COASTAL RIVERINE FORCE ANALYSIS

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RUBEN L. MALDONADO, LT, USN
B.G.S., University of Kansas, Lawrence, Kansas, 2012

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Name of Candidate: LT Ruben L. Maldonado

Thesis Title: Coastal Riverine Force Analysis

Approved by:

_____, Thesis Committee Chair
Richard T. Anderson, M.A.

_____, Member
John T. Kuehn, Ph.D.

_____, Member
Robert M. Brown, M.A.

Accepted this 8th day of June 2018 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, Ph.D.

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ABSTRACT

COASTAL RIVERINE FORCE ANALYSIS, by Lieutenant Ruben L. Maldonado, USN, 90 pages.

The research investigates capabilities gaps of the Coastal Riverine Forces in the United States Navy using a qualitative research methodology. and doctrine, organization, training, material, leadership and education, personnel, facilities, and policy framework. The primary research question reviewed was: How can the Navy better enable CRFs' effectiveness.

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ACRONYMS

COGENT	Common Geospatial Navigation Toolkit
CDR	Commander
CNA	Center for Naval Analyses
CRC	Coastal Riverine Company
CRF	Coastal Riverine Force
CRG	Coastal Riverine Group
CRS	Coastal Riverine Squadron
CTF	Commander Task Force
CTG	Commander Task Group
DOPMA	Defense Officer Personnel Management Act
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy
DOTMLPF-P	Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy
FP	Force Protection
JPME	Joint Professional Military Education
IRGCN	Islamic Revolutionary Guard Corps Navy
IRIN	Islamic Republic of Iran Navy
LCDR	Lieutenant Commander
Maj	Major
MEU	Marine Expeditionary Unit
MK	Mark
NECC	Navy Expeditionary Combat Command
PIM	Plan of Intended Movement

PME	Professional Military Education
RCB	Riverine Command Boat
SLOC	Sea Lanes of Communication
SPOD	Sea Ports of Debarkation
SWO	Surface Warfare Officer
TSC	Theater Security Cooperation
USN	United States Navy

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CHAPTER 1

INTRODUCTION

On 12 January 2016, ten Americans were captured by Iran. Those Americans were United States sailors, and members of Coastal Riverine Squadron Three. The following summary of that incident sheds light to the Coastal Riverine Force (CRF). This incident is a snapshot in time. This incident provides an opportunity to thoroughly identify shortfalls which hinder CRFs ability to operate at their full capacity. A few of the shortfalls identified was the lack sound maintenance practices, procedural compliance, seamanship, forceful backup, and leadership. As a professional steward in the maritime domain, the author brings a new perspective to CRFs with one goal in mind. That goal is to propose effective ways to do business.

In January 2016, Coastal Riverine Squadron Three was operationally assigned to Commander Task Force (CTF) 56.[1] Prior to the ten sailors' capture, they were transiting from Kuwait to Bahrain in two Riverine Command Boats (RCB), 802 and 805. A transit from Kuwait to Bahrain is about 250 nautical miles. RCBs are designed to impact every phase of military operations, including port security, organic air and fire support, maritime interdiction, and command and control.[2] Figure 1 (p. 2) is a photo of RCBs 802 and 805. Only one out of the ten sailors involved was a commissioned officer. That officer was a Surface Warfare Officer. According to the incident's investigation, the Commander Task Group (CTG) 56.7 Commander directed that officer to be "the one in charge of the mission."[3] This officer was overall responsible for the safe and professional transit of two RCBs.

Figure 1. Riverine Command Boats (RCB) 802 and 805 participate in a bi-lateral exercise with Kuwait naval forces in the Persian Gulf in 2015

Source: Sam LaGrone, "10 U.S. Riverine Sailors Released from Iranian Custody," *USNI News*, 13 January 2016, accessed 17 November 2017, www.news.usni.org/2016/01/13/10-u-s-riverine-sailors-released-from-iranian-custody.

Every military mission requires a system check to ensure the equipment will work as designed. In this case, the RCBs were the systems. Prior to the transit, RCBs 802 and 805 were identified as being not fully mission capable. RCB 802 starboard engine had a faulty raw water pump flange.[4] Maintenance was performed on the flange and RCB 802 was again ready for sea. However, the flange was installed in a modified hole with an incorrect bolt. This modification from the original manufacture's design was not authorized through the appropriate authority in the form of a Departure from Specification request.[5] Departure from Specification request identify material deficiencies and remedies outside of the manufacturer's recommendations. These departures make deficiencies known and provides a temporary solution to keep units

mission ready. Material deficiencies were also identified for RCB 805.[6] The incident investigation did not disclose any deficiencies from RCB 805 which contributed directly to the incident. Members of the crew worked throughout the night to repair both RCBs. Modifying the hole with the incorrect bolt demonstrated the crew's deviance from maintenance procedures in order to complete the transit. This act represents a "Can-Do" attitude negatively morphing into a "Must-Do" attitude.

A "Must-Do" attitude creates a false sense of readiness. For the sake of the transit, crewmembers carried on repairs into the night. Therefore, not receiving the required amount of sleep for the transit. According to the Department of the Navy's investigation, "For a boat greater than 40 feet and traveling in seas less than 4 feet high for a period of 10 hours, crewmembers require 8 hours of rest."[7] The required sleep is designed to mitigate the risk regarding the lack of alertness. Both RCB crewmembers would later find out that lack of proper sleep could have contributed to the disastrous event.

Additional procedural compliance violations continued throughout the following morning as RCB 802 and 805 crew members prepared the boats to get underway. Insufficient crew rest was one factor in the many procedures and/or requirements violated prior to getting underway (Table 1, p. 4). Another violation was that both RCBs' Captains failed to verify each waypoint in the transit plan for accuracy.[8] Verifying the transit plan is fundamental to the professional mariner. This process mitigates the risk of getting lost at sea and ensures that essential personnel know where the ship needs to be and at what time. This provides yet another opportunity to identify issues or concerns with the plan as well as smoothing out any final details. The transit plan is created, verified and approved by multiple people. Each individual involved in said that process is

a team member who has the ability to provide forceful backup to ensure safe navigation. Verifying the transit plan reinforces one of the Navy's six pillars of operational excellence, forceful backup.[9] When members of a unit do not "back each other up," there is an increased risk of mishap or casualty. Incidents such as this, beg the question—where was the forceful backup?

Table 1. Procedures or Requirements Not Followed Prior to Getting Underway

RCB 802	RCB 805	Procedure or Requirement Not Followed
-	Pre-operational checklists were not logged completed in the Deck Log.	CORIVFORINST 4590.1B
Boat captain did not conduct a Patrol Brief prior to getting underway.	Boat captain did not conduct a Patrol Brief prior to getting underway.	CORIVFORINST 4590.1B
Boat captain did not verify each waypoint for accuracy.	Boat captain did not verify each waypoint for accuracy.	(Not listed)
-	Did not have the PIM track loaded in COGENT when they got underway.	(Not listed)
-	Did not have an approved PIM track in the Electronic Charting System.	CORIVFORINST 3530.1
Did not have magnetic deviation cards onboard.	Did not have magnetic deviation cards onboard.	CORIVFORINST 3530.1
Defense Advance GPS Receivers were not loaded with crypto.	Defense Advance GPS Receivers were not loaded with crypto.	NECFCINT 3530.1
Boat captain was unware that the Defense Advance GPS Receiver was required to be loaded with crypto.	Boat captain was unware that the Defense Advance GPS Receiver was required to be loaded with crypto.	(Not listed)
Crew serve weapons were not mounted (only 2 of 5 weapons mounted).	Crew serve weapons were not mounted (only 2 of 5 weapons mounted).	CTG-56.7 Commander's Standing Orders
No Deck Log entries recorded after 0930 [local time].	-	CORIVFORINST 4590.1B

Source: Created by author using data from Department of the Navy, *Command Investigation to Inquire into Incident in the Vicinity of Farsi Island Involving Two Riverine Command Boats (RCB 802 And RCB 805) on or about 12 January 2016* (Arlington: Department of Defense, February 2016), 74-75.

While in transit, RCB 802 and 805 entered Saudi Arabian and Iranian territorial seas at separate times.[10] Given that naval warships are considered sovereign U.S. territories, it is strongly discouraged for any warship to enter another country's territorial waters without exceptional reason. According to the United Nations Convention on the Law of the Sea of 10 December 1982, "Every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles."[11] While in Iranian territorial seas, RCB 802 experienced an engine casualty. To troubleshoot said casualty, the crew shut down both engines.[12] While undergoing repairs, both RCBs' crew members observed two small boats approaching RCB 802's position. The boats were later identified as the Islamic Revolutionary Guard Corps Navy.[13] Due to the Islamic Revolutionary Guard Corps Navy's organizational structure, they routinely patrol the area in question. According to an Office of Naval Intelligence report on Iran's two Navies, the Islamic Revolutionary Guard Corps Navy has "sole responsibility for the Persian Gulf."[14] Figure 2 (p. 6) depicts the two Iranian Navies' areas of responsibility. The interaction between the RCBs and the Islamic Revolutionary Guard Corps Navy's boats resulted in both RCBs' crew members removing their body armor, kneeling on the deck, placing their hands behind their heads with AK-47s pointed at them onboard RCB 802.[15] The captured Americans were transported to Farsi Island with the RCBs in tow. An international incident between the U.S. and Iran is no longer just a possibility. The incident is real and will be compounded by the future actions of "the one in charge."

Figure 2. IRGCN and IRIN Areas of Responsibility

Source: Office of Naval Intelligence, *Iranian Naval Forces: A Tale of Two Navies* (Washington, DC: Government Printing Office, February 2017), 22.

While on Farsi Island, the crewmembers were interrogated by Iranian officials. The officer apologized for the incident to an Iranian camera crew. This apology video was then released to the media by Iran. U.S. mainstream media reported on the officer's apology. There were several action including the apology that violated the Armed Forces Code of Conduct. According to the investigation report, "The Code of Conduct was established in 1955 by Executive Order (EO) 10631 (as variously amended) to provide standards of behavior for members of the Armed Forces in combat and captivity."[16] Table 2 (p. 7) outlines the six articles of the Armed Forces Code of Conduct.

Table 2. Code of Conduct for Members of the United States Armed Forces

Article Number	Article Content	Executive Order (EO) or recent amendment
I	I am an American, fighting in the forces which guard my country and our way of life. I am prepared to give my life in their defense.	EO 12633 of March 28, 1988
II	I will never surrender of my own free will. If in command, I will never surrender the members of my command while they still have the means to resist.	EO 12633 of March 28, 1988
III	If I am captured I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.	EO 10631 of August 17, 1955
IV	If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give nor information or take part in any action which might be harmful to my comrades. If I am senior, I will take command. If not, I will obey the lawful orders of those appointed over me and will back them up in every way.	EO 10631 of August 17, 1955
V	When questioned, should I become a prisoner of war, I am required to give name, rank, service number and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause.	EO 12017 of November 3, 1977
VI	I will never forget that I am an American, fighting for freedom, responsible for my actions, and dedicated to the principles which made my country free. I will trust in my God and in the United States of America.	EO 12633 of March 28, 1988

Source: Created by author using data from United States National Archives and Records Administration, *Executive Order 10631—Code of Conduct for Members of the Armed Forces of the United States,* accessed November 12, 2017, https://www.archives.gov/federal-register/codification/executive-order/10631.html.

The events leading to the Farsi Island incident are a snapshot in time of one Coastal Riverine Force's (CRF) operation. Could this incident have been prevented if RCB 802 used the correct bolt? It would be irresponsible to stop at the simplest, most obvious issue and not delve deeper into the capability gaps that may have been negatively factors as well. Identifying the capability gaps continues the discussion on how to better man, train, and equip the more than 4,000 CRFs' hardworking sailors.[17]

Research Question

This thesis attempts to answer the following research question: How can the Navy better enable CRFs' effectiveness? The supplementary question is; how do CRFs integrate multiple DOTMLPF elements?

Assumptions

This research assumes that CRF will remain a viable option for military operations. Riverine forces are associated with at least 32 Navy mission-essential tasks. Table 3 (p. 9) lists the associated mission-essential tasks. CRFs are actively participating in joint exercises, anticipate receiving new boats and are expected to deploy throughout the world.

Table 3. Navy Mission-Essential Task List for Riverine Forces

NAVY TACTICAL TASK	NAVY MISSION-ESSENTIAL TASK	TYPE OF OPERATION			
		Maritime Security	Patrolling and Interdiction	Theater Security Cooperation	Assault Support
1.1.2.3	Move Units	X	X	X	X
1.1.2.3.4	Conduct Convoy Operations	X	X	X	X
1.1.2.3.7	Conduct Small Boat Operations	X	X	X	X
1.1.2.4	Conduct Tactical Insertion and Extraction		X		X
1.2	Navigate and Close Forces	X	X	X	X
1.4.6	Conduct Maritime Interception	X	X		
1.4.7	Enforce Exclusion Zones	X		X	
1.5.5.5.4.1	Secure an Area	X	X	X	X
1.5.5.6.1	Conduct Patrols	X	X	X	X
2.1.3	Conduct Collection Planning and Directing		X		
2.2	Perform Collection Operations and Management	X	X	X	X
2.4.4.4	Evaluate the Threat	X	X	X	X
2.5	Disseminate and Integrate Intelligence	X	X	X	X
3.1.1	Request Attack	X	X	X	X
3.1.5	Conduct Tactical Combat Assessment		X		X
3.2	Attack Targets	X	X		X
3.2.8.2	Illuminate/Designate Targets	X	X		X
3.2.9	Conduct Nonlethal Engagement	X	X		X
4.12.1	Perform Triage	X	X	X	X
4.12.11	Provide Medical Staff Support	X	X	X	X
4.12.2	Provide Ambulatory Health Care	X	X	X	X
4.12.5	Coordinate Patient Movement	X	X	X	X
4.12.9	Train Medical and Nonmedical Personnel	X	X	X	X
4.3	Repair/Maintain Equipment	X	X	X	X
5.1.1.1	Transmit and Receive Information	X	X	X	X
5.2.1.2	Review and Evaluate Mission Guidance	X	X	X	X
5.2.1.3	Review Rules of Engagement	X	X	X	X
5.3	Determine and Plan Actions and Operations	X	X	X	X
5.4.4	Establish Liaisons	X	X	X	X
6.1.1.1	Protect Individuals and Systems	X	X	X	X
6.3.2.1	Manage Enemy Prisoners of War	X	X		X
6.3.3	Combat Terrorism	X	X	X	

Source: Department of Defense, Navy Tactics, Techniques, and Procedures 3-06.1, *Riverine Operations* (Washington, DC: Government Printing Office, February 2008). 1-4.

In October 2017, Coastal Riverine Group 1 participated in the amphibious exercise Dawn Blitz. Their active participation contributed to the exercise's overall objective, which was to integrate command and control between the Navy and Marine

Corps team. According to a U.S. Pacific Command Press Release, Colonel Chandler Nelms, USMC, the Dawn Blitz amphibious force's deputy commander, land warfare commander and also commanding officer of 13th MEU, stated, "The amphibious force integration we've seen here at Dawn Blitz and the experimentation and innovation that's been conducted, further informs how we might establish sea control and power projection on tomorrow's battlefield."[18]

In an effort to better equip the CRF, the Department of Defense awarded a contract for new patrol boats. On September 29, 2017, the Department of Defense released details for an "indefinite-delivery/indefinite-quantity single award contract for design and construction of up to 50 [next-generation] patrol boats for the Naval Expeditionary Combat Command" to Gravious Aluminum Boats LLC.[19] Figure 3 (p.11) is a photo of the next generation patrol boat, PB(X). Modernizing the CRFs' patrol boat fleet increases their maneuverability and ability to execute their mission.

Figure 3. PB(X) Prototype 1

Source: Josh Stickles, "Metal Shark Wins U.S. Navy PB(X) Patrol Boat Contract," Metal Shark Boats, 2 October 2017, accessed 9 December 2017, ttp://www.metalsharkboats.com/october-2-2017-metal-shark-wins-u-s-navy-pbx-patrol-boat-contract/.

CRFs are expected to maintain a high level of readiness for deployment. Operationally, some deployments may be forecasted years in advance. Financially, the Department of the Navy projects deployment costs annually. According to the Department of the Navy Fiscal Year 2018 President's Budget Submission, Coastal Riverine Groups' are allocated funding for 14 deployments/exercises. These projections are similar to fiscal year 2017.

Limitations

This research is designed for public distribution. Therefore, it does not attempt to disclose classified information. In order to avoid public distribution restrictions, the research literature is unclassified, and readily accessible through common means.

Delimitations

The DOTMLPF-P (doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy) framework is used throughout this thesis. It is designed to thoroughly assess all aspects of a problem. However, the author reduces the scope of research on doctrine, training, leadership and education, material, personnel, facility, and policy. Doctrine not covered in this thesis is Navy Tactics, Techniques, and Procedures for Naval Coastal Warfare Operations, NTTP 3-10.1 because the latest edition, April 2005, is under revision. NECC leadership model is not available from open sources, therefore this research uses the Navy's Leadership Development Framework as a source for analyses. Training areas covered includes the training CRFs receive as a unit, vice the Department of Defense schools provided to the sailors. The material this thesis covers are the patrol craft and boats used by CRFs. This thesis covers officers and not enlisted or government employees. The facilities discussed are only those facilities which conceptual support repairing patrol craft. In regard to policy, this research does not cover the Defense Strategy Review in its entirety (previously known as the National Defense Strategy), and National Military Strategy. The Defense Strategy Review is classified, and a short summary is available from public source. The National Military Strategy has not been updated to reflect the National Security Strategy published by the President of the United States. The research end date was February 1, 2018. This limitation provided time

for data collection, analysis, and synthesizing. Any information developed after that date is not considered in this thesis.

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[1] Department of the Navy (DON), *Command Investigation to Inquire into Incident in the Vicinity of Farsi Island Involving Two Riverine Command Boats (RCB 802 And RCB 805) on or about 12 January 2016* (Washington, DC: Government Printing Office 28 February 2016), 10.

[2] Department of the Navy, "United States Navy Fact File: Riverine Command Boat," last updated 9 January 2017, accessed 1 November 2017, http://www.navy.mil/navydata/fact_display.asp?cid=4200&tid=2300&ct=4.

[3] DON, *Command Investigation*, 68.

[4] Ibid., 69.

[5] Ibid., 71.

[6] Ibid., 69.

[7] Ibid., 72.

[8] Ibid., 74.

[9] Department of the Navy, COMNAVSURPAC/COMNAVSURFLANTINST 5100.1A, *Surface Safety* (Washington, DC: Government Printing Office, 26 March 15), 4.

[10] DON, *Command Investigation,* 86.

[11] Division of Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, *United Nations Convention on the Law of the Sea of 10 December 1982,* United Nations, accessed 11 November 2017, http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf, 27.

[12] DON, *Command Investigation,* 92.

[13] Ibid., 98.

[14] Office of Naval Intelligence, *Iranian Naval Forces: A Tale of Two Navies,* (Washington, DC: Government Printing Office, February 2017), 15.

[15] DON, *Command Investigation,* 108.

[16] Ibid., 131.

[17] U.S. Navy Expeditionary Combat Command, "Coastal Riverine Force Fact Sheet," Department of the Navy, accessed 2 October 2017, http://www.public.navy.mil/NECC/Documents/CRF.pdf. 2.

[18] Captain Diann Rosenfeld and MC2 Sean Gallagher, "Exercise Dawn Blitz Concludes, Setting Standard for New Amphibious Capabilities," Department of Defense, 31 October 2017, accessed 14 November 2017, http://www.pacom.mil/Media/News/News-Article-View/Article/1359304/exercise-dawn-blitz-concludes-setting-standard-for-new-amphibious-capabilities.

[19] Department of Defense, "Release No: CR-190-17," Department of Defense, 29 September 2017, accessed 14 November 2017, https://www.defense.gov/News/Contracts/Contract-View/Article/1330165/.

CHAPTER 2

LITERATURE REVIEW

This chapter serves two purposes. First, it provides a perspective on available literature. Second, it describes previous research on solutions to improve the CRF. Prior literature consists of non-government research, theses, policies available, and Department of the Navy reviews.

Non-Government Research

Developing an Expeditionary Warfare Officer Career Path

In the mid-2000s, Navy Expeditionary Combat Command (NECC) was concerned about its expeditionary warfare officers. Specifically, NECC was concerned about active-duty Unrestricted Line Officers, such as the Surface Warfare Officers, under its command. At the request of NECC, the Center for Naval Analyses (CNA) conducted an analysis on how to develop expeditionary warfare officers' expertise, leadership, and proficiency.[1] Since riverine forces resumed operations under NECC, Surface Warfare Officers filled the majority of junior officer positions. Figure 4 (p. 16) categorizes NECC Unrestricted Line positions by designator and grade for 2008.

Billet designator	CAPT O6	CDR O5	LCDR O4	LT O3	LTJG O2	Total
General URL - 1000	1	3	20	4		28
General URL (warfare qualified) - 1050	4	9	29	19		61
Surface Warfare - 1110	2	14	26	52	18	112
Special Operations - 1140[a]	4	5	8	10		27
General Aviation - 1300			2			2
Naval Flight Officers - 1320			2			2
Total	11	31	87	85	18	232

a. The Special Operations billets do not include those in the Explosive Ordnance Disposal command in NECC.

Figure 4. NECC URL Billets by Designator and Grade, 2008

Source: Michael J. Moskowitz, Ann D. Parcell, David M. Rodney, Martha E. MacIlvaine, *Developing An Expeditionary Warfare Officer Career Path* (Alexandria: Center For Naval Analyses, 2009), 13.

NECC assignments were considered non-traditional positions because it took junior Surface Warfare Officers away from blue-water assignments. Therefore time was spent on areas that did not help master surface warfare. Since junior officers were spending time away from their originating community, another concern was identified. That concern was whether officers would develop as Expeditionary Warfare Officers or Surface Warfare Officers throughout their career. The CNA proposed four different career paths to develop expertise in both expeditionary warfare and surface warfare. The four career paths achieved two objectives. First, NECC would receive the Surface Warfare Officer for two tours. The first tour would develop expeditionary warfare expertise, leadership, and proficiency. The second tour would provide NECC to disseminate and stregthen its institutional memory. The second objective gives officers

opportunities to hone their surface warfare skills, while keeping them competive for executive officer and commanding officer positions. Figure 5 (p. 17) illustrates the four proposed career paths. Providing viable career paths targets a portion of NECC's concern.

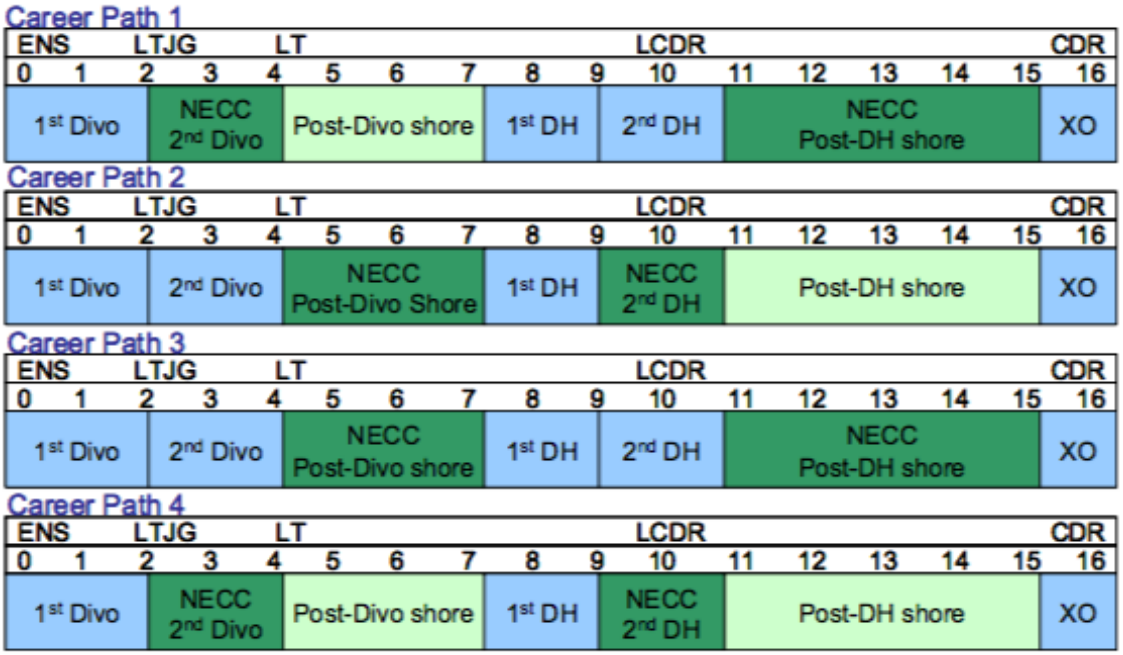

Figure 5. Career Path Options with two NECC Tours

Source: Michael J. Moskowitz, Ann D. Parcell, David M. Rodney, Martha E. MacIlvaine, *Developing An Expeditionary Warfare Officer Career Path* (Alexandria: Center For Naval Analyses, 2009), 22.

To complement the career paths, the research proposed creating an advance qualifcaiton designator. Additional qualification designations represent a special skillset required to execute non-traditional positions. The additional qualification structure consists of three components. The Department of the Navy states those requirements are:

> (1) Identifies additional qualifications, skills, and knowledge required to perform the duties and/or functions of a billet beyond those implicit in the billet designator, grade, NOBC, or subspecialty; (2) Where specifically noted, identifies billets that provide unique qualifications for the billet incumbent; and (3) Facilitates retrieval of management information required to support more precise officer personnel planning.[2]

The third recommendation was to produce a thorough professional military education or personnel qualification standards program. Personnel qualification standards represent an individual's ability to demonstrate a minimum level of competency to execute a task or duty.[3]

Theses

Unified Vision of the Future: Riverine Squadrons and the Security Cooperation MAGTF

In 2008, Major (Maj) Michael Stolzenburg, U. S. Marine Corps Reserve, conducted research on how to improve the Navy's riverine forces. Maj Stolzenberg's research focuses on the Marine Corps' riverine Operations. The last time Riverine Forces were organized and considered a viable option was during the Vietnam War. During the war, joint task forces were created to disrupt the Viet Cong insurgents' maritime supply lines. General Westmoreland, Commander of the U. S. Military Assistance Command in Vietnam, believed an estimated 70 percent of the Viet Cong insurgents' supplies were transported by maritime ways.[4] A few of the joint task forces created were Task Force 115, 116, and 117. The three task forces influenced the Maritime, Littoral, and Land Domain. Task Force 115, The Coastal Surveillance Force, was established to provide an offshore anti-infiltration patrol force.[5] Task Force 116, known as Game Warden, was established to interdict insurgent's forces and protect friendly forces' shipping assets in the Mekong Delta and Rung Sat Special Zone.[6] Task Force 117, Riverine Assault Force,

was developed from the Mekong Delta Mobile Afloat Forces' concept of conducting assault operations and sustained search and destroy missions from the river.[7]

After the Vietnam War, the U.S. military reduced the riverine forces footprint, and shifted its main riverine capabilities to the Navy's special forces community. In 1991, the Marine Corps invested in the riverine mission. The Marine Corps established a small craft company to assume offensive and defensive mission tasks in the littoral environment. Although the Marine Corps sought to revive the riverine mission set, their missions were limited in geography. In the early 1990s, the Marine Corps sent mobile training teams to Colombia. Colombia sought the Marine Corps assistance to train their forces and develop a strong riverine presence in the Colombian Navy. Training and assist the Colombian Navy, helped the Colombian Navy "control contraband, weapons, and precursor chemicals trafficking into the country and to more effectively cope with guerrillas operating in the remote territories."[8] Nowadays, the concept of assisting Colombia and other country's riverine components is acted through theater security cooperation engagements.

Even though the Marine Corps began executing riverine operations in the early 1990s, gaps were identified when the Navy and Marine Corps team were integrated to execute the naval strategic plan in the early 2000s. Maj Stolzenberg research identifies capability gaps between the Navy's riverine force and the Marine Corps Security Cooperation Marine Air Ground Task Force. Maj Stolzenberg uses a DOTMLPF framework to categorize gaps.

Two doctrinal gaps were identified. First, riverine forces outside of Iraq were not provided a specific operational plan.[9] At the time, strategic and tactical doctrine for

riverine operations was available. However, the second doctrinal gap identified was that tactical doctrine, Mission-Essential Task List, did not clearly link interoperability with strategic doctrine. One of the nine naval principles outlined in the Naval Operational Concept 2006 is interoperability.[10] Linking interoperability is essential, as riverine operations focus on the littoral environment. The littoral environment is the medium between the maritime and land domain, which is operated by maritime and land forces respectively.

Maj Stolzenberg limits the scope of the organizational analysis because the Riverine Group was still growing in size, people, and equipment. The organization analyzed was a riverine squadron operating in Iraq. A riverine squadron brings an insufficient size of forces to joint operations. According to a non-government agency, CNA, the Navy's Riverine Group "could support both Army and Marine Corps battalion-sized operations."[11] As a result, Riverine Group's organizational structure "can perform only limited *Distributed Operations."*[12] This structure reduces the Riverine Group's footprint in major combat operations.

Riverine forces training consist of Marine Corps, Coast Guard, and Navy courses of instruction. The courses of instruction ranged from a modified basic infantry course to Riverine Force Small Craft Maritime Interdiction Operations Team Trainer. The training scratched the surface on riverine operations. Although the training provided was limited, the deeper concern was how the riverine community would retain the experience, and train to those experiences. This concern is referred to as institutional memory. Institutional memory is affected for two reasons. First, Riverine forces do not possess recognizable experience operating with land forces. According to Maj Stolzenberg,

"Officers gain a basic understanding of ground terminology and graphic control measures but have very limited practical knowledge until is gained through application."[13] Second, most Riverine assignments are filled by sailors with traditional deep-blue Navy ratings and Surface Warfare Officers. This suggests that there is no closed loop professional development. Therefore, Maj Stolzenberg acknowledges that "no riverine experience base will be maintained long term in the riverine leadership."[14]

In the early 2000s, Riverine forces were operating a variety of craft. Some of the craft included, but were not limited to, the small unit riverine craft and riverine patrol boat. The craft were fast and not heavily armored. This presents a problem in a fire fight if the craft are not able to neutralize the enemy quickly.[15]

At the time of this thesis, the riverine forces were relatively new to the Navy. The Navy's top leadership were heavily involved in supporting and discussing riverine forces. NECC's establishment introduces another senior-level organization involved in the fight for funding and long-term support. Instead of a presenting a leadership as a trait, the gap identified the Navy's policy-making leadership. Specifically, there is a concern that the Navy leadership's will reduce its continued support for riverine forces.[16] No capability gaps were identified regarding the facilities.

Maj Stolzenberg's research concludes that riverine forces are suited for limited operations in support of the land component commander. Capability gaps identified shortfalls using the DOTMLPF framework. To increase the success of riverine forces, Maj Stolzenberg proposes integrating Riverine Forces with the Marine Corps Security Cooperation Marine Air-Ground Task Force.[17]

War on the River: Development of Joint Expeditionary Riverine Officers

In 2010, Commander (CDR) Gregory Sandway, United States Navy (USN), conducted a strategy research project on the expeditionary riverine officer force. The research outlined how the riverine officer force structure is not conducive to developing and retaining officers and their combat riverine experiences. Similarly, to the CNA research, the theory is that temporary filled riverine positions from a conventional Surface Warfare Officer are not sustainable. According to CDR Sandway, "[CNA's] analysis does not fully develop enough of an expeditionary Riverine joint knowledge base required in more senior officers in the pay grades of O5 to O6."[18] Whereas the CNA's analysis proposes integrated career paths, CDR Sandway recommends developing a stand-alone Expeditionary Riverine Officer designator and career path. Figure 6 (p. 23) represents the proposed Expeditionary Riverine Officer Career Path. The proposed path resembles the explosive ordinance disposal officer career progression path. The close resemblance signifies the riverine forces and explosive ordinance disposal units' missions across the range of military operations.

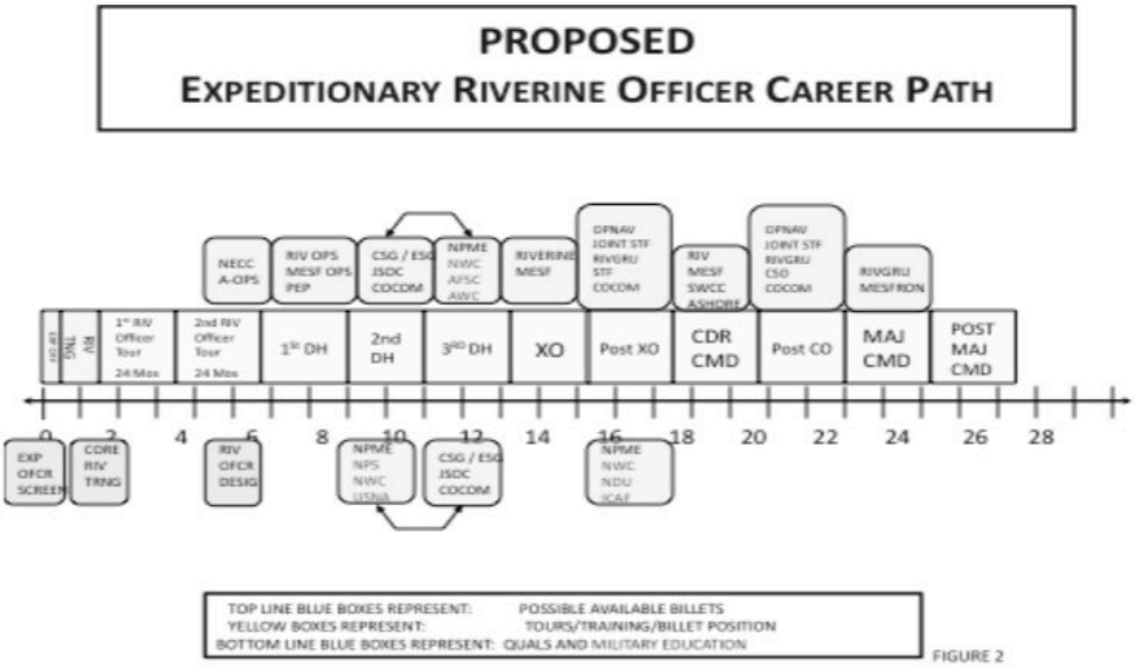

Figure 6. Proposed Expeditionary Riverine Officer Career Path

Source: Gregory Sandway, "War on the River: Development of Joint Expeditionary Riverine Officers" (Strategy Research Project, U.S. Army War College, Carlisle Barracks, PA, 2010), 18.

Riverine Logistics Models: Increasing Combat Effectiveness in the Riverine Group

In 2009, Lieutenant Commander (LCDR) Christopher James, USN, conducted research on the Riverine Logistics Models. LCDR James recognized the logistical complications deployed coastal riverine squadrons can anticipate. Squadrons deployed with mission critical repair parts, which typically came in the form of a Pack-Up Kit. The Pack-Up Kit is designed to support the squadrons ability to self-sufficiently make initial repairs. The initial repairs were performed by the Supply Management Unit or a logistics cell in theatre.[19] In-theatre support was not capable of conducting intermediate and depot

level repairs. This posed a problem due to the austere and mobile environment riverine forces are expected to operate. Therefore, LCDR James recommended establishing an Expeditionary Support Unit. The Expeditionary Support Unit concept is similar to the Explosive Ordnance Disposal Units, whereas they are integrated from pre-deployment, deployment, and post deployment phases of operations.

Government Research

In response to the Iran capture of U.S. Riverine Forces, the U.S. Government Accountability Office assessed the Coastal Riverine Force's military readiness. According to U.S. Government Accountability Office's website, this report has not been made public because it contains "classified information or controlled unclassified information."[20]

Policy Related Topics

Defense Officer Personnel Management Act of 1980

The foundation of officer management is the Defense Officer Personnel Management Act of 1980 (DOPMA). DOPMA sought to maintain a high-quality, numerically sufficient officer corps [that] provided career opportunity that would attract and retain the numbers of high-caliber officers needed [and] provide reasonably consistent career opportunity among the services.[21] Prior to DOPMA, numerous acts of legislation governed on military officer end strength. None of these acts of legislation were synchronized among the services. Figure 7 (p. 25) illustrates how the number of officers fluctuated from 1800 to 1997.

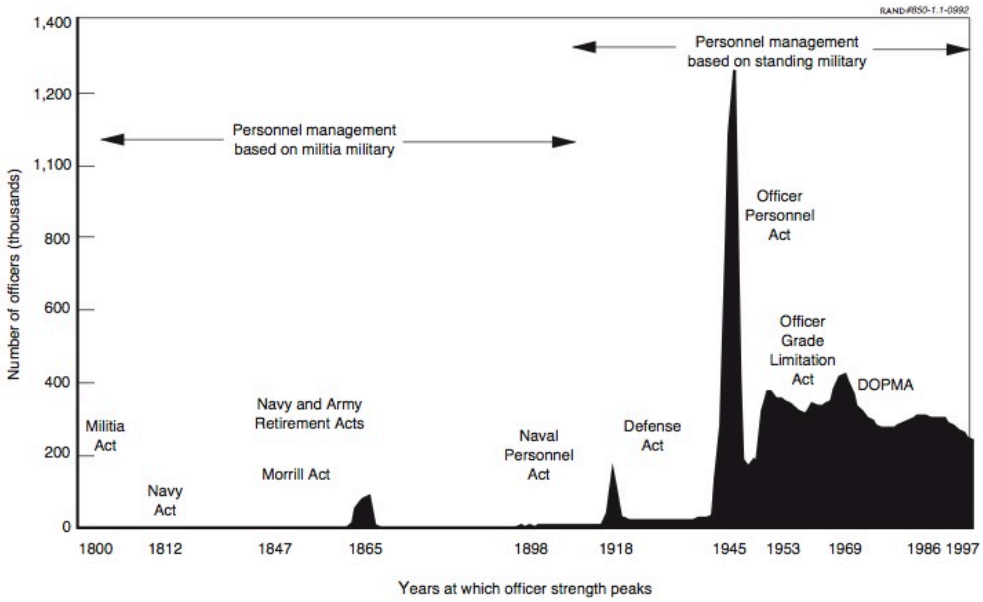

Figure 7. Changing Face of Officer Management (1800-1997)

Source: Bernard Rostker, Harry Thie, James Lacy, Jennifer Kawata, Susanna Purnell, *The Defense Officer Personnel Management Act of 1980: A Retrospective Assessment* (Santa Monica: RAND National Defense Research Institute, 1993), 4.

According to a RAND corporation study evaluating DOPMA in 1993, "Congress authorizes total officer strength for each military service each year, considering the historical relationship between officer and enlisted personnel (the so-called enlisted-officer ratio), stated manpower requirements, and the achievement of other goals."[22] This policy must be considered when recommending creating a "Riverine Officer." Any change in policy will need to be thoroughly assessed. Since the enactment of DOPMA, revisions have been codified in Title 10, U.S. Code, which sets forth policy on military officer end strength. Then Department of Defense determines the end strength based on mission requirements. Then Department of Navy determines the end strength for officers' in specific communities. Figure 8 (p. 26) illustrates a direct relationship on officer end strength from Congress through the Department of Defense to the Department of Navy.

End Strength

U.S. Code	DoD Policy DoD Directive	Navy Policy Navy Directive
Sec. 521: Once each year the Secretary of Defense (SECDEF) shall prescribe total authorized active-duty strength as of the end of the fiscal year (FY) for officers in grades above W5. Sec. 115: Congress authorizes personnel strength levels for each FY. The SECDEF prescribes end-of-quarter strength levels for the first three quarters of the FY. The SECDEF may increase end strength by not more than 3% above authorized levels. A Service Secretary may increase end strength of that service by not more than 2% above authorized levels. Sec. 115a: Describes the annual manpower requirements report and what must be included: annual active duty end strength, justification for all major military force units (including carrier, major combatant vessels, air wing, and other comparable units); justification for medical missions; support positions and overseas positions; estimated number of officers on active duty in each grade at end of each of next five FYs in the Defense Manpower Requirements Report (DMRR).	Sec. 115a: SECDEF submits the DMRR incorporated into President's budget in support of mission requirements. Manpower at certain activities is controlled by the Office of the Secretary of Defense (OSD). These include the Navy Foreign Intelligence Program, Special Operations Forces, Defense Health Programs, Defense Agencies, and Joint Activities.	SECNAVINST 5310.15: Within the Department of the Navy (DoN), overall approval authority for departmental quantitative and qualitative inputs to DMRR and annexes is vested with the Assistant Secretary of the Navy, Manpower and Reserve Affairs (ASN M&RA), who will provide required policy guidance and is responsible for ensuring that respective inputs accurately reflect the DoN position on overall Navy policy and programs. OPNAVINST 1000.16J: End strength shall be managed to prevent erratic dips or spikes for any FY period. SECNAV distributes officers among competitive categories. Since authorized officer strength limits the number of officers in the Navy each year, it affects the number of promotions that can be made.

Figure 8. Navy Authorized Officer End Strength

Source: Roland Yardley, Peter Schirmer, Harry Thie, and Samantha Merck, *OPNAV N14, Quick Reference: Officer Manpower and Personnel Governance in the U.S. Navy* (Santa Monica: RAND National Defense Research Institute, 2005), 4.

Goldwater-Nichols Department of Defense Reorganization Act of 1986

On October 1, 1986, Public Law 99-433, also known as the Goldwater-Nichols Department of Defense Reorganization Act of 1986, was enacted. This act introduced management policies to improve joint officers. Prior to the act, the military services exhibited inefficient inter-service coordination in the hostage rescue operation in Iran (1980), operations in Grenada (1983), and in Lebanon (1983).[23] In order to conduct efficient inter-service cooperation, each military service is to designate no less than 1000 positions as joint duty assignments. For the Navy, the positions shall be filled by lieutenants and senior ranking officers.[24] Another requirement of the act is the joint military education selected rear admirals (lower half) must complete prior to promotion.[25] This act emphasizes the significance of joint operations and understanding multiple services.

National Security Strategy

In order for the military to know how it will protect America, the military must know what it must protect. This higher guidance comes for the President of the United States in the form of the National Security Strategy. The national security strategy is an annual report that describes and discusses America's worldwide interests, foreign policy, use of the national elements of national power, and the adequacy of the capabilities of the national elements of national power.[26]

A Cooperative Strategy for 21st Century

In March 2015, then-Secretary of the Navy, Ray Mabus, released the Navy's maritime strategy. The strategy outlines the Navy's efforts in protecting America on the homeland and abroad.[27] Four components included in the maritime strategy are (1) The Global Security Environment, (2) Forward Presence and Partnership, (3) Seapower in Support of National Security, and (4) Force Design: Building the Future Force. This document describes the Navy's leadership priorities and focus.

A Design for Maintaining Maritime Superiority

In January 2016, Admiral John Richardson, Chief of Naval Operations elaborated on the Cooperative Strategy For 21st Century. The Design provides the initial steps to better implement the future of Navy as part of the maritime strategy. The Navy's four lines of efforts are (1) Strengthen naval power at and from sea, (2) Achieve high velocity learning at every level, (3) Strengthen our Navy team for the future, and (4) Expand and strengthen our network of partners.[28]

Littoral Operations in a Contested Environment

In September 2017, Admiral Richardson and General Robert Neller, Commandant of the Marine Corps, released their collaborative concept on how the Navy and Marine Corps team will operate in a contested littoral environment. This concept advocates for a force package designed to project power ashore by countering sea-denial capabilities. One recommendation is to develop the Littoral Combat Group. The Littoral Combat Group will consist of an Amphibious Readiness Group, a Marine Expeditionary Unit, one or more surface combatants and select capabilities from the Navy's Expeditionary Force.[29] In order to deliver Marines to the shore, the forces need to further develop a highly capable surface craft. Currently, CRFs possess an interim solution to deliver Marines ashore in the mark (MK) VI patrol boat. In addition, CRFs have demonstrated the skillsets to perform potential missions, such as maritime security operations and security cooperation activities. Although, CRFs may have elements to develop this concept, the Marine Corps remains the United States primary force to conduct amphibious operations in support of a naval campaign.

Navy Reviews

Comprehensive Review of Recent Surface Incidents

In 2017, Navy mishaps were highlighted with two of four collisions at sea resulting in the loss of life. As a result, Admiral Richardson directed a comprehensive review of the four incidents. This review provides a critique of the Surface Warfare Officer Career Path. Since many Riverine Officers originate from the Surface Warfare Officer community, it is essential to understanding their initial training and career path.

Strategic Readiness Review 2017

Following the fatal collisions at sea, the Secretary of the Navy, Richard V. Spencer, directed an assessment of the Navy's culture and organization. Contributing factors included, but were not limited to, governance, accountability, and organizational structure. Analyzing those factors are beneficial to this thesis because it provides an assessment of policy affecting how the Navy has functioned in the past 30 years. This assessment is beneficial to understand the Navy's systemic changes and its impact on relatively smaller organizations, such as Navy Expeditionary Combat Command and Coastal Riverine Groups. According to the review, the relaxed fleet level processes and procedures lead the Navy's culture to operate under the "Normalization-of-Deviation" umbrella.[30] Similar to Maj Stolzenberg and CDR Sandway's theses, this review proposed restructuring the officer career path. Restructuring the Surface Warfare Officer's career path directly impacts riverine officer's career path.

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[1] Michael J. Moskowitz, Ann D. Parcell, David M. Rodney, Martha E. MacIlvaine, *Developing an Expeditionary Warfare Officer Career Path* (Alexandria: Center for Naval Analyses, July 2009), 1.

[2] Department of the Navy, NAVPERS 158391I, *Manual of Navy Officer Manpower and Personnel Classifications* (Washington, DC: Government Printing Office, 16 January 2018), D-2.

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[10] Department of the Navy, *Naval Operations Concept* (Washington, DC: Government Printing Office, 2006), 24.

[11] Robert Benbow, Fred Ensiminger, Peter M. Swartz, Scott Savitz, and Dan Stimpson, *Renewal of Navy's Riverine Capability: A Preliminary Examination of Past, Current, and Future Capabilities* (Alexandria: Center for Naval Analyses, March 2006), 76.

[12] Stolzenburg, 61.

[13] Ibid., 65.

[14] Ibid., 65.

[15] Ibid., 70.

[16] Ibid., 72.

[17] Ibid., 80.

[18] Gregory Sandway, CDR, USN, "War on the River: Development of Joint Expeditionary Riverine Officers" (Strategy Research Project, U.S. Army War College, Carlisle Barracks, PA, 11 March 2010), 14.

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[20] United States Government Accountability Office, *Restricted Products*, December 2017, accessed December 14, 2017, https://www.gao.gov/restricted/restricted_reports.

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[23] Michael Bayer, Gary Roughead, Adm, USN (Ret.), *Strategic Readiness Review 2017* (Washington, DC: Government Printing Office, 3 December 2017), 9.

[24] U.S. Congress, Goldwater-Nichols Department of Defense Reorganization Act of 1986, Public Law 99-433., 99th Congress, October 1, 1986, Sec. 661.

[25] Ibid., Sec. 662.

[26] Ibid., Sec. 603.

[27] Department of the Navy, *A Cooperative Strategy For 2st[t] Century Seapower* (Washington, DC: Government Printing Office, March 2015), ii.

[28] Department of the Navy (DON), *A Design for Maintaining Maritime Superiority* (Washington, DC: Government Printing Office, January 2016), 6.

[29] Department of the Navy, *Littoral Operations in a Contested Environment* (Washington, DC: Government Printing Officer, September 2017), 12.

[30] Bayer and Roughead, 3.

CHAPTER 3

RESEARCH METHODOLOGY

Purpose of Research

This thesis aims to find capability gaps within the CRF. Identifying capability gaps may provide the Navy more options to leverage the CRF. As discussed in chapter 2, prior research and analyses consider different aspects of CRF. Qualitative research methodology is used within this thesis to determine how the CRF may increase its impact within the Navy. Qualitative research methodology is the most suitable approach because of its four main characteristics. The four characteristics support the research environment which consist of limited documents and available data.

Qualitative Research Methodology

Qualitative research has no simple definition. Researchers seek to define qualitative research, yet many definitions differ in scope, depth, and/or reasoning. Here are a few definitions explored in the academic environment.

According to Judith Preissle's article, "Envisioning Qualitative Inquiry: A View Across Four Decades,":

> [Qualitative research] is vague, broad and inclusive enough to cover the variety of research practices that scholars have been developing. Thus we have journals and handbooks . . . that identify themselves as qualitative venues while other journals and handbooks have titles such as ethnography or interviewing that represent particular facets of qualitative practice.[1]

In the book *Collecting and Interpreting Qualitative Materials,* 4th edition, by Norman Denzin and Yvonna Lincoln, an abbreviated definition of qualitative research "is

a situated activity that locates the observer in the world. Qualitative research consists of a set of interpretive, material practices that make the world visible."[2]

According to John Van Maanen's article, "Reclaiming Qualitative Methods for Organizational Research: A Preface", qualitative research is "an umbrella term covering an array of interpretive techniques which seek to describe decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world."[3]

Although there are a variety of definitions for qualitative research methodology, the driving factor to use that methodology was its four main characteristics. The four characteristics derive from Sharan Merriam, and Elizabeth Tisdell's book, *Qualitative Research: A Guide to Design and Implementation, 4th edition*. The four characteristics are (1) focus on meaning and understanding, (2) the researcher as primary instrument, (3) rich description, and (4) an inductive process.[4] Each of the characteristics contributed to the author's data gathering process, analysis, and interpretation.

The first characteristic, focus on meaning and understanding, provides a foundation for any qualitative research. As a foundation, it considers the research being based on the totality of circumstances. Research and theories derive from the synthesis of a plethora of components, including but not limited to artifacts, documents, experiences, and concepts. According to Merriam and Tisdell, "The overall purposes of qualitative research are to achieve an understanding of how people make sense out of their lives, delineate the process (rather than the outcome or product) of meaning-making, and describe how people interpret what they experience."[5] This research relied on this characteristic to identify sources.

There are a variety of sources used in this research. Sources included are public records, Department of Defense instructions and publications, bills in the Congressional Record, non-governmental agencies' analyses, professional magazines, recorded presentations, and academic research projects. Every data source's limitations and strengths were considered. The value of each source was based on Merriam and Tisdell's metric in judging the value of a source: "In judging the value of a data source, a researcher can ask whether it contains information or insights relevant to the research question and whether it can be acquired in a reasonably practical yet systematic manner."[6] Answering the primary question does not solely rely on the data gathered from valuable sources. In this research, the author is the force multiplier.

The goal of qualitative research is to understand. Therefore, the researcher is the primary instrument to achieve that goal. This research strives to understand how the Navy can leverage the CRF. In order to achieve a better understanding, the author used an integrated and adaptive approach during the data analysis process. There are at least three avenues to an adaptive approach. One approach is to have the data develop a new theory or understanding. Typically, this is achieved through acknowledging, mitigating, and/or removing biases. Another approach is to seek specific data which aligns with the original theory. This is undoubtedly discouraged because of the lack of objectivity. The third approach is to integrate the researcher's mentality with the data to develop a new theory or understanding. In order to accomplish the last approach, the researcher identifies the biases, incorporates them into the theoretical framework, limits self-interests, and delineates the impact of biases during the collection and analytical process.[7] This integration is briefly examined in Alan Peskin's article, "In Search of Subjectivity—

One's Own," where Peshkin states, "subjectivity can be seen as virtuous, for it is the basis of researchers' making a distinctive contribution, one that results from the unique configuration of their personal qualities joined to the data they have collected."[8] This research's data gathering and analysis uses an inductive process. The inductive process is structured using a DOTMLPF-P framework.

DOTMLPF-P was used because it encompasses the purpose of the study and the problem statement. It is appropriate for use because it categorizes data and focuses on key areas. DOTMLPF-P derives from the Joint Capabilities Integration and Development System.[9] The system's objective is to identify integrated capabilities, gaps, and solutions for the Department of Defense. This research does not include additional components of the Joint Capabilities Integration and Development System outside of DOTMLPF-P. This framework supports the research and is implemented through the eight secondary questions. Each question corresponds to a DOTMLPF-P element. Chapter four uses the DOTMLPF-P framework to support the thesis in identifying how the Navy can improve conditions to increase CRF's success.

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[1] Judith Preissle. "Envisioning Qualitative Inquiry: A View Across Four Decades," *International Journal of Qualitative Studies in Education* 19, no. 6 (2006): 690.

[2] Norman K. Denzin and Yvonna S. Lincoln, *Collecting and Interpreting Qualitative Materials,* 4th ed. (Los Angeles: Sage Publications, Inc., 2008), 6.

[3] John Van Maanen, "Reclaiming Qualitative Methods for Organizational Research: A Preface," *Administrative Science Quarterly* 24, no. 4 (December 1979): 520.

[4] Sharan B. Merriam, and Elizabeth J. Tisdell, *Qualitative Research: A Guide to Design and Implementation,* 4th ed. (San Francisco: Jossey-Bass, 2016), 15.

[5] Ibid., 15.

[6] Ibid., 180.

[7] Ibid., 16.

[8] Alan Peshkin, "In Search Of Subjectivity – One's Own," *Educational Researcher* 17, no. 7 (1 October 1988): 18.

[9] Department of Defense, Chairman of the Joint Chiefs of Staff Instruction 3160.01I, *Joint Capabilities Integration and Development System* (Washington, DC: Government Printing Office, 2015), 2.

CHAPTER 4

ANALYSIS

This chapter consists of two sections. The first section analyzes the CRFs through a DOTMLPF-P framework. The DOTMLPF framework supports the second section of this chapter. The second section answers the primary and supplementary research questions: How can the Navy better enable CRFs' effectiveness; and, how do CRFs integrate multiple DOTMLPF elements?

Doctrine

The Adaptive Force Package (AFP) concept is doctrine which is beneficial for riverine forces to impact the full range of military operations. The range of military operations is grouped into three categories. The three categories are (1) military engagement, security cooperation, and deterrence, (2) crisis response and limited contingency operations, and (3) major operations and campaigns. To be effective, doctrine assumes a riverine force can adapt to the threat environment through employing a variety of capabilities and organizing units based on those capabilities. During war time CRFs contribute to major combat operations and campaigns. Figure 9 (p. 38) illustrates the range of military operations in relationship with the conflict continuum.

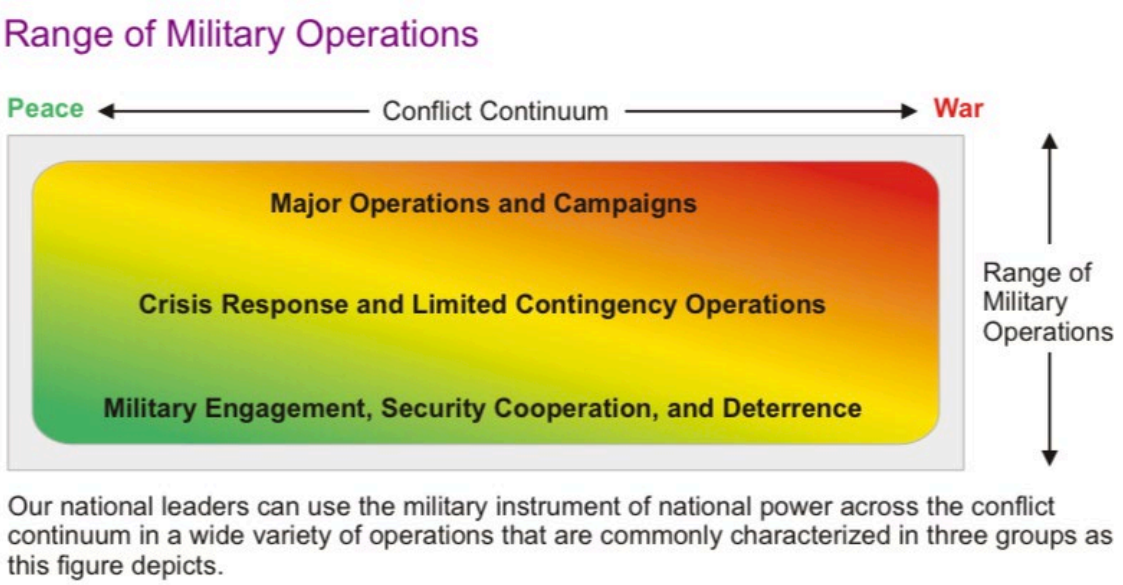

Figure 9. Range of Military Operations

Source: Department of Defense, Joint Publication 1, *Doctrine for the Armed Forces of the United States* (Washington, DC: Government Printing Office, 12 July 2017), I-14.

CRFs ability to support major combat operations is apparent through its core competencies. CRFs demonstrate core competencies during operations such as conducting security for designated assets, providing layered defense in the integrated coastal and landward portion of the maritime domain, fire support coordination and small unit insertion and extraction.[1] The variety of operations provides maritime service and joint commanders additional security capabilities. Although a viable option, doctrine acknowledges the CRFs' limitation regarding different threat environments. According to *Navy Tactics, Techniques, and Procedures 3-06.1 Riverine Operations*, CRFs operate in level II threat environments.[2] *Joint Publication 3-10 Joint Security Operations* describes level II threats as "small-scale forces conducting irregular warfare that can pose serious

threats to military forces and civilians."[3] Figure 10 (p. 39) provides examples of each threat level.

Threat Level	Examples
Level I	Agents, saboteurs, sympathizers, terrorists, civil disturbances
Level II	Small tactical units; irregular forces may include significant stand-off weapons threats
Level III	Large tactical force operations, including airborne, heliborne, amphibious, infiltration, and major air operations

Figure 10. Levels of Threat

Source: Department of Defense, Joint Publication 3-10, *Joint Security Operations in Theater* (Washington, DC: Government Printing Office, 13 November 2014), I-3.

Irregular warfare consists of tactics and techniques which are constantly changing. To counter the ever-changing threat environment, commanders may apply the AFP concept. The AFP concept employs capabilities beyond their traditional design to create a desired effect for a mission.[4] Emphasizing on the effects promotes critical thinking. In order for an AFP conceptual mission to succeed, planners have to task organize forces which can almost seamlessly operate with various types of units and forces. Traditionally, NECC and CRFs have been effective adjusting command and control through task organization because of their demonstrated interoperability with Army, Marine Corps and other joint forces.[5] An opportunity to prove the AFP concept is through theater security cooperation (TSC). TSC is a proactive measure taken to

strengthen relationships and military capabilities between United States, allies and friendly military forces. An example of an AFP proof of concept is the Southern Partnership Station 2017 in Central and South America. Southern Partnership Station 2017 executed security cooperation activities by collaborating with multiple Central and South American nations' military forces in maritime training events, and military-to-military engagements.[6] Planners of Southern Partnership Station 2017 organized numerous forces with different capabilities to prove the AFP concept. Southern Partnership Station 2017 consisted of forces from NECC, Expeditionary Combat Camera, Naval Construction Group TWO, Coastal Riverine Squadron One, Mobile Diving and Salvage Unit ONE, Commander Destroyer Squadron 40, U.S. Navy Bureau of Medicine and Surgery, and U.S. Navy's Military Sealift Command.[7] AFP concept enables CRFs ability to operate across the range of military operations.

Organization

Riverine forces are organized under the NECC command structure. The following structure consist of most-senior unit, NECC, to the MK VI patrol boat. NECC is the type commander for CRFs. It is commanded by an O-7, rear admiral. As the type commander, NECC is responsible for organizing, manning, training, equipping, and maintaining forces in support of operations in an expeditionary environment.[8] NECC composes of multiple forces to include, but not limited to, CRFs, Explosive Ordnance Disposal units, and Naval Mobile Construction Battalions. Due to the vast area of responsibility and diverse type of forces NECC established the subordinate command, Navy Expeditionary Combat Command Pacific (NECC PAC). NECC Pacific supports NECC forces operating within the Pacific Ocean. The next subordinate commands are the CRGs. CRG-2 and

CRG-1 directly report to NECC and NECC PAC respectively. Each CRG is located in a navy concentrated area. CRG-2 is located in Portsmouth, Virginia. CRG-1 is located in San Diego, California.[9] The CRG is responsible for the standardization and certification of training, long range operational planning, exercise support planning, movement planning, intelligence disseminating, administrative support, and general logistics support to their subordinate units.[10] Within a CRG are squadrons and a detachment. CRG-2 has four squadrons and one forward deployed detachment in Bahrain. CRG-1 has three squadrons and one forward deployed detachment in Guam.[11] Squadrons are the operational forces and the largest CRF units to deploy. A squadron is responsible for deploying command and control, communications, and intelligence and operational support detachments and units to form an ashore or inshore operations center.[12] Not all squadrons are manned with active duty sailors. Active duty sailors man three of the seven squadrons; whereas reservist sailors man the remaining squadrons. Forward deployed units in Bahrain and Guam are active duty members. Of the rotational deployed squadrons; three are from the active duty component and four are from the reserve component.[13] CRS 2, 3, and 4 are active component. And, CRS 1, 8, 10, and 11 are reserve component.[14] This mixture of active duty and reserve units changes the capabilities of the next subordinate units, which are companies. Companies provide surveillance and reconnaissance capability and an integrated command and control, communications, computers, combat systems, intelligence, surveillance, and reconnaissance asset capable of self-sustained mission support.[15] One significant difference between an active duty and reservist company is the capability to conduct riverine operations. A squadron manned with active duty sailors provides at least one

company with capability to conduct riverine operations. Riverine operations include are but not limited to combating enemy riverine craft and small-scale ground forces with direct or supporting fires.[16] Figure 11 depicts the CRF organizational structure from the CRGs to the CRCs.

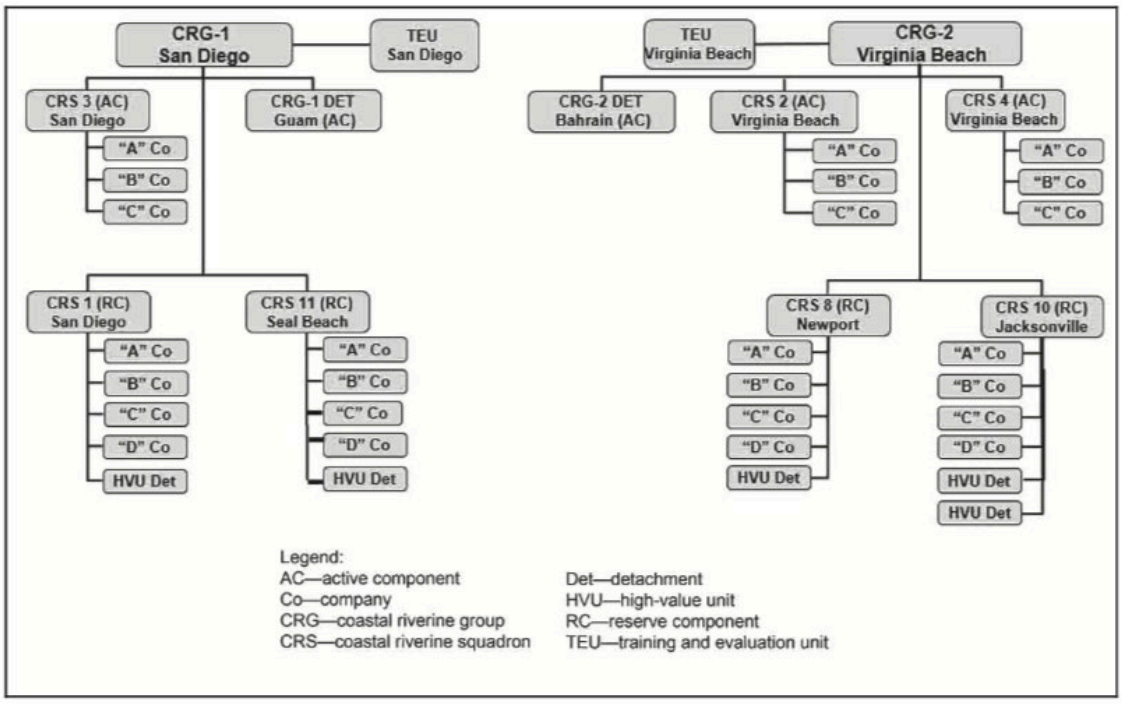

Figure 11. Coastal Riverine Organization

Source: Department of Defense, Navy Warfare Publication 3-10, *Navy Expeditionary Combat Command Forces* (Washington, DC: Government Printing Office, September 2015), 4-14.

Training

Training is designed to prepare CRFs for deployment and conduct military operations. Each unit level within the CRF organizational structure receives training in its primary and secondary warfare areas. Table 4 (p. 43) categorizes each CRF unit level and

their respective primary and secondary warfare area. CRGs are responsible for the standardization and certification of training for their subordinate units.[17] Their subordinate units are trained using CRFs' fleet response training plan. The fleet response training plan cycle differs between CRS' active and reserve components. Active components fleet response training plan cycle is 33 months, and consists of a 2-month maintenance phase, 7-month basic phase, 1.5-month advanced phase and 22.5-month sustainment phase.[18] Typically, the sustainment phase includes a 6-month deployment. The reserve component units operate within a 48-month fleet response training plan cycle. The cycle significantly differs from active duty components' cycle in two phases: the basic phase is 26 months, and the sustainment phase is 9 months.[19] In order to build efficiency in providing training, CRF established and co-located with its coastal riverine training and evaluation units.[20] The coastal riverine training and evaluation unit reports the results of each CRSs and CRCs' Unit Level Training Readiness Assessment/final evaluation period certification to the CRG.[21] Prior to, during, and after the certification period, the CRS remains responsible for the subordinate units training and readiness levels.

Table 4. CRF Units and Mission Area

	Mission Areas											
Units	AMW	CCC	FHP	EXW	FSO	INT	IO	LOG	MOB	MOS	NCO	SUW
CRG (Staff)	P	P	S	P	P	P	P	P	P	S	P	P
CRS	P	P	S	P	P	P	S	S	P	S	P	P
CRC	P	P	S	P	P	P	S	S	P	S	P	P

P: primary
S: secondary
AMW: amphibious warfare
ASW: antisubmarine warfare
AW: air warfare
CCC: command, control and communication
FHP: force health protection
FSO: fleet support operations
INT: intelligence operations
IO: information operations
LOG: logistics
MIW: mine warfare
MOB: mobility
MOS: missions of state
NCO: noncombat operations
NSW: naval special warfare
SUW: surface warfare

Source: Created by author using data from Department of Defense, OPNAV Instruction 3501.363B, *Required Operational Capabilities and Projected Operational Environment for Coastal Riverine Forces* (Washington, DC: Government Printing Office, 10 April 2014), Enclosure 1, 1 to 3.

Material

Operating in the littoral environment requires CRFs to have surface craft capable of operating in the littoral environment. According to a United States Government Accountability Office Report to Congressional Committees, as of November 2011, 588 boats of the 2,872-total number of boats in the Navy's inventory were used for fleet protection, maritime interdiction, law enforcement operations, and special operations.[22] Table 5 (p. 44) is the overview of the Navy Small Boat Inventory as of November 2011. In comparison to the Vietnam War; Navy and ground forces peaked with over 500 boats (and ships) to conduct large-scale riverine operations.[23] CRF boat inventory is less than

the reported 588. The inventory is less because non-CRF units also account for boats within the 588 totals.

Boat type	Number in inventory	Description
Amphibious landing boats	79	Landing craft to bring troops, tanks, trucks, supplies, and equipment to and across the beach
Dive boats	117	Used for tethered diving operations and scuba operations
Oil spill response boats	366	Oil skimmers, platform boats, and utility boats for the oil spill response program
Rigid inflatable boats	966	Standard ship's boats and others used for various missions, including search and rescue and visit/boarding/search
Security boats	588	Used for fleet protection, maritime interdiction, law enforcement operations, special operations, and others (riverine boats are included)
Ship's boats	114	Personnel and utility boats with some configured as gigs and barges (gigs are boats assigned to commanding officers and used for visiting ships or hosting dignitaries in an afloat setting)
Utility boats	271	Shore-based utility boats
Work boats	171	Tugboats and multipurpose work boats with a variety of applications, including cargo carrying and harbor cleaning
Other boats	200	Includes ferry boats, unmanned craft, training craft, and others
Total	**2,872**	

Figure 12. Overview of Navy Small Boat Inventory, November 2011

Source: United States Government Accountability Office, *Navy Small Boats: Maintenance Report Addressed Most Directed Elements, but Additional Information Needed* (Washington, DC: Government Printing Office, 13 March 2012), 4.

CRF has at least eight types of surface craft. Each craft is designed to and must be able to conduct continuous 24-hour missions in the littorals.[24] The eight surface craft are the riverine assault craft, riverine command boat, riverine patrol boat, riverine assault boat, coastal command boat, MK VI patrol boat, force protection (FP)-large and FP-small patrol boats. Each craft provides capabilities such as an ability to conduct green-, brown-, and/or blue-water operations, and deliver a range of combat troops ashore.

Riverine assault craft provide speed, maneuverability and survivability to conduct command and control, armed escort, direct fire support, electronic warfare,

pursuit/intercept and scout/patrol missions during riverine operations. It is capable of transporting 4 to 5 crewmembers and 10 to 15 troops.[25] Riverine command boats are capable of tactical mobility and personnel transport for up to 18 troops. The crew size is 4 to 6 members.[26] Figure 12 (p. 45) is an image of two riverine command boats.

Figure 13. Riverine Command Boats

Source: Navy League of the United States, "U.S. Navy," *Seapower* (January 1, 2018): 30.

Similarly, to the riverine command boat, the riverine patrol boat is can perform tactical mobility and personnel transport. The two boats are different in its complement of 5 crewmembers and the latter boat is able to transport up to 13 troops.[27] Figure 13 (p. 46) is an image of a riverine patrol boat.

Figure 14. 39-Foot Riverine Patrol Boat

Source: Department of Defense, Navy Tactics, Techniques, and Procedures 3-06.1, *Riverine Operations* (Washington, DC: Government Printing Office, February 2008), A-2.

Riverine assault boats are capable of suppressing fire or breaking contact with hostile forces. The crew size is 7 members.[28] Figure 14 (p. 47) is an image of a riverine assault boat.

Figure 15. 33-Foot Riverine Assault Boat

Source: Department of Defense, Navy Tactics, Techniques, and Procedures 3-06.1, *Riverine Operations* (Washington, DC: Government Printing Office, February 2008), A-3.

CRF has one coastal command boat in its inventory. The coastal command boat is far more capable of bringing the gap between blue-water and green water operations. In a February 2014 Navy press release, CDR Joseph A DiGuardo Jr., commander, Task Force 56 stated, "[The coastal command boat] greatly improves our ability to reinforce blue water operations to a much greater extent than we have been able to."[29] It is capable of maritime interdiction operations, Sea Ports of Debarkation (SPOD) defense, Sea Lanes of Communication (SLOC) control, and additional littoral and coastal maritime missions.[30] Figure 15 (p. 48) is an image of the coastal command boat.

Figure 16. Two sailors handle a line while a coastal command boat is lifted from the pier in preparation to lower into the water

Source: Mass Communication Specialist 1st Class Felicito Rustique, "Coastal Command Boat Arrives in Bahrain," Department of Defense, 12 February 2014, accessed 8 January 2018, http://www.navy.mil/submit/display.asp?story_id=79088.

The modern and more robust version of the coastal command boat is the MK VI patrol boat. As of June 2017, CRFs had eight MK VI patrol boats.[31] One boat may carry up to 10 crewmembers and 8 passengers.[32] MK VI patrol boats are expected to perform maritime intercept, escort, infrastructure protection, theater security cooperation, security force assistance, and visit, board, search and seizure operations.[33] Figure 16 (p. 49) is an image of a MK VI patrol boat.

Figure 17. MK VI Patrol Boat

Source: Navy League of the United States, "U.S. Navy," *Seapower* (January 1, 2018): 29.

The final two types of boats are the FP-large and small boats. As of June 2017, CRF had 122 FP-large boats and 18 FP-small boats.[34] These boats are aged and have extended their projected 12-year service life. Due to CRFs' operational demand these boats service life was extended.[35] The FP boats are designed to harden a harbor defensive posture. CRFs are equipped with a variety of surface craft, which provide a diverse range of capabilities for military operations in the littoral environment.

Leadership and Education

Leadership and education significantly influences officers assigned to the CRFs. According to the Navy Leadership Development Framework, "Developing leaders will remain a principal focus of our Navy."[36] Navy leadership strives to shape the Navy into a learning organization and the efforts have spread throughout the chain of command to the

CRFs. Leadership skills and development are highly sought after for CRFs' officers. In an interview with *Seapower Magazine*, Commander, Coastal Riverine Group Two (CRG-2), Captain Robert J. Cepek emphasizes the significance of leadership, "…the crews are small related to the capital ships, everyone is in a leadership position."[37] CRC, and MK IV Patrol Boat crews tend to operate in small crew sizes during missions. CRFs leaders' goal aligns with the Navy's goal to push their team to beyond their perceived limits in order to perform at or near their theoretical limit. In order to achieve that goal, leaders have developed two avenues of approaches. The avenues of approaches are described by lanes and categorized by competency and character. Lane 1 focuses on developing the operational and war fighting competency.[38] And, lane 2 focuses on developing the leaders' character.[39] Both lanes present the means to develop officers as leaders. Ways to achieve the two approaches are outlined in the Officer Leader Development Path.

The Officer Leader Development Path shows how both lanes are synchronized for an officer's leadership skills to progress. Figure 17 (p. 51) illustrates the Officer Leader Development Path. Competency and character are developed using three methods. One method is through education and certification. CRFs' officers' predominately engage in this method prior to reporting to their operational unit. Another method is to perform on-the-job training and qualification. During the multiple the fleet response training plan cycle, to include deployments, officers are able to maximize on-the-job training opportunities. And the final method is for the leader to demonstrate initiative and a desire to develop his or herself is through self-guided learning.[40] The opportunity for self-guided learning is limitless.

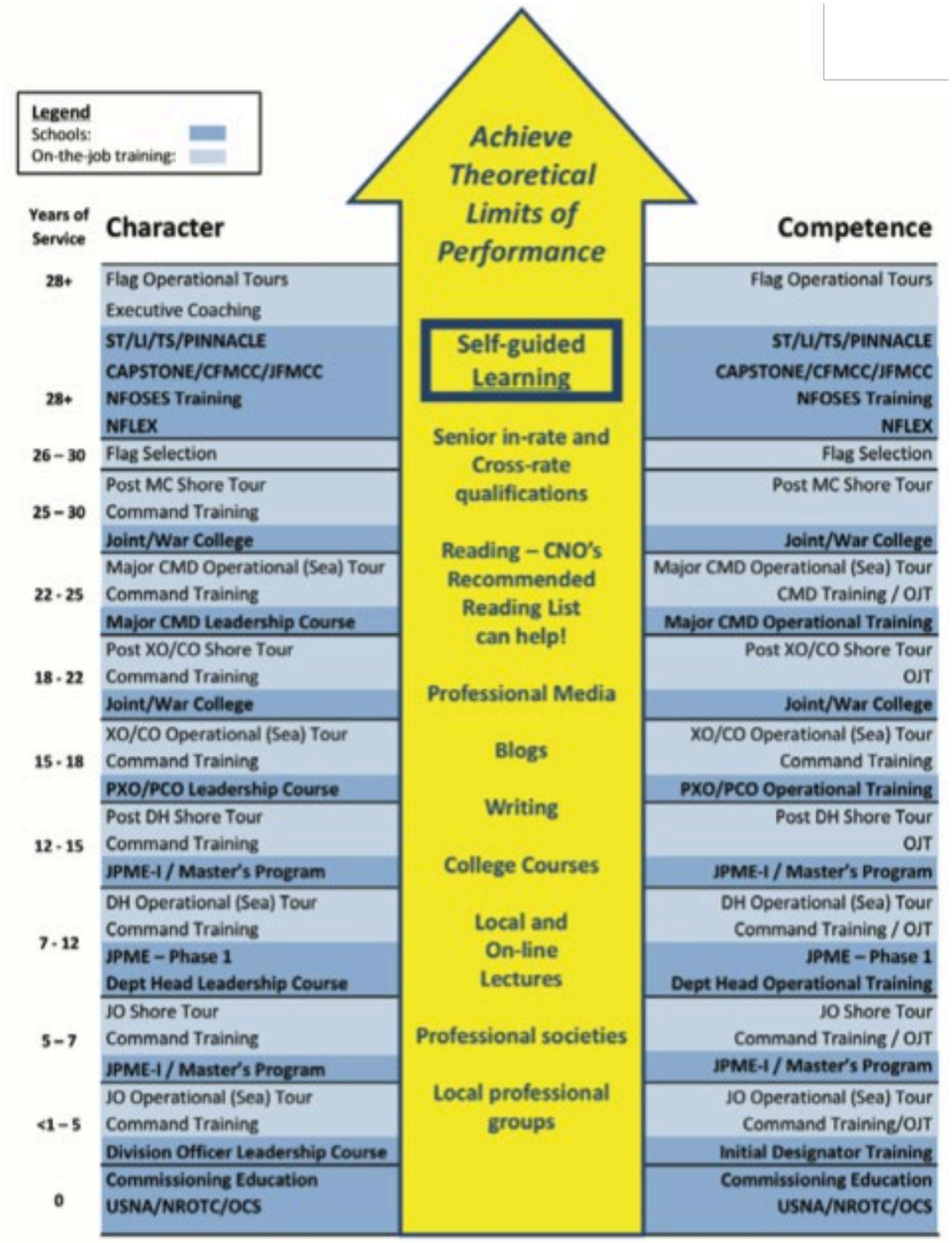

Figure 18. Officer Leader Development Path

Source: Department of Defense, *Navy Leader Development Framework* (Washington, DC: Government Printing Office, January 2017), Appendix 2.

A subject which crosses all three methods and pertinent to leadership is professional military education. Professional military education assures each officer has achieved a level of military knowledge commensurate with his or her pay grade. As a whole, the Department of Defense has to rigorously evaluate its forces' professional military education (PME). In the summary of the *National Defense Strategy (2018)*, the Secretary of Defense, James Mattis states, "PME has stagnated, focused more on the accomplishment of mandatory credit at the expense of lethality and ingenuity."[41] The Department of the Navy guidance for PME is outlined in the Officer Leader Development Path. The Officer Leader Development Path addresses joint professional military education (JPME) at three different periods in an officer's career. JPME provides more depth of knowledge on joint operations than the formal schools CRFs officers attend prior to reporting to their units. Each military service provides an in-residence and distance learning opportunity for JPME. There are two phases for JPME. JPME phase I is offered at the Navy Postgraduate School, Marine Corps Command and Staff College, Air University Air Command and Staff College, Naval War College, and Army Command and General Staff College. JPME phase II is offered at the Naval War College, Marine Corps War College, Air War College, National Defense University (including Joint Forces Staff Colleges in Norfolk, Virginia), and Army War College. CRFs' demand their officers achieve a level of leadership skills based on competency and character commensurate of their pay grade. Leadership and education influences the career progression of CRFs' officers.

Personnel

Officers within the CRFs are predominantly Surface Warfare Officers (SWOs). Officers have to be screened to assume a position within the CRF. If the officer is filling a command position, then a command screening is required. CRGs are commanded by a captain, O-6 paygrade. Prior to filling the commanding officer position, the captain would have been the executive officer.[42] This is referred to as the fleet up model. NECC applied the fleet up model after the Marine Expeditionary Security Squadron and Riverine Squadron merged in 2012.[43] Figure 18 (p. 54) depicts the Commanding Officer-Special Missions commands by Fleet Up status prior to the merger. A benefit of the fleet up model is the consistent command level leadership. This consistency enables organizations to develop and maintain an institutional memory. A squadron is commanded by a commander, O-5 paygrade. Lieutenant commanders, O-4 paygrade, are positioned to command companies. A MK VI patrol boat is commanded by lieutenant, O-3 paygrade. Command positions, a MK VI patrol boat to a CRG, requires the officer pass a screening process. Command board screening process aims to identify and select officers who have demonstrated a high level of character and competency and will be successful as a commanding officer.

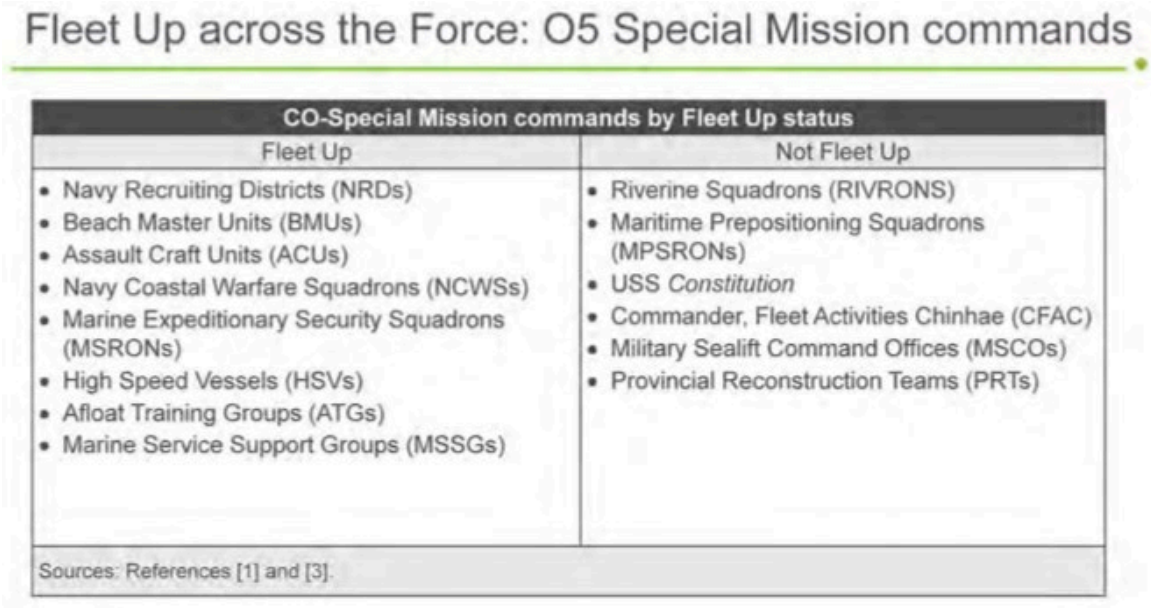

Figure 19. CO-Special Mission Commands by Fleet Up Status

Source: Amanda Kraus, Jennifer L. Schulte, William B. Boning, and David L. Reese, *Surface Force XO/CO Fleet-Up Consequences* (Alexandria: Center For Naval Analyses, September 2014), 16.

Facilities

Whether on deployment or within the United States, CRFs' units can expect support from a maintenance and/or repair facility. CRF units are supported by facilities within the NECC organizational structure and/or other entities, such as Army sustainment forces when deployed. During a deployment, CRS are designed to support themselves for up to 15 days of operations.[44] When CRS units are deployed in support of Army forces, another option for support may come for Army sustainment forces. Using another service reinforces the Department of Defense's efforts for joint operations. Other military services may also have common-user logistics items available for Riverine forces.[45] Common-user logistics is separated by the class of supply. Joint forces have 10 classes of supply. An example of common-user logistics is class III, petroleum, oils, lubricants.

CRFs can expect Army and other joint forces to be capable of providing class III items. Figure 19 (p. 55) categorizes the classes of supply and the capability for common-user logistics. Another maintenance and/or repair facility for CRFs is the amphibious ships. Amphibious ships are tailored to support riverine options by providing at-sea basing. Most amphibious ships have well decks which craft may use to enter the interior of a ship. This provides space for maintenance, storage and dry dock repairs.[46]

Class	Symbols	Subclass	Common-User Logistics (CUL) Capability
I. **Subsistence:** Food		A - Nonperishable dehydrated subsistence that requires organized dining facilities C - Combat rations includes meals, ready to eat (MREs) that require no organized dining facility; used in combat and in-flight environments. Includes gratuitous health and welfare items R - Refrigerated subsistence S - Non-refrigerated subsistence (less other subclasses) W- Water	Fully suited to CUL
II. **General Support Items:** Clothing, individual equipment, tentage, organizational tool sets and tool kits, hand tools, material, administrative, and housekeeping supplies		A - Air B - Ground support material E - General supplies F - Clothing and textiles G - Electronics M - Weapons T - Industrial supplies (e.g., bearings, block and tackle, cable, chain, wire, rope, screws, bolts, studs, steel rods, plates, and bars)	Limited CUL suitability
III. **Petroleum, Oils, Lubricants (POL):** Petroleum (including packaged items), fuels, lubricants, hydraulic and insulating oils, preservatives, liquids and compressed gasses, coolants, deicing, and antifreeze compounds, plus components and additives of such products, including coal		A - Air W- Ground (surface) P - Packaged POL	Excellent CUL candidate (with some limitations)
IV. **Construction/Barrier:** Materials that support fortification, obstacle and barrier construction, and construction material for base development and general engineering		A - Construction B - Barrier materials	Fully suited for CUL
V. **Ammunition:** Ammunition of all types (including chemical, radiological, and special weapons), bombs, explosives, mines, fuses, detonators, pyrotechnics, missiles, rockets, propellants, and other associated items		A - Air W - Ground	Limited, primarily to small arms, selected larger munitions

Class	Symbols	Subclass	Common-User Logistics (CUL) Capability
VI. Personal Demand Items: Nonmilitary sales items		A - Personal demand items not packaged as ration supplement sundry packs (RSSP) M- Personal and official letter and packaged mail. Does not include items in other classes such as spare parts P - RSSP	Fully suited for CUL
VII. Major End-Items: A final combination of end-products ready for intended use; e.g., launchers, tanks, racks, adapters, pylons, mobile machine shops, and administrative and tracked vehicles		A - Air B - Ground support material (includes power generators, fire-fighting, and mapping equipment) D - Administrative and general purpose vehicles (commercial vehicles used in administrative motor pools) G - Electronics J - Tanks, racks, adapters, and pylons (US Air Force only) K - Tactical and special purpose vehicles (includes trucks, truck-tractors, trailers, semi-trailers, etc.) L - Missiles M - Weapons N - Special weapons X - Aircraft engines	Not suitable for CUL
VIII. Medical Material/ Medical Repair		A - Medical material (including repair parts special to medical items) B - Blood and fluids	Fully suited for CUL
IX. Repair Parts (less medical special repair parts): All repair parts and components, including kits, assemblies, material power generators sub-assemblies (repairable and nonrepairable) required for all equipment; dry batteries		A - Air B - Ground support material, power generators, and bridging, fire-fighting, and mapping equipment D - Administrative vehicles (vehicles used in radio administrative motor pools) G - Electronics K - Tactical vehicles (including trucks, truck-tractors, trailers, semi-trailers, etc.) L - Missiles M- Weapons N - Special weapons T - Industrial supplies (e.g., bearings, block and tackle, cable, chain, wire, rope, screws, bolts, studs, steel rods, plates, and bars) X - Aircraft engines	Not suitable for CUL except for common items; requires special coordination to ensure proper support
X. (code as zero '0'): Material to support military programs, not included in classes I through IX		None	Fully suited for CUL

Figure 20. Classes, Subclasses of Supply, and Common-User Logistics Suitability

Source: Department of Defense, Joint Publication 4-0, *Joint Logistics* (Washington, DC: Government Printing Office, 16 October 2013), II-5.

CRS provides trained sailors to conduct organizational level repairs on its equipment. Any repair work outside of the scope of the sailors is referred to facilities within the United States or the private sector through contracted support. CRFs'

homeports are geographically located near their repair facilities. Majority of the repair facilities are located within a major concentrated naval area, for example Norfolk, Virginia and San Diego, California. CRFs' maintenance and repair facilities are established within the United States or may be available through activities outside of the CRFs' organizational structure.

Policy

CRFs' efforts have synchronized the previous elements of DOTMLPF with the President of the United States, Secretary of Defense, and Chief of Naval Operations' policies. The policies addressed include *the National Security Strategy* promulgated by the President of the United States, the summary of the *National Defense Strategy* by the Secretary of Defense, and *A Design for Maintaining Maritime Superiority* by the Chief of Naval Operations.

The *National Security Strategy* coincides with CRFs' elements of doctrine, organization and material. Two of the five pillars within the *National Security Strategy* are supported through doctrine, organization, or material. The first pillar, Protect the American People, The Homeland, and the American Way of Life, emphasizes the United States determination to pursue threats.[47] The AFP concept is a suitable solution to pursue threats in multiple types of environments. Pursuing threats to their source refers to taking and keeping the fight against terrorist organizations abroad requires an adaptive and flexible application of capabilities. An additional subsection CRFs' doctrine and organization support are in America's development of our partners' employment and capacity to degrade terrorist organizations.[48]

TSC is an operation available to further the United States' partners' ability to degrade terrorists' organizations. In the Pacific Ocean area of responsibility, Commander Task Force 75 is responsible for theater security cooperation. CRFs forward deployed in Guam are located and organizational structured to execute TSC engagements.[49]

Keeping the fight abroad requires modernized capabilities. The other pillar within the *National Security Strategy*-- Preserve Peace Through Strength-- refers to modernizing the military's capabilities. Modernizing CRFs' craft have been a high priority for years, as it is evident with adding the MK VI patrol boat to its inventory in 2014. The MK VI patrol boat's capability to launch, operate, and recover unmanned vehicles and operational range of approximately 600 nautical miles are marked advantages over CRF's aging craft.[50] Elements of doctrine, organization, and material support the *National Security Strategy*.

Riverine forces provide means to support the *National Defense Strategy* through doctrine, organization, material, personal, and facilities. The *National Defense Strategy* contains eleven objectives for the Department of Defense along three lines of effort. The lines of efforts are: (1) rebuilding military readiness as the United States military build a more lethal Joint Force; (2) strengthening alliances are the United States military attract new partners; and (3) reforming the Department's business practices for greater performance and affordability.[51]

Similar to the *National Security Strategy*, AFP, TSC, forward deployed riverine forces, and the addition of the MK IV patrol boat are the means to support the *National Defense Strategy*. CRFs efforts for those items are designed to provide the United States with a lethal force capable of operating in a joint environment. The first line of effort

further demands an agile logistical system which is sustainable through conflict. CRS and its subordinate units are able to sustain themselves for up to 15 days. Additional support is provided through land forces and/or amphibious ships. This is achieved by joint logistical operations through effectively managing common-users supplies and equipment.

The second line of effort, strengthening alliances, has a people-centric focus built on relationships through mutual respect, responsibility, and accountability. Therefore, the people with the highest level of character and competency are required to execute missions that support building alliances, such as TSC. MK IV patrol boats and CRC are tailored to perform TSC missions. Those units are led by SWOs and considered command at sea positions. Command at sea is a prestigious honor within the SWO community and is accompanied with an immense amount of responsibility. An officer screened for those positions have and is expected to demonstrate higher levels of character and competency than his or her peers. As expected, CRFs efforts are more apparently linked to policy from upper echelons as the gap between senior officials become smaller with CRFs' organization.

The Chief of Naval Operations' policy-- *A Design for Maintaining Maritime Superiority*-- provides another connection between CRFs and policy. All elements of DOTMLPF, with the exception of training, are linked with previously mentioned policy. *A Design for Maintaining Maritime Superiority* clearly links all elements of DOTMLPF, through four lines of efforts. The four lines of efforts are: (1) Strengthen naval power at and from sea, (2) Achieve high velocity learning at every level, (3) Strengthen our Navy team for the future, and (4) Expand and strengthen our network of partners.[52]

Similarly, to the *National Security Strategy* and the *National Defense Strategy*, CRFs' efforts align with *A Design for Maintaining Maritime Superiority* through AFP, TSC, forward deployed forces, the addition of MK IV patrol boat, and command positions established for CRC and MK IV patrol boat. A connection between training and this policy is present through the second line of effort. Achieving high velocity learning at every level requires organizations apply, revise, and adapt techniques and concepts. Coastal riverine training and evaluation units provide the asset to further improve CRFs' training. Training continues to develop because this dedicated unit is able to gather, analyze, and disseminate lessons learned to the operational riverine forces prior to and during deployment.

How can the Navy better enable CRFs effectiveness?

The Navy can better enable CRFs effectiveness by addressing two areas of concern. First area of concern is the number of surface craft available in support of large-scale operations. And secondly, the impact a CRF assignment has for surface warfare officers' education. Both areas of concern were identified in the material, and leadership and education section of this chapter.

There are an insufficient amount of surface craft available for CRFs to build up and sustain large-scale combat operations. A historical point of reference for large-scale combat operations for riverine forces is the Vietnam War. Riverine operations were conducted primarily in the Mekong Delta. It is approximately 93,700 square kilometers. At the peak of riverine operations, there were over 500 boats operating in the littoral environment. Therefore, approximately 187.6 square kilometers of the delta could be covered by one boat.[53] Table 6 (p. 61) provides further riverine metrics for comparison to

the Vietnam War. In 2011, there were 588 security boats, to include riverine boats, in the Navy's small boat inventory. Security boats amount to approximately 20 percent of the inventory. Security boats may include, but are not limited to, the boats tasked to provide harbor security to all naval bases. Therefore, the Navy's inventory of riverine boats is significantly less than the 20 percent of security boats. An insufficient amount of surface craft reduces the area of operations where CRFs can effectively support large-scale operations.

Metric	Vietnam	Riverine Group[a]
Length of waterway (km) per person (direct)	1.9	25.3
Length of waterway (km) per person (indirect)	0.8	n/a
Length of waterway (km) per boat	35.4	491.7
Area of delta (sq km) per person (direct)	10.2	150.9
Area of delta (sq km) per person (indirect)	4.1	n/a
Area of delta (sq km) per boat	187.6	2,605.1

a. A Riverine Group consists of a headquarters and three squadrons—about 700 sailors and 36 boats.

Figure 21. Riverine Metrics for Comparison

Source: United States Government Accountability Office, *Navy Small Boats: Maintenance Report Addressed Most Directed Elements, but Additional Information Needed* (Washington, DC: Government Printing Office, 13 March 2012), 75.

An assignment with CRFs significantly reduces the opportunity for surface warfare officers, from lieutenants to commanders, to attain a master's degree and JPME academy. A higher level of education and JPME increases critical thinking and expands officers' breadth of military knowledge. Critical thinking is an important attribute to

attain, as officers seek command of warships. According to the Strategic Readiness Review 2017, "In 2015, 85% of the commanding officers in the unrestricted line communities had at least one master's degree. Of those who had master's degrees, approximately half received their degrees while attending an in-residence program during a shore tour."[54] The Officer Leader Development Path outlines opportunities to complete an in-resident JPME and master's program. For the first fifteen years of services, the opportunity to attend an in-resident JPME and master's program is after an officer completes an operational tour, or tour at sea. The first opportunity is during the five to seven-year period of service, also known as the junior officer shore tour. For CRFs' officers, instead of taking a shore tour assignment to pursue a master's degree, lieutenants will assume command of a MK VI patrol boat or join another CRF unit. Both assignments are considered sea tours. After completing a tour with the CRF, lieutenants begin their next tour at sea with a traditional surface warfare officer assignment. For example, a lieutenant may be a department head onboard a warship, such as a destroyer or cruiser. The next tour at sea is approximately five years and will an officer will be around his or her twelfth year of service. At the twelfth year of service an officer should have been promoted to lieutenant commander. This is a pivotal point for officers who spent their first shore tour with CRFs for two reasons. First, the officer can seek another sea tour with CRFs, such as company commander. If this is the officer's second tour with CRFs, then the community is likely to benefit from the officer's institutional memory. Lieutenant commanders with previous riverine operations experience provide an asset for CRFs. The other reason this is a pivotal point is that this is the last opportunity in the development path to attend an in-residence master's program prior to starting the

prospective executive officer or commanding officer pipeline. The prospective executive officer or commanding officer pipeline includes rigorous training and an operational tour as an executive officer onboard a warship and potentially a commanding officer. After a single tour as an executive officer or executive officer and then commanding officer, the officer should be a commander with approximately eighteen years of service. Being assigned to a CRF unit occurs during a SWOs traditional shore tour. This conflict reduces the opportunity for SWOs to attend in-resident JPME and/or master's programs.

How do CRFs integrate multiple DOTMLPF elements?

CRF successfully integrated two areas of DOTMLPF. The two areas integrated well are with (1) doctrine, AFP, and material, surface craft, and (2) organization, command positions, with leadership and education, Officer Leader Development Path.

Doctrine and material are integrated well. This is exemplified through CRFs' applying the AFP concept with the variety of craft available. The eight types of surface craft bring different capabilities to an operation. This diversity complements the AFP concept when countering evolving threats. Another integrating area is the opportunity for command with the Officer Leader Development Path. The two junior-most command positions, MK VI boat captain and company commander, achieves the intent of the Officer Leader Development Path. Surface Warfare Officers are eligible of taking one of the junior command positions after exceptional performance at the junior officer and/or department head operational sea tour. Exceptional performance is demonstrating a higher level of competency and character relative to other officers during the operational sea tour. Opening the command positions to junior officers alters the image that command at sea positions belong to senior officers. Senior officers, such as commanders and captains,

fill approximately 92 percent of command at sea positions.[55] This opportunity provides junior surface warfare officers to demonstrate qualities of a commanding officer years before commanding a more lethal warship, such as a destroyer.

The two areas that integrated well within CRFs are the AFP concept with surface craft, and command positions with the Officer Leader Development Path. Integrating elements of DOTMLPF is an approach CRF utilizes for continued success.

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CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this thesis is to find capability gaps within the CRF. Identifying capability gaps presents the Navy the opportunity to set the conditions for CRFs to be successful. This chapter summarizes key findings identified through the DOTMLPF-P framework and research questions. In addition, there are recommendations for the two areas of concern—surface craft inventory shortfall, and the reduced opportunity for surface warfare officers to attend an in-residence JPME and/or master's program.

Conclusions

This research evaluated the CRF through a DOTMLPF-P framework. Through the process, CRF is considered an agile and flexible force capable of operating in the littoral environment. Each DOTMLPF-P element supports CRF's impact to the range of military operations. Doctrine emphasizes organizing forces by resourcing capabilities based on the threat environment. This emphasis is outlined in the AFP concept. CRFs apply the AFP concept in TSC missions. Past proof of AFP concept missions include Southern Partnership 2017, where different units joined together to further develop the United States military relationship with Central and South American countries.

CRF organizational structure is designed to support operations throughout the world. There are two CRGs based in naval concentrated areas, Portsmouth, Virginia, and San Diego, California. In addition, riverine forces maintain a constant presence in the key regions throughout the world. One CRS is forward deployed in Bahrain, and another is

forward deployed in Guam. Forward deployed units provide senior commanders with prepositioned forces capable to respond to a crisis or military engagement.

Deployments are the focal point of the CRFs' fleet response training plan. The fleet response training plan incorporates a maintenance, training, and sustainment phase. During the sustainment phases, CRFs are expected to deploy. CRFs consist of active duty and reserve sailors. Therefore, the fleet response training plan is different based on a CRS being manned primarily with active duty or reserve sailors. An active duty squadron training cycle duration is 33 months, whereas a reserve squadron training cycle is 48 months. The difference in active duty and reserve is unique when training units for mission tasks. This is why the mission task for riverine operations rests solely with active duty squadrons.

Another element which enables CRFs agility is the eight different types of surface craft in its inventory. Each surface craft provides various capabilities based on operational range and amount of troops, which can be delivered ashore. Adding the MK VI patrol boat into the inventory further enhances CRFs influence in the littoral environment. It provides the furthest operational range, 600 nautical miles, of any surface craft in the CRF's inventory. This expands the CRFs ability to operate further from land, in the open ocean, to deeper inland, in the littoral environment.

The leadership and education element identifies CRF's officers' career progression with an emphasis on developing character and competency. Three mechanisms are in place to develop character and competency—education and certification, on-the-job training and qualification, and self-guided learning. Education and certification enables officers to learn at an in-residence site during a shore tour.

During the shore tour, officers are encouraged to receive JPME and a master's degree. Shore tours tend to be less operationally demanding than sea tours. The time and environment to receive JPME and a master's degree is conducive during a shore tour. On-the-job training and qualification opportunities are conducted while officers are stationed onboard ships. Self-guided learning is not restricted by time or space but by the officer's own will.

In regards to the personnel element, CRF seek officers whom demonstrate high levels of competency and character. This is evident during the rigorous screening process for command positions. SWOs that desire command of MK VI patrol boats, companies, and senior units are screened for those positions. Screening officers for positions establishes the selective nature of being part of the CRFs. Being selective further maximizes CRFs effort to be recognized as a formidable organization.

CRFs' maintenance and repair facilities are established within the United States or may be available through activities outside of the CRFs' organizational structure. Having homeports in naval concentrated areas is beneficial for CRFs because maintenance and repair facilities are available. While deployed, units may find resources not available within the units' organization. Therefore units may receive support from other military services, such as the Army or Marine Corps. In addition, amphibious warships provide CRFs with space and logistical support to conduct maintenance and repair to equipment.

All of the previously mentioned DOTMLPF elements support policy promulgated by the Chief of Naval Operations, Secretary of Defense, and President of the United States. Policies, such as *A Design for Maintaining Maritime Superiority*, *National*

Defense Strategy, and *National Security Strategy*, demands a modern military force capable of taking the fight to the enemy anywhere in the world and building relationships with other nations' militaries. CRF means to achieve the policies' objectives are through TSC missions, applying the AFP concept, conducting relevant training, adding MK VI patrol boats into it's inventory, introducing command at sea positions for the MK VI patrol boats and CRCs, and utilizing available maintenance and repair facilities.

Other Areas for Research

During the research more questions surfaced and were not addressed. The additional questions require further research. A few of the unanswered questions are:

1. How does officer management policies affect officers' career paths and
2. How can CRFs complete JPME requirements during the training pipeline?

Recommendations

This research identifies two areas of concern for CRFs. First, CRFs are not provided with enough surface craft to conduct large-scale combat operations, similar to the operations conducted during the Vietnam War. Second, surface warfare officers forgo an opportunity to attend an in-resident JMPE and/or master's program during their assignment with CRFs. This thesis proposes a recommendation for each concern.

First and foremost, adding more surface craft to the CRF's inventory is a necessity. This research recommends a two-part solution. First, purchase more surface craft. More surface craft will increase CRF's inventory and ability to continuously conduct operations. The second part is to apply the AFP concept to larger warships. The AFP concept lays the foundation of task organizing units based on capabilities.

Therefore, task organize warships, with surface craft, to CRF for missions. Task organizing units with surface craft will provide CRFs with more assets to execute operations in the littoral environment. For example, task organize the personnel from a carrier strike group with the warships' surface craft under CRF. If the carrier strike group consists of one aircraft carrier, three destroyers, one cruiser, then ten surface craft will be available for operations in the littoral environment. The additional surface craft provide more capabilities to conduct operations in the littoral environment.

Being assigned to CRFs, removes the opportunity for SWOs to attend an in-resident JPME and/or master's program. This thesis recommends the Navy require an intermediate level service academy tour for lieutenants and/or lieutenant commanders prior to arriving to their CRF units. An intermediate level service academy, such as the Army Command and General Staff College, provides both JPME and an opportunity for officers to earn a master's degree.

These recommendations address the areas of concern of an inadequate amount of surface craft and missed opportunity for SWOs to attend an in-resident JPME and/or master's program while assigned to CRFs. Bettering CRFs today ensures success in the littoral environment tomorrow.

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