Riverine Borders



Source: Armada Nacional de Colombia. "Presentacion CODENAL 2007," (Colombia, June 2007): 21

The side of Colombia facing the Pacific has two distinct features. The Northern portion of the Pacific coastline is "characterized by rocky cliffs…bays and inlets."[135] As one moves further south, the terrain becomes wide and is overtaken by tidal floodplains that are considered one of the wettest regions in the world. The average rainfall here ranges from 197 inches to over 490 inches of rain yearly (see Figure 19). By comparison, average rainfall in Yakutat, Arkansas, which recorded the heaviest annual rainfall in the U.S. from 1961 to

135 Armada República de Colombia. *Cerrando Espacios: Rumbo al Futuro*, iv.

1990, is only 151 inches per annum.[136] These flooded plains and constant rain form a "labyrinth network of streams, channels and estuaries."[137] This region is also covered by a heavy triple canopy of tropical rain forests that combined with its heavy rains creates dense vegetation and mangroves. These conditions have made it extremely difficult to build and maintain paved roads across this section of land. As a result, this southern area is not heavily populated making it an excellent location that enables ONTs to amass large quantities of drugs. The principal mode for transporting drugs, from a seemingly endless number of waterways with access to the Pacific, is via four engine fast boats.

Narco-terrorist groups have positioned themselves along each zone for different reasons. They have chosen the Caribbean coast for its easily accessible coast and high volume of commerce that allows them to use a variety of methods to amass and distribute their product to international markets. The Eastern plains and the region south of the mountains offer two advantages. The region is replete with various rivers and estuaries. The seasonal dry spells make it difficult for government riverine forces to operate. The heavy rains and flooding, on the other hand, help by creating tertiary rivers that are inaccessible to conventional forces but exploitable by ONTs. The natural border formed by these many rivers creates an ideal environment for smuggling products like gasoline, food, clothes, guns, and precursor chemicals virtually undetected. Likewise, the natural make-up of the Pacific coast has been exploited. The lack of road infrastructure, the excessive amount of streams and channels, combined with the rainfall that feeds it, make this area extremely difficult to control or secure.

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136 Department of Meteorology. "Normal Monthly Precipitation, Inches," University of Utah, (Utah). http://www.met.utah.edu/jhorel/html/wx/climate/normrain.html. (accessed November 10, 2007).

137 Armada República de Colombia. *Cerrando Espacios: Rumbo al Futuro*, iv.

C. RETAKING THE RIVERS

The development of a new and more aggressive strategy toward Narco-Terrorist Organizations helped the Colombian Riverine Forces develop three core capabilities to provide river security and control. Colombia's limited resources, however, placed constraints that made it necessary to reassess and engage the problem through a useful and efficient set of tactics. As a result, the riverine force opted to rely on intelligence gathering and natural observation of the environment. Soon after they determined the various natural river nodes and the enemy's LOC choke points and used them to systematically attack the ONTs along the rivers. The Riverine Support Patrol Boat or PAF became their key asset in this endeavor due to its survivability, firepower, simplicity and adaptability in the combat environment. The PAF vessels can provide refueling for other units, extending their operational time on station, and are capable of providing sustenance, bedding, and troop transport. Their initial success along the primary rivers caused a shift of ONT operations toward more restricted waterways. The Colombian riverine force responded quickly with the creation of light riverine vessels to engage the enemy in this new environment. The following sections will discuss these innovations and tactics that allowed for the current Colombian success.

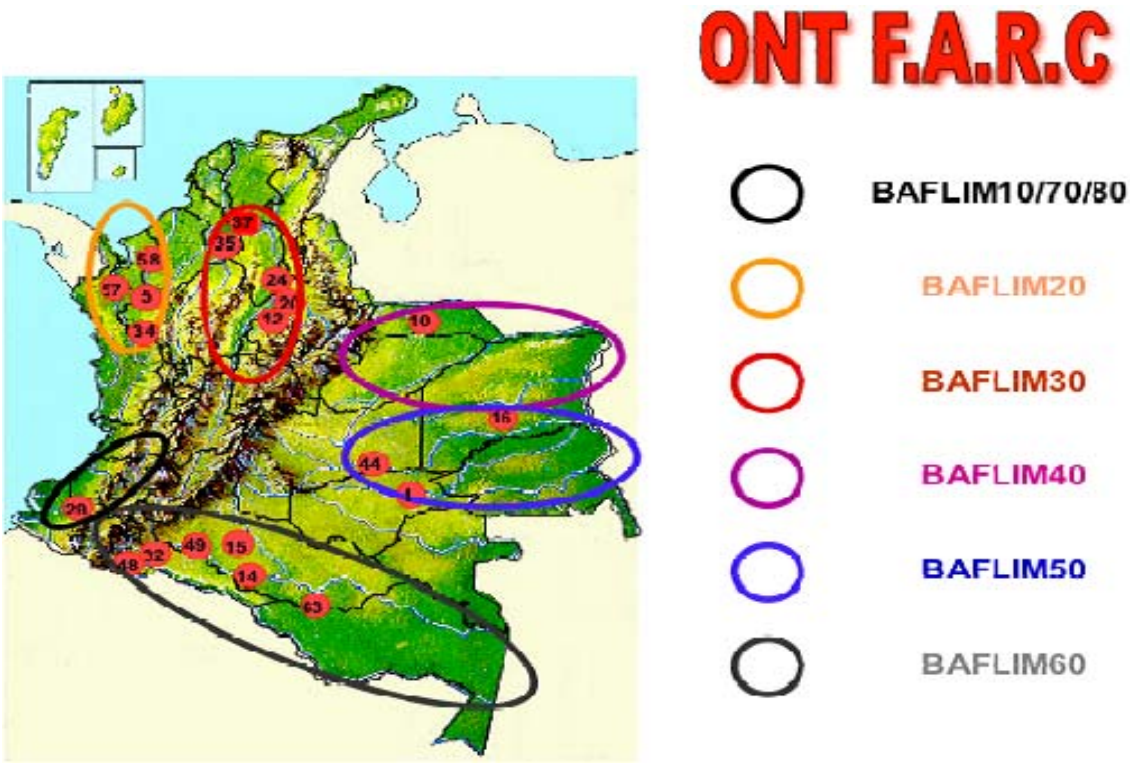
1. Strategic Placement of Riverine Forces

Since 2002, the Colombian Riverine Forces have engaged the enemy with varying degrees of intensity in every region of the country.[138] The Caribbean coast, usually the source of the most export routes, was the early epicenter of the fight against drugs. The First Marine Infantry Brigade was located in this region; the primary goal would be to retake control of the River Magdalena followed by the other rivers and tributaries in the area. Figure 21 shows the overall FARC

[138] No data will be presented for the location of the AUC fronts. During the interviews and briefs provided during my visit to Colombia in September, 2007, information concerning AUC fronts or strategic riverine placement to combat them was not provided. Therefore, this section will only focus on the strategic placement of riverine forces against the FARC and ELN.

fronts and the corresponding riverine battalions established in the area. This figure was an assessment taken as of June 2007 and places most FARC activity along the Caribbean coast and the Southern plains of Colombia. The North Pacific coast was the target in the second stage of the government offensive. Operations along the River Atrato were launched from the base located in the bay of Turbo.

Figure 21. ONT FARC Fronts and Riverine Battalions

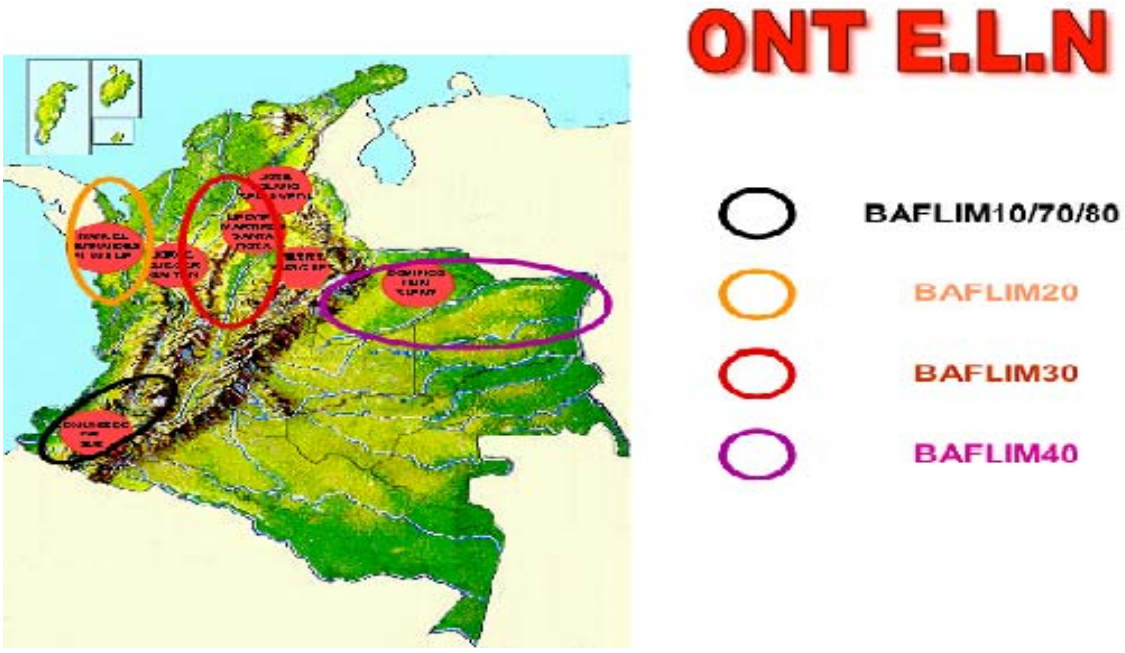


Source: Armada Nacional de Colombia. "Presentacion CODENAL 2007," (Colombia, June 2007): 25

The ELN has the majority of its fronts and personnel located along the Maria Mountains (*Montes de Maria*) with some positioned in the Caribbean coast (see Figure 22). Consequently, BAFLIMs 20 and 30 have been positioned on the Caribbean coast and along the mountain range. Of the two, however, BAFLIM 30 provides the mainstay of the Colombian riverine force engaged against the ELN.

Both Figures 21 and 22 show little presence along the southern Pacific coast. This fact, however, is changing. Success along the Caribbean and North Pacific regions has caused a shift in the type of activities and focus of the ONTs. With these two areas secure, the front of the fight has now shifted to the Eastern and Southern plains and the South Pacific regions. Consequently, both BAFLIM 70 and 80 were recently created to bring greater support to BAFLIM 10 in the Southern Pacific area.

Figure 22. ONT ELN Fronts and Riverine Battalions

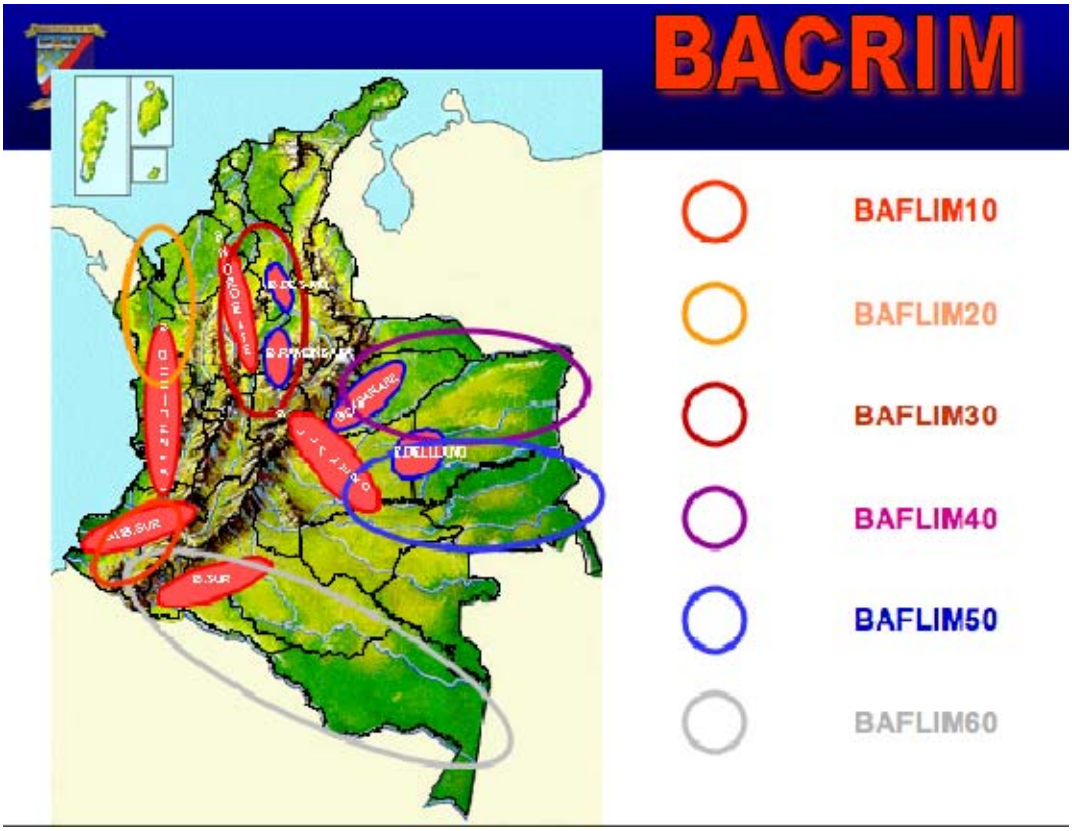


Source: Armada Nacional de Colombia. "Presentacion CODENAL 2007," (Colombia, June 2007): 26

In addition, Colombian forces are aggressively monitoring the activity of Criminal Bands (*Banda Criminal* or BACRIM), which are nothing more than armed gangs. Criminal band activity has been increasing. They are employed by ONTs to serve as strong-arm groups and as a low level conduit for other illicit activities. It is not surprising, then, that they are located along the seams of each region of the country. Figure 23 shows that their presence provides a physical link between the Caribbean, Pacific, and Eastern regions. Though the behavior

of the BACRIM is a cause for concern, their levels of criminal activity is below that of the ELN or FARC. As such, the riverine forces have not specifically shifted the location of any BAFLIM to contend with this issue.

Figure 23. BACRIM Location



Source: Armada Nacional de Colombia. "Presentacion CODENAL 2007," (Colombia, June 2007): 27

2. Riverine Capabilities

The Colombian Riverine Force, as part of the naval strategy, has identified three types of riverine operations: Riverine Assault; Riverine Surveillance, Interdiction and Security; and Riverine Support.[139] Colombian core capabilities of River Control and River Security are embedded in the definition and execution of both Riverine Assault and Riverine Surveillance, Interdiction and Security

139 Armada Nacional de Colombia. *Operaciones Fluviales,* 74.

(SIS) operations. The sub tasks and sub functions contained within these two categories are analogous to the CNA definitions of COIN and LOC operations as they relate to river control and security.

Riverine Assault is defined as quick strikes launched against enemy riverine units and land units along the river shores. There are two types of assault: ambush and quick strike. These functions are in parallel with the CNA requirements and subtasks for Offensive operations in both area security and river control (see Tables 1 and 2 in Chapter 2). The objective of assault operations is to locate and neutralize the enemy and its installations near the riverbanks. The main force type used is a Riverine Combat Group (*Grupo Combate Fluvial* GCF) with an attached Riverine Assault Group (*Grupo de Asalto Fluvial* GAF). Either the Riverine Combat Elements (*Elemento de Combate Fluvial* ECF) or the GAF acts as the primary force depending on whether the operation is a quick strike or an ambush. The GCF, with a PAF as the C3 unit, provides supporting fires, coordinates air support if available, and presents a protective blockade against enemy ambush. Properly employed, these forces can establish control and security of the lines of communication (LOC) provide the necessary freedom of navigation, and aid in the control of land, population and resources adjacent to the rivers.[140]

Riverine Surveillance, Interdiction and Security (SIS) are defensive operations executed to control the navigable rivers with the intent of providing security and freedom of navigation, protecting lines of communication, and preventing riverine use by the enemy. These operations should also obtain intelligence and maintain control, like Assault operations, of the population and its resources. There are five types of SIS operations: Riverine Control; Riverine Blockade; Listening and Observation; Escort; and Visit and Inspection of ships.

A GCF or a capable single vessel such as the Fast Riverine Patrol Boats is the preferred units to exert riverine control. These units can be used to form

[140] Armada Nacional de Colombia. *Operaciones Fluviales,* 75-88.

chokepoints or block access to certain vessels. Four objectives can be attained with these operations. One is to control the overall flow of people, ships, and material. The second is to control the flow of goods to a determined area. Third is to control and direct shipping traffic, and finally, it can be used to segregate a specified area in order to conduct other operations. These objectives are comparable to the ones sought by the U.S. Riverine forces. Once again, the functions performed under this capability are equivalent to the CNA requirements and subtasks for riverine Defensive Operations for river security and control.[141]

Riverine Support Operations are typically conducted in support of other forces. The overall goal is to control and neutralize of the enemy along a riverine area or its adjacent land. These types of operations can be accomplished by a GCF alone or, in the case of special operations, with the addition of a Riverine Combat Element. There are four types of Riverine Support Operations: Diversionary; Land and/or Air Support; Joint Action; and Troop Transport.

Diversionary operations are conducted by riverine forces to distract or deceive the enemy to allow the main force the opportunity to deliver a decisive strike upon the enemy. Land and/ or Air Support operations take advantage of the mobility and transport capabilities of the riverine units like the PAF to insert or extract troops into or from enemy territory. These operations can also be combined with riverine Assault and SIS operations. One tactical requirement mandates that the riverine force be capable of conducting these operations in one or more waterways to help isolate the area from enemy logistical and force support. Joint Action operations focus on riverine force contributions to gain the faith and trust of the civilian population. One of the main goals is to reinforce the institutional image and presence of the State. Finally, Troop Transport operations are provided in direct support of land military operations. Riverine TTPs dictate that units from the ECF, akin to those currently in the U.S. riverine squadron, should not be used in these operations. Their vulnerability to enemy

141 Armada Nacional de Colombia. *Operaciones Fluviales,* 89-109.

fire coupled with the loss of maneuverability, due to the extra weight, precludes their safe execution of these operations. As a result, the PAFP or PAFL are the main vessels utilized toward this end due to its survivability in the riverine environment, its capability to transport up to 32 combat ready infantrymen, its capacity to provide protection to less protected transport vessels, and its ability to provide direct fire support.

Unlike Riverine Assault and SIS operations, Colombian Riverine Support cannot be directly related to a defined CNA operational task. As it stands however, the U.S. riverine force would be hard pressed to execute these types of operations. With one U.S. riverine squadron active at any one time, the availability of only 12 vessels limits the execution of multiple operations toward river control or security. Adding riverine support would further strain these resources, making it difficult to allocate the necessary units for effective operations along two or more waterways. Further, the absence of a vessel similar to the PAFP or PAFL would make it difficult to provide the land component with the necessary forces or direct fire support from the rivers.

3. Riverine Support Patrol Vessel (Patrullera de Apoyo Fluvial PAF)

This vessel, when placed at the head of a Riverine Combat Group (*Grupo de Combate Fluvial* GCF), harks back to the time of the Vietnam War. There, General Westmoreland's Mobile Riverine Force was effective in exploiting the capabilities of troop transport, self-containment, survivability and firepower to bring success to the riverine environment. In a similar fashion, the Colombian GCF through the capabilities of the PAF is able to provide overwhelming direct fire support during offensive and defensive riverine and joint land operations. The unit's capacity to safely transport troops and protect other transport vessels make it indispensable in the control and neutralization of the rivers and its adjacent land areas. Furthermore, the PAF operational range of approximately 4,000 kilometers allows it to traverse the length of almost any Colombian river

and engage in operations.[142] This capability has enabled the GCF to extend operations without the need of forward operating bases.

By all measures, the Riverine Support Patrol Vessel or PAF is one of Colombia's riverine success stories. This vessel, commonly known as the *Nodriza*, is now in its fourth generation of development. Its general dimensions include:[143]

- Length Overall 40.30 meters
- Beam 9.5 meters
- Depth 3.10 meters
- Displacement 373.0 tons (approximately)
- Top Speed 9.0 knots in deep and inner waters

Tank Capacity

- Diesel Fuel 8602 gallons
- Aviation Fuel 2000 gallons
- Fresh Water 5890 gallons
- Gasoline 5580 gallons

The PAFs are well protected ships possessing a Level III special armoring that is in accordance with the U.S. National Institute of Justice (NIJ) 0108.01 regulations.[144] Level III special armor is the second highest level of protection available. As defined by the NIJ, Level III armor can sustain a direct shot from 50 meters by "a 7.62 mm full metal jacketed (U.S. military designation M80) test bullet traveling at a measured velocities of 838 ± 15 m (2850 ± 50 ft) per

[142] CF Jaime Hernando Jiménez, Commercial Department Manager-COTECMAR. Brief attended by author, (Colombia, September 17, 2007).

[143] "Technical Specifications: Riverine Support Patrol Vessel PAF III," Corporación de Ciencia y Tecnología para el Desarrollo de la Industria Naval, Marítima y Fluvial COTECMAR, (Colombia, 2007): 3.

[144] "Technical Specifications: Riverine Support Patrol Vessel PAF III," 5.

second."[145] This armor covers every exposed area of the ship and extends 20 centimeters (approximately 8 inches) below the water level. In 2004 a PAF type vessel was hit by a Rocket Propelled Grenade (RPG). A 1 foot diameter hole was created on the outer hull and a 2 inch diameter hole was punctured in the inner hull. The ship maintained water integrity. There were no casualties as a result of this attack and only simple "hole cut" repairs were needed to mend the ship.[146]

The PAF is also designed to withstand and survive natural hazards. The engines and propulsion systems are highly adept to the riverine environment. The two German manufactured engines provide 450 BHP (Brake Horse Power) each at 1800 revolutions per minute (RPM). The use of Schottel type SPJ-82RD pump jets, which can inhale up to 2 inch rocks without damage, precludes the need for propellers. Propellers are a common source of catastrophic failure or damage due to the rocks and other natural obstacles present in rivers.[147] These pump jets have a 360 degree freedom of rotation and are designed never to cavitate. This allows the ship to be extremely maneuverable and exceptionally silent if trying to avoid detection. Of note, the ship can rotate on its axis at 27.5 degrees per second and only requires 1.5 boat lengths from full forward to full stop, making it extremely maneuverable in restricted spaces.

The PAF survivability is a key factor that helps the riverine force attain and maintain control of the rivers. For example, if the Riverine Combat Group is ambushed, the TTP dictates that the ECF units escape the "kill zone" and regroup. Meanwhile, the PAF will retaliate with all available assets to suppress the enemy fire. The PAF will fully employ its overwhelming firepower to regain the advantage. In almost every encounter against ONT elements, the PAF has

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[145] National Institute of Justice. "Technology Assessment Program: Ballistic Resistant Protective Materials NIJ Standard 0108.01," U.S. Department of Justice, (September 1985): 7. http://www.eeel.nist.gov/oles/Publications/NIJ-0108.01.pdf (accessed November 11, 2007).

[146] CF Jaime Hernando Jiménez, Commercial Department Manager-COTECMAR. Brief attended by author, (Colombia, September 17, 2007).

[147] "Technical Specifications: Riverine Support Patrol Vessel PAF III," 5.

been able to achieve the advantage to pin-down or disperse its enemy. As a result, this has allowed the ECF units to mount a counter-attack. This TTP shows just how essential a unit like the PAF is in maintaining control of the riverways.

The ship is also highly adaptable. It is designed to serve as a mobile supply platform for mid-sized helicopters, host and transport troops, provide fuel for other units, and provide control and maintain communications with air, land and sea assets. The PAF are capable of landing helicopters similar to the Bell 412 or UH-1H. The flight deck has a Level III classification that allows for daylight operations during Visual Meteorological Conditions (VMC).[148] The aviation fuel tank onboard has a fuel capacity of 2000 gallons. The Bell 412 aircraft has a fuel capacity of 330 gallons for an average 414 nautical mile range.[149] The UH-1H helicopter can hold 211 gallons and has a range of 253 nautical miles. Endurance on these aircraft are 3.5 and 2.8 hours (with no reserve fuel gallons), respectively.[150] With 2000 gallons onboard, the PAF could refuel a helicopter over six times if needed. This extends the range and operating time allowing for greater surveillance, direct air support, or medical evacuations. A gasoline dispensing system is also included to provide fuel supply to the boats of an ECF. These gas-station type pumps are located on the bow of the ship, on the starboard and port sides. Each pump is capable of simultaneously supplying 12 gallons per minute of gasoline and can refuel two boats approximately every 20 minutes.[151] Since the average fuel capacity of a boat of an ECF is 220 gallons, the PAF is able to refuel the whole ECF – a total of eight boats -- six times. Each refueling allows an ECF boat to remain on station for an average of 7 hours; thus, the PAF allows for the operational range

148 "Technical Specifications: Riverine Support Patrol Vessel PAF III," 4.

149 "Bell 412EP: Product Specifications," Bell Helicopter Textron Inc., (January, 2007). http://www.bellhelicopter.com/en/aircraft/commercial/pdf/412_2006_jan_web.pdf (accessed November 11, 2007).

150 "The Bell Huey II," Bell Helicopter Textron Inc., (2007). http://www.bellhelicopter.com/en/aircraft/military/bellHueyII.cfm (accessed November 11, 2007).

151 "Technical Specifications: Riverine Support Patrol Vessel PAF III," 7.

of the ECF to extend to nearly 47 hours. This ability to extend the range of operations helped push efforts against ONT elements further upriver without the need for a permanent base of operations.

There are three cabins onboard that can house up to 27 crewmen. Functionally, the vessel only requires a 16 person crew to operate. The manpower required on the bridge is also minimal.[152] As a transport, it has three more cabins with the capacity to house 32 fully geared infantry men.[153] There is also a galley that can provide sustenance for up to 15 days and an infirmary to treat the wounded.

The ship has an extremely capable communications suite. It includes HF, VHF, and UHF tactical and base radios as well as satellite and mobile microwave phones.[154] With this equipment the PAF can perform as a command and control unit that is capable of maintaining simultaneous communications with waterborne, land-based and airborne tactical units, making it an excellent C3 platform that can be fully integrated in the joint environment.

Finally, the PAF is an extremely uncomplicated design. The ship is constructed mainly using off-the-shelf systems: from the engines to the targeting system for its MK19 grenade launcher. The total time required to build one of these units has been reduced from 18 months to 13 months. Everything on the ship can be replaced rapidly and, most importantly, with little cost. The design of the ship allows for mechanics to have full access to both engine compartments and perform all level maintenance on the system without the need of a dry dock. Access to weapon stations and ammunition is all internal.

The capabilities that are provided by the Riverine Support Patrol Boats are indispensable. Beyond its flexibility to accommodate ground units and supply

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[152]The minimum manpower can be two, one officer to provide direction and one helmsman to maneuver the ship.

[153] "Technical Specifications: Riverine Support Patrol Vessel PAF III," 8.

[154] Armada Nacional de Colombia. *Operaciones Fluviales,* Manual ARC 3-105, Third Edition (Colombia, 2006): 26.

fuel to aerial and waterborne craft, the greatest asset of the PAF is its ability to survive in combat. As noted by Capitan de Fragata Jaime Jimenez, COTECMAR lead project designer, the PAF is armored and well supplied; it was not designed to escape, it was designed to fight.[155] It is this kind of vessel that is needed to exert control and provide security in the riverine environment. Without it, elements like the RCE or a U.S. riverine detachment will succumb in combat due to their lack of protection and inability to project fires ashore.

4. Into the Rivers

The Colombian Riverine Forces recognized early on that it did not possess the sufficient number of vessels nor the resources to continuously provide control or security of its vast riverine system. As a consequence, they devised efficient and useful tactics to combat their enemies.

As noted previously, the Riverine Combat Group, with a PAF in command and its two embedded ECFs, is Colombia's fundamental unit in the execution of Colombia's River Control and Security capabilities. Key to the success of these units was their work during the planning phases, when they studied the riverine waterways to determine the most frequent transit lanes and evacuation routes used by the enemy. The TTP titled *Listening and Observation (Observación y Escucha)* provides a specific methodology for conducting these operations to attain the proper and necessary intelligence.[156] In addition, they analyzed the river characteristics not only to determine its natural conditions, but to ascertain its naturally formed choke points. In essence, they determined, via intelligence and physical study, both the enemy LOCs and natural nodes present in every river. Armed with this knowledge, the riverine forces employed their Riverine Combat Groups to target both the natural and enemy LOC choke points.

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[155] CF Jaime Hernando Jiménez, Commercial Department Manager-COTECMAR. Brief attended by author, (Colombia, September 17, 2007).

[156] Armada Nacional de Colombia. *Operaciones Fluviales,* 97.

Initial operations into a river typically originate from an established military base or Riverine Advanced Post (Puesto Fluvial Avanzado PFA). From this starting point the GCF proceeds toward the strategic nodes along the river to begin combat operations and exercise control. The process is slow and difficult. The PAFs overwhelming firepower and heavily armored superstructure make it the preferred unit for initial engagement and combat with enemy forces. Operational combat can extend from a couple of hours to several days. As the enemy is ultimately suppressed, the PAFs role as a Command and Control station directs the ECFs to execute patrol, interdiction, and intelligence and blockade operations. As control and security are gained and maintained, the GCF proceeds toward the next riverine choke point. Continuous operations cannot be maintained for extended periods of time as it creates a strain in the logistical support required to maintain these units operational. To mitigate this, a forward operating post is created. This can come in the form of a Riverine Advanced Post or a Riverine Support Station (*Estacíon Móvil de Apoyo Fluvial* EMAF). An advanced post will be created if the location is strategically important and the resources and access exists to enable its construction. If these requirements are not met, and the location can be provided with enough security, an EMAF will be transported via the river and be employed instead. On either case, this new base will form the logistical base and new launching point for future operations.

These tactics have made the riverine forces successful along the primary rivers. The ONTs have relegated much of their activities to more restricted waterways where conventional forces could not easily reach. In response, the Colombian riverine formed the Light Riverine Combat Element (*Elemento de Combate Fluvial Liviano ECFL*). This was reminiscent of the 1950 *"Flotilla Avispa*," since the mainstay of this force, once again, sought to use small shallow draft aluminum boats. Additionally, it developed the Light Riverine Support Patrol

Boat,[157] capable of entering the shallower secondary rivers. With these two assets, Colombia's riverine force engaged the enemy along the secondary and tertiary waterways. Tactically, the Light Riverine Support Patrol Boat's inability to provide the ECFL with protection along the tertiary waterways has resulted on an increased need for intelligence gathering via its *Listening and Observation* TTP to provide a greater margin of safety for the attacking force. Also, the ECFLs have shifted their focus primarily on the tactical execution of Riverine Assault operations specifically the "quick strike" variety.

Since 2002 the Colombian Riverine Forces have developed sound and efficient tactical procedures to combat their enemies. These tactics have been methodically applied along the primary riverways and their tributaries to great effect. The following section discusses the level of success along some of the different regions of Colombia.

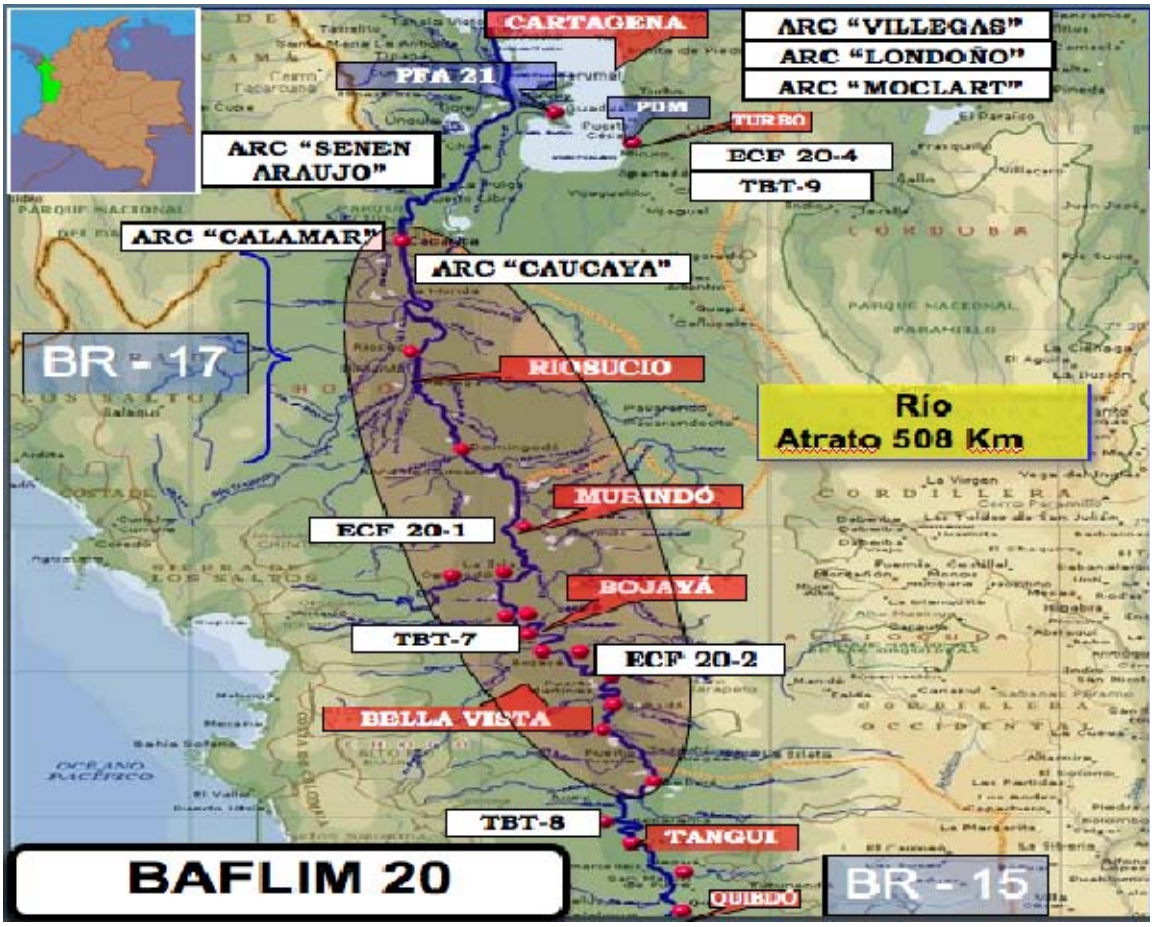
5. Overall Results

The Colombian riverine forces define success differently in this environment. They seldom use a set length to define the control of an area. Instead, when the GCF enters a zone its control is determined when routine patrols can be safely established. In other words, the lack of direct engagement by the enemy is used as a success indicator. This tactic has proven to be correct. Elements of the ONT, once defeated, rarely remain in an area or mount operations to try and regain territory. This is in large part due to the extreme protection and overwhelming firepower brought by the GCF, mainly via its PAF. Interestingly, the riverine forces have discovered that with time the number of ONT force engaging a riverine group or GCF has steadily decreased. Initially, elements like the FARC would engage directly with groups of 30 to 40 soldiers. This number soon dropped to bands of 10 to 15 soldiers thinly spread across the riverbanks, with activity most often reverting to a handful of sharpshooters.

[157] This smaller version of the generation IV PAF has similar capabilities but does not include a flight deck.

Figure 24 depicts the current standing of the Colombian riverine forces along the Atrato River. Each red dot represents a step or node where the riverine GCF or its subordinate units attacked as they steadily and patiently inched their way down the river.[158] The example provided here took place along one river, the Atrato, located in the North Pacific coast.

Figure 24. Tactical Deployment – Río Atrato (North Pacific)



Source: Armada Nacional de Colombia. "Presentacion CODENAL 2007," (Colombia, June 2007): 56

158 SV Esteban Celis, SV Jovanni Segovia Salcedo. ST Andres Salas Calle. Interviewed by author, (Colombia, September 14, 2007).

According to a U.S. estimate in 2006, 48 percent of the 508 kilometers of river is currently controlled by the Colombian Riverine Forces.[159] As of 2007, Colombian estimates have this figure nearing the 80 percent mark. The real value lies probably somewhere between 65 and 70 percent. That withstanding, even a conservative estimate of 65 percent control and security (equivalent to over 330 kilometers) of a river is still an impressive feat. Figure 25 below provides a pictorial view of the Colombian achievements along the Atrato River in the Northern Pacific coast.

Figure 25. River Control and Security (North Pacific and Caribbean)

Source: "Information Brief for Mr. Brick Scoggins," U.S. Military Group (Bogotá, Colombia: January 2006)

159 "Information Brief for Mr. Brick Scoggins," U.S. Military Group (Bogotá, Colombia: January 2006).

The number of units currently expended to maintain the current level of control and security of the Atrato River are as follows:[160]

- 2 Riverine Support Patrol Boat Heavy (Patrulleras de Apoyo Fluvial Pesado PAFP)
- 4 Fast Riverine Patrol Boats (Patrulleras Rápidas Fluviales PRF)
- 3 Armored Troop Carriers (Transportes Blindados de Tropa TBT)
- 4 Riverine Combat Elements (Elemento de Combate Fluvial ECF)
- 6 Riverine Assault Battalions (Batallon de Asalto Fluvial BAF)

Some of the notable successes claimed by the Colombian Riverine Force include the reactivation of the economy in the region and the return of the *Atrato*'s freedom of navigation. This effort is echoed by the marked improvement in the economy of the region due to the increased revenue from lumber transports and other local products.[161] Furthermore, the riverine force has been able to take control over the territory and the security of the riverine population. This came at the heels of the disbandment of the FARC fronts 57 and 34 that operated within the region.[162]

Colombian riverine operations have had marked success. Figures 26 and 27 below show the control achieved along the Eastern and Southern Plains. As can be seen, the amount of Advanced Riverine Posts is much smaller than those found in the Caribbean or Northern Pacific regions. For this reason, the success along both the Eastern and Southern plains has been of a lesser degree when compared to that experienced along the River Atrato. Nonetheless, Riverine operations in these areas have been able to re-establish the safe navigation along the rivers. They have also rekindled the local economy that is dependent on fishing and traditional commerce along the rivers for sustenance. Notably, the

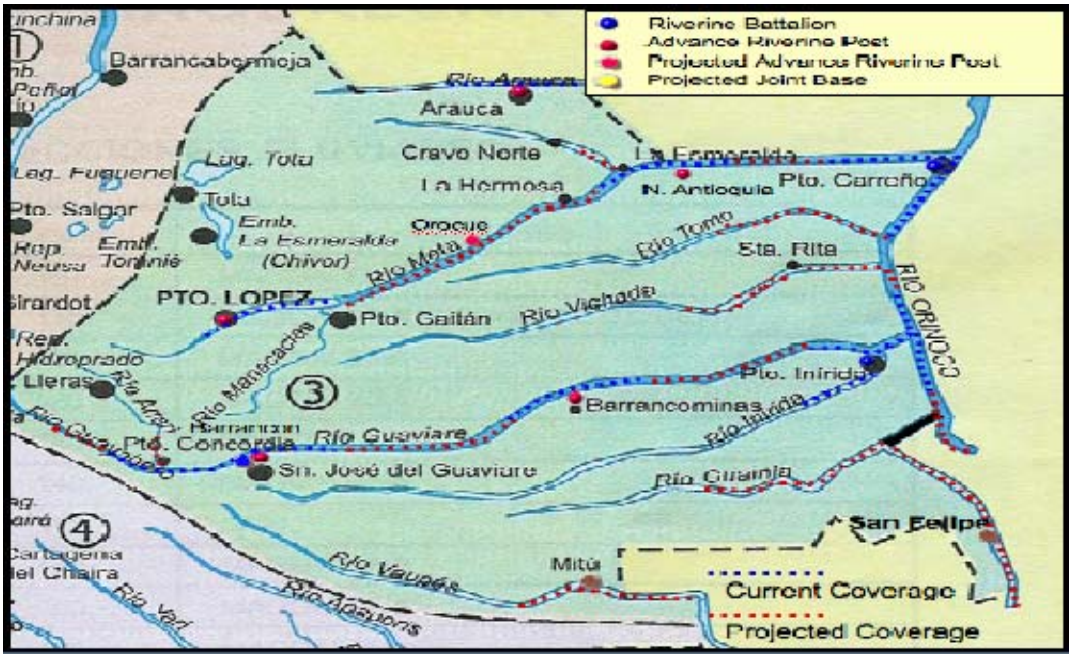
160 Armada Nacional de Colombia. "Presentacion CODENAL 2007," 56.

161 CF Luis Bernardo Ramirez. "Reactivación del Río Atrato," Revista Armada No. 86, (Colombia, January 13, 2005).

162 Armada Nacional de Colombia. "Presentacion CODENAL 2007," 57.

riverine force has been able to disband Front 16 of the FARC in the East and Fronts 48 and 49 in the South and free the river lines of communication of their control.[163]

Figure 26. River Control and Security (Eastern Plains)



Source: "Information Brief for Mr. Brick Scoggins," U.S. Military Group (Bogotá, Colombia: January 2006

With the success of riverine operations along the principal rivers, ONT traffic began to move to secondary waterways. When the Colombian Armada responded effectively to this by creating and deploying the Light Riverine Combat Element, the ONT pushed even further upriver and into the tertiary tributaries, commonly referred to as "*caños fluviales*." These riverways are usually 1.5 meters deep (nearly 5 feet), extremely narrow and usually covered by the jungle overgrowth (see Figure 28). The ONT regression into the constrained areas of the rivers has temporarily hindered the Colombian's ability to combat the enemy. Relegation of the ONT into these areas, however, means that most of the principal and many of the secondary rivers are again open to free navigation and

163 Armada Nacional de Colombia. "Presentacion CODENAL 2007," 61, 63, 65.

legal commerce. This, coupled with a growth of local and native fishing in addition to the increased of state presence, is a positive indicator of progress.

Figure 27. River Control and Security (Southern Pacific and Southern Plains)

Source: "Information Brief for Mr. Brick Scoggins," U.S. Military Group (Bogotá, Colombia: January 2006

Finally, in part as a result of the operational successes along the rivers of Colombia, the observed traffic routes of illicit narcotics out of the country have shifted. An independent study conducted by the United Nations determined that approximately 557 metric tons of coca would be produced during the course of this year. In past years, the majority (nearly 70 percent) of the product obtained from these 557 metric tons reached international markets via the Caribbean. As of 2007, it is estimated that the Caribbean routes will serve to export only 91 metric tons, or 16.3 percent of the gross production. Instead, areas such as the southern edge of the Pacific coast and the Eastern plains have seen a marked increase. It is estimated that 194 metric tons, or 34.8 percent, will depart from the Pacific coast. Nearly the same amount -- 195 metric tons, or 35.1 percent -- will depart via the Eastern plains through Venezuela and Brazil. Almost all of this

product will reach its final exporting destination via the internal rivers of Colombia. [164] The notable shift in exportation routes is a significant indicator that the riverine efforts exerted in the Caribbean and North Pacific coasts have been successful.

Figure 28. ONT Vessel on Tertiary Rivers

Source: Armada Nacional de Colombia. "Presentacion CODENAL 2007," (Colombia, June 2007): 31

D. CONCLUSION

The elections of Alvaro Uribe in May of 2002 brought, as promised, a marked increase in the level of military activity against Narco-Terrorist Organizations. The Colombian Naval Strategic Plan 2003-2010 and the subsequent Naval Strategy against Narcoterrorism were developed to address

[164] Figures and information obtained during a cursory briefing attended by author, (Colombia, September 13, 2007). The figure of 557 metric tons was determined by estimating the number of hectares available for cultivation, the number of crops that can be produced, and the number of bundles that can be extracted from each hectare. This estimate is within 5 percent of the figure estimated by the United States.

the ONT issue specifically. Under these rubrics, the Colombian Riverine Forces developed three core capabilities akin to COIN and LOC protection for river security and control. They used these capabilities to engage an elusive, determined and dangerous enemy along the three different regions of the country.

This strategy was first applied methodically and patiently to the Caribbean and North Pacific coasts. The constraints of fuel and combat range experienced by the Colombian units spawned a useful set of tactics. They showed that it is not necessary to exercise 100 percent pressure in the rivers to be effective. Rather, through intelligence gathering and natural observation, the riverine forces can be effective if they systematically attack along the river's natural nodes and the enemy's LOC choke points.

The constraints and changes in enemy tactics also fueled innovations in equipment (as well as the development of TTP to use the new equipment effectively). First and most importantly, the riverine forces of Colombia showed that it is imperative to have a unit that combines survivability, firepower, simplicity and adaptability in the combat environment. The PAF vessels accomplish all these tasks. The vessel serves as a hub boat that can provide fuel to other units for prolonged periods of time. It is also a mobile unit that can be down-river and provide sustenance, bedding, and a launch platform for joint operations. In the end, the PAF is a unit that projects enough firepower and is safe enough to remain on scene, making it lethal and feared amongst its enemies. Second, as the enemy is forced to change its tactics, the riverine force must also be flexible. The Colombian riverine forces quickly adapted to the changing tactics of the ONT and added light riverine vessels to help confront the enemy on the secondary and tertiary waterways.

The riverine forces have been successful, procuring control over approximately 65 to 70 percent of rivers. This is an astonishing accomplishment considering the length of rivers present in Colombia and the short timeline of five years, from 2002 to present. Narco-Terrorist Organizations have responded to

this increased pressure from the government. Locally, they were forced to modify their behavior and shift their activities to the smaller and more restricted secondary and tertiary rivers. Regionally, the FARC, ELN, and AUC had to shift their operations away from the Caribbean coast and into the outer edges of the country. Most importantly, economic activity that is crucial to both local and national development has returned along the primary waterways.

V. CONCLUSION

The United States naval force has experienced several changes since the end of the Cold War. The unfortunate attacks perpetrated on September 11, 2001 precipitated another shift within the U.S. naval forces as the nation entered into a self-defined global conflict. The visionary determinations by both Admiral Clark and Admiral Mullen set a new course for the Navy to follow. By late 2005 the need for a "green water capability" was identified. By early 2007 the response to the need took physical form as the new Riverine Group was established within the NECC.

The Center for Naval Analyses (CNA) conducted a review of the Navy's "past, current, and future" riverine capabilities." It found that by 2007, the projected date to establish the first riverine squadron, the U.S. Navy riverine would have to face a multitude of capability gaps across the range of military operations. This thesis sought to examine the current capabilities of the Colombian riverine forces to address some of the capability gaps identified by the CNA report. Specifically, this thesis relied on the methods used by the Colombian riverine forces in conducting counterinsurgency and line of communication operations in support of riverine security and control. The intent was to provide a study of the varied Colombian experiences in order to present some beneficial guidelines for the U.S. naval riverine force.

The third chapter of this thesis provided a historic timeline characterizing the Colombian riverine force development. From this brief look at history it was obvious that the Colombia riverine force experienced some kind of transformation nearly every decade. The events of *La Violencia* that triggered the mass unrest in the countryside were also the catalyst for the creation of the "Flotilla Avispa." From that point on, the transcendence of the riverine force was closely tied with the political and social change of the nation. As a result, Colombia has enjoyed over 50 years of uninterrupted service from their riverine force. During their illustrious service to the nation, the Colombian riverine forces have confronted

peasant uprisings, armed bands, dissident groups, subversive guerrillas, drug cartels and the final evolution of the Narco-Terrorist Organization. A lesson that can be learned from this Colombian riverine experience is that counterinsurgent operations cannot be confronted without a capable and well-manned riverine force. To attain this, the riverine force must be continuously maintained and refined. As the U.S. riverine force is once again called to assemble, we should be reminded that this capability has been required in various notable conflicts of the past. As such, current naval procurement plans should look to keep this capability strong well past the current conflict in Iraq. Only by making riverine operations a core Navy function will the future of this potentially effective resource be secured.

The operational environment of Colombia provides a perspective in terms of the magnitude of problems that can affront a riverine force. Colombia possess three distinct regions, each unique in its own right. The arid regions and extensive beaches of the Caribbean are as different from the rocky cliffs and mangroves of the Pacific coast as they are from the floodplains and frontier rivers of the Eastern plains. Each region has served as a functional tool for the ONT. As noted in chapter IV, when confronted by overwhelming power along the primary rivers, the ONTs will shift further upriver (similar to a phenomenon that occurred in Vietnam). Likewise, regions of heavy rainfall, with their seasonal formation of secondary and tertiary waterways, provide the ONTs with greater mobility. Therefore the requirement of a force that is capable of engaging the enemy along the secondary and tertiary riverways is essential. To establish control or provide security in these areas, it is necessary to have vessels that can project firepower, but also have sufficient defensive capabilities to survive an attack. The functionality of the Riverine Combat Group is effective in meeting this challenge. Each Riverine Combat Group has a Light Riverine Support Patrol Boat (PAFL), two attached Light Riverine Combat Elements (ECFL) and can be embarked with a Riverine Assault force. This structure is able to provide sufficient supporting or covering firepower via its PAFL, in addition to the potent

quick strike capability from its ECFL and the power projection from the river that comes from its embarked assault force.

The Colombian riverine experience also demonstrates the need for a force capable of sustained forward operations to maintain control of the principal waterways. A vessel like the Nodriza is indispensable in this endeavor. This Colombian innovation is replete with firepower that can overwhelm the enemy. Most importantly, it is protected by a two layered armored shell that has proven vital to its survivability. This combination allows the ship to perform a vital function necessary to attain as well as maintain river control. This unit can withstand direct enemy attacks and in exchange project overwhelming fire. This spiked blanket of security allows more vulnerable units like the ECF to regroup to later reengage the enemy under favorable terms.

The ease of repairing the PAF, its survivability and capacity to perform multiple functions make it an essential platform in the joint riverine environment. The majority of its components are off-the-shelf technologies that make the ship's systems easy to operate and reduce the overall price of manufacturing. Finally, this unit is a fourth generation technology that at each step has adjusted and improved on the basic design. A vessel like the PAF or Nodriza would be extremely useful to U.S. riverine operations. This unit would provide forces with the ability to connect the upcoming Global Fleet Station with its subordinate tactical ships making it the next step in the evolution of riverine warfare.

Riverine forces bridge the gap between land and sea forces. They act and function in an environment that has been used in the past and will be exploited by our enemies in the future. It is interesting that the events currently developing in Colombia can be seen as similar to the many historic battles and events in the interrupted history of U.S. riverine forces. While looking back at the Seminole, Civil, and Vietnam Wars is important, Colombia represents a history book that is "alive." Many of the lessons one would read about are being played out in real life and under real circumstances. The Colombian riverine experience is the epitome of an active learning classroom that must be studied and

understood. The strong relationship between our two countries and the active engagement of the United States in Colombia since 1999 makes this information extremely accessible. The hope of this thesis was not to provide a comprehensive and all inclusive look at Colombian riverine operations. Rather, it was to show enough to spark an active curiosity on the part of U.S. riverine forces and shift their view southward. Prudence would dictate that with modesty and an open mind, the United States can learn several lessons from its steadfast regional partner Colombia, which will prove crucial to the development of its own force for the future.

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