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IN MARITIME NARCOTICS TRAFFICKING IN THE
GREATER CARIBBEAN**

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Monterey, CA; Naval Postgraduate School

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**NAVAL
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MONTEREY, CALIFORNIA

THESIS

**BLUE WATER AND WHITE POWDER:
TRENDS IN MARITIME NARCOTICS TRAFFICKING
IN THE GREATER CARIBBEAN**

by

Walker D. Mills

March 2023

Co-Advisors:

Patrick E. Miller (contractor)
Carolyn C. Halladay

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**BLUE WATER AND WHITE POWDER: TRENDS IN MARITIME NARCOTICS
TRAFFICKING IN THE GREATER CARIBBEAN**

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Submitted in partial fulfillment of the
requirements for the degree of

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(HOMELAND SECURITY AND DEFENSE)**

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ABSTRACT

This thesis argues that drug traffickers and law enforcement are caught in a cycle of competitive adaptation and that traffickers have consistently adapted to law enforcement pressure. It uses a history of cocaine trafficking from 1970 to 2000 and a case study on “narco-submarines” to provide both a macro and micro view of the competition between law enforcement and drug traffickers in the Caribbean. This thesis finds that since its inception, cocaine interdiction has been largely ineffective despite the major increases in law enforcement resources from the 1970s to the 1990s, including the use of the U.S. military to support counternarcotics operations. Interdiction has been ineffective because traffickers can rapidly adapt to law enforcement pressure by changing their smuggling methods and shifting their routes.

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LIST OF ACRONYMS AND ABBREVIATIONS

CBP	Customs and Border Protection
DEA	Drug Enforcement Agency
DoD	Department of Defense
FARC	<i>Fuerzas Armadas Revolucionarias de Colombia</i> (Colombian Revolutionary Armed Forces)
GPS	Global Positioning System
JTF	joint task force
LE	law enforcement
LEDET	law enforcement detachment
NDAA	National Defense Authorization Act
NNBIS	National Narcotics Border Interdiction System
NORAD	North American Aerospace Defense
NSC	National Security Council
TARS	Tethered Aerostat Radar System
UAV	unmanned aerial vehicle

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EXECUTIVE SUMMARY

In the 1980s, the U.S. military was drawn into the counternarcotics fight to lead “detection and monitoring” of American air and maritime borders because the federal government was struggling to deal with an influx of illegal drugs into the United States. Attempts to adapt and resource federal law enforcement agencies for drug interdiction were ineffective. Naturally, much of the responsibility for detection and monitoring fell to the U.S. Navy and Coast Guard. The Navy supported counterdrug operations through surveillance and monitoring, hosting Coast Guard law enforcement detachments, or assigning operational assets to joint task forces, which combined military forces with interagency personnel from federal, state, and local law enforcement. The traffickers’ rapid ability to innovate in response to law enforcement allowed them to adjust their methods and routes to avoid law enforcement. U.S. Navy support to counternarcotics was helpful in increasing seizures but largely ineffective overall because traffickers could quickly adapt and shift their methods and tactics. Even though the federal government shifted massive resources to drug interdiction, traffickers were unhindered by bureaucracy and able to innovate much faster.

One of the effects of the militarization of counternarcotics was to push traffickers away from using routes they had pioneered through South Florida; instead, they began to use more routes that flowed through Puerto Rico and the Antilles, as well as routes that fed into Central America and then across the U.S.–Mexico border.¹ However, traffickers quickly adapted and replaced their air routes with maritime routes or routes that crossed the U.S.–Mexico border by land. Today, an estimated 80 percent of all the cocaine in the United States has transited Mexico at some point.²

¹ James L. Zackrison, “Smuggling and the Caribbean: Tinting Paradise throughout History,” in *Transnational Threats: Smuggling and Trafficking Arms, Drugs, and Human Life*, ed. Kimberley L. Thachuk (Westport, CT: Praeger Security International, 2007), 185.

² United Nations Office on Drugs and Crime, *Drug Market Trends: Cocaine Amphetamine-Type Stimulants*, Booklet 4 of *World Drug Report 2021* (Vienna: United Nations Office on Drugs and Crime, 2021), 24, https://www.unodc.org/res/wdr2021/field/WDR21_Booklet_4.pdf.

Traffickers also became more sophisticated, using GPS, satellite communications, and smaller airplanes to move and coordinate their shipments.³ They were more agile than law enforcement, innovated faster than the U.S. government did, and diverted more resources to counternarcotics efforts. The resources that the Navy applied to counternarcotics, while highly effective military platforms, were not optimized for these operations and whose costs were disproportionate to their utility in fighting traffickers.

One specific trafficking adaptation to law enforcement pressure, particularly more effective maritime interdiction, was the development of “narco-submarines.” Narco-submarines are usually semi-submersibles purpose-designed and built to carry cocaine north through the Caribbean and Eastern Pacific. The first examples were discovered in the early 1990s, just as the use of military resources to support drug interdiction was at its peak. The design of narco-subs minimizes their visibility on the surface by keeping the vessels low in the water, thus making them more difficult to spot by eye or with radar and minimizing their visible wake as they travel through the water. A few fully submersible examples have also been discovered, detectable only through advanced military equipment used for hunting submarines. These vessels are examples of how far drug traffickers are willing to go to adapt to law enforcement pressure and of their creativity in innovating solutions to interdiction tactics.

This thesis argues that drug traffickers and law enforcement are caught in a cycle of competitive adaptation, with traffickers consistently one or more steps ahead of law enforcement. This thesis explains the relationship between trafficker and law enforcement adaptation through a big-picture history of drug trafficking in the Caribbean from 1970 to 2000 and a case study of narco-subs as a specific innovation. Both trafficking history and the case study are tied to the concept of the “balloon effect” and the specific geography of the Caribbean, which are critical to understanding trafficking in the region.

³ Zackrison, “Smuggling and the Caribbean,” 185.

Two important considerations help to frame an understanding of the adaptation of cocaine traffickers in the 20th century. First, the balloon effect is a metaphor that likens the resilience and adaptability of cocaine trafficking to those of a balloon filled with air. When pressure is applied to one or more areas, the balloon can change shape, but it does not pop. When hands squeeze a balloon filled with air, they only shift air around inside the balloon. The same is generally true over the history of cocaine trafficking. Law enforcement pressure can shift the contours of drug smuggling and force traffickers away from one area, but they quickly adapt to using another route or a new innovative platform.

The second consideration is the value of geography for smuggling in the Caribbean. Caribbean geography is nearly ideal for trafficking, as it offers opportunities to enter the United States over land through Mexico, by air, or by sea. The southern United States offers thousands of miles of coastline, and the Caribbean is filled with thousands of islands and dozens of countries with different political jurisdictions. The Caribbean offers myriad possible smuggling routes for traffickers to use—more than law enforcement pressure can reasonably cut off and enough to ensure there is always another route for traffickers to adopt.

Illegal cocaine trafficking is a significant homeland security threat because it is a contributor to nearly 14,000 overdose deaths annually, a vector for the trafficking of other goods like weapons, money, and people, and it funds a range of transnational criminal organizations that receive an estimated \$20–\$30 billion each year from trafficking cocaine into the United States.⁴ Routes and methods pioneered for cocaine trafficking can be easily repurposed for more dangerous drugs like fentanyl or heroin. Recognizing it is almost certain that law enforcement agencies will continue to interdict the flow of illegal

⁴ For overdoses, see Drug Enforcement Administration, *2019 National Drug Threat Assessment*, DEA-DCT-DIR-007-20 (Washington, DC: Drug Enforcement Administration, 2019), 66, https://www.dea.gov/sites/default/files/2020-01/2019-NDTA-final-01-14-2020_Low_Web-DIR-007-20_2019.pdf. For connections to other types of trafficking, see Gregory Midgette et al., *What America's Users Spend on Illegal Drugs, 2006–2016* (Santa Monica, CA: RAND Corporation, 2019), 26, https://www.rand.org/content/dam/rand/pubs/research_reports/RR3100/RR3140/RAND_RR3140.pdf. For dollar figures, see Douglas M. Fraser, “Posture Statement before the 111th Congress, Senate Armed Services Committee,” Senate Armed Services Committee, March 11, 2010, <https://www.armed-services.senate.gov/imo/media/doc/Fraser%2003-11-10.pdf>.

cocaine into the United States, policymakers involved in counternarcotics should focus on drug trafficking as a system because focusing interdiction efforts on single methods or geographic areas creates other opportunities for adaptation. Some researchers have even suggested that cartels could repurpose their semi-submersibles to bring a weapon of mass destruction into the United States—though this is farfetched because there is no clear motive for them to do so.⁵ Similarly, policymakers should recognize that traffickers quickly adapt to law enforcement pressure and plan for that evolution in their policymaking.

Two major opportunities that traffickers have already begun to exploit are unmanned vessels, both maritime and aerial, and the slow collapse of political authority in Venezuela. Unmanned maritime vessels could make fully submersible vessels cheaper and easier to operate for traffickers, which would make a nearly undetectable smuggling platform that is also extremely difficult to interdict if discovered. The collapse of the regime in Venezuela has created a welcome political environment for traffickers, with deteriorating state control combined with a state and security forces in desperate need of foreign currency, which traffickers can provide. This environment may lead to more trafficking routes that move through and leave from Venezuela, challenging U.S. law enforcement in new ways.

⁵ Lance J. Watkins, “Self-Propelled Semi-submersibles: The Next Great Threat to Regional Security and Stability” (master’s thesis, Naval Postgraduate School, 2011), <https://apps.dtic.mil/sti/pdfs/ADA547788.pdf>.

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I. INTRODUCTION

The Colombian police believed they were on the verge of busting a major gasoline smuggling ring. Tipped off by intercepted radio communications, they zeroed in on a warehouse next to a Texaco station outside Bogotá. But when they raided the target warehouse, they found something entirely unexpected: a nearly complete submarine.¹ In 2000, Colombian police discovered a bespoke, under-construction submarine, eventually known as the *Facatativá* submarine. To date, it is the largest and most sophisticated “narco-submarine” ever discovered in Latin America. If it had been completed, it would have been capable of operating fully submerged, making it a true submarine—unlike most examples of narco-submarines—capable of carrying as many as 200 tons of cocaine several thousand miles.² Thanks to its accidental discovery by police, the *Facatativá* submarine was never completed or put to sea. However, its complexity and mere existence are evidence of how far drug-trafficking organizations will go to adapt to law enforcement and move their illicit products to market. Their continual competitive evolution makes it difficult for law enforcement to significantly curtail their trafficking operations or predict the impact of new and emerging technology on such operations.

Narco-submarines are a relatively recent innovation only becoming commonplace in the early 2000s. So, where did they come from? Over the last several decades, law enforcement has employed more effective and powerful tools to interdict illegal cocaine flowing out of South America via maritime routes. In the 1980s, law enforcement agencies and the federal government began to rely on the military, especially the Navy and Air Force, to support cocaine and drug interdiction. I argue that pressure forced traffickers to adapt and find new ways to move their products, including their development of narco-submarines.

¹ Kirk Semple, “The Submarine Next Door,” *New York Times*, December 3, 2000, <https://archive.nytimes.com/www.nytimes.com/library/magazine/home/20001203mag-semble.html>.

² “Drug Submarine Found in Colombia,” BBC News, September 7, 2000, <http://news.bbc.co.uk/2/hi/americas/915059.stm>.

The competition between law enforcement and traffickers is most apparent in the maritime space known as the “transit zone” through which traffickers move as much as 80 percent of all the cocaine leaving Colombia.³ Traffickers use a wide variety of mostly maritime means to move drugs through this area and avoid detection and interdiction by law enforcement. Two decades after the discovery of the Facatativá submarine, submarines and semi-submersible narco-submarines are still a preferred method for moving cocaine because they are so difficult for law enforcement to detect.⁴ They move hundreds of tons of cocaine from the shores of Colombia and Ecuador to Central America and the Caribbean, stopping briefly to shift modes of transportation before moving on to the United States or directly to Europe.⁵ Narco-submarines were and are a particularly effective adaptation to increasingly effective air and maritime interdiction by law enforcement, supported by the U.S. armed forces in the 1980s and early 1990s.

Narco-submarines are an example of innovation by traffickers under pressure from law enforcement, and a response to military pressure specifically. Traffickers and law enforcement are in a continuous cycle of competitive adaptation whereby each side adapts in response to the other’s actions—the inevitability of this back-and-forth making it possible to identify potential future developments in trafficking.⁶ This thesis places narco-submarines in their historical context as an adaptation to law enforcement pressure, particularly the involvement of the U.S. military in counternarcotics actions. It concludes that competitive adaptation makes interdiction-focused counterdrug policies less effective and that law enforcement must consider traffickers’ potential future adaptations by

³ *Border Security Threats to the Homeland: DHS’ Response to Innovative Tactics and Techniques: Statement before the Subcommittee on Border and Maritime Security of the Committee on Homeland Security, House of Representatives, 112th Cong., 2nd. sess. (2012)*, <https://www.govinfo.gov/content/pkg/CHRG-112hhrg79505/html/CHRG-112hhrg79505.htm>.

⁴ Kyle Mizokami, “The Ships, Planes and Submarines Busting the Cartel’s Narco Subs,” *Popular Mechanics*, June 8, 2020, <https://www.popularmechanics.com/military/navy-ships/a32769682/narcosub-busting/>.

⁵ “Spanish Police Find ‘Drugs’ Sub,” BBC News, August 14, 2006, <http://news.bbc.co.uk/2/hi/europe/4792075.stm>.

⁶ Michael Kenney, *From Pablo to Osama: Trafficking and Terrorist Networks, Government Bureaucracies, and Competitive Adaptation* (University Park: Pennsylvania State University Press, 2007), 103.

examining the recent history of reciprocal movements between law enforcement and traffickers.

A. RESEARCH QUESTIONS

This thesis attempts to answer the following two questions:

1. How have narcotics traffickers adapted to law enforcement and the introduction of military support to counternarcotics in the Greater Caribbean region over time?
2. What does their adaptation indicate about future trends in trafficker behavior?

B. LITERATURE REVIEW

The purpose of this literature review is to compare and contrast the scholarship on the movement of illegal narcotics in the Greater Caribbean region at different levels of analysis. Illegal narcotics, especially cocaine, have an extensive footprint in academic literature. They have been examined and interrogated by several different disciplines. This review first investigates literature focused narrowly on the commodities themselves and their direct impact on communities, and then it turns to literature focused on narcotics in the national and regional contexts.

A wealth of reports and commentary on specific examples of trafficker innovation and adaptation covers everything from narco-submarines to drones.⁷ These sources provide excellent summaries of single examples or short-term trends; however, their analyses focus on novel capabilities and rarely place specific examples or case studies in their historical context to answer the questions of why or how traffickers adapted these technologies or platforms. In his work *From Pablo to Osama*, Michael Kenny explains competitive adaptation and the “balloon effect,” concepts on which this thesis builds. This thesis helps

⁷ See, for example, John P. Sullivan and Robert J. Bunker, eds., *The Rise of the Narco State (Mafia States)*, *Small Wars Journal—El Centro Anthology* (Bethesda, MD: Small Wars Journal Foundation, 2018); Rodrigo Nieto-Gómez, “The Geopolitics of Clandestine Innovation in the Drug Business,” *Medium* (blog), August 17, 2013, <https://rodrigonieto.medium.com/the-geopolitics-of-clandestine-innovation-in-the-drug-business-a07efe494035>; Kenney, *From Pablo to Osama*.

to fill the gap in the literature by contextualizing trafficker adaptation, explaining why traffickers developed narco-submarines and what such innovations might indicate about future adaptation. Traffickers do not operate in a vacuum or closed system—the evolution of their routes and methods is a reaction to other events.

Historians like Paul Gootenberg have covered narcotics as a commodity, tracing cocaine around the world and through history, arguing that the key unit of analysis is the commodity itself.⁸ Anthropologists like Michael Taussig and Annette Idler have also left their mark on the literature surrounding cocaine, looking at its impact on indigenous and Afro-Latino communities and the way it has contributed to violence and instability at the local level.⁹ Other anthropologists like Winifred Tate look at the other side of counternarcotics and analyze the process of policy formation and counternarcotics enforcement.¹⁰ Lina Britto, in her landmark study of the *bonanza marimbera* (marijuana bonanza) in Colombia’s La Guajira region, uses a sub-national unit of analysis and a narrow focus on a single narcotic—marijuana.¹¹ These different levels of analysis show that there are many approaches to studying the drug trade even within the discipline of anthropology, all of which use different types of evidence.

Scholarship on the history of Colombia juxtaposes cocaine trafficking with other elements of the Colombian story, such as the long-running insurgency, politics, and economic development—showing how these macro themes mix and intersect with the cocaine trade. The most valuable of these are histories of Colombia that focus on violence and conflict—for instance, the work of Marco Palacios, who argues that cocaine has been a key part of the illicit economy driving Colombia’s economic growth for decades—as well

⁸ Paul Gootenberg, *Andean Cocaine: The Making of a Global Drug* (Chapel Hill: University of North Carolina Press, 2008); Michael Taussig, *My Cocaine Museum* (Chicago: University of Chicago Press, 2004); Michael Taussig, *Law in a Lawless Land: Diary of a Limpieza in Colombia* (Chicago: University of Chicago Press, 2005).

⁹ Taussig, *My Cocaine Museum*.

¹⁰ Winifred Tate, *Drugs, Thugs and Diplomats: U.S. Policymaking in Colombia* (Stanford: Stanford University Press, 2015).

¹¹ Lina Britto, *Marijuana Boom: The Rise and Fall of Colombia’s First Drug Paradise* (Berkeley: University of California Press, 2020).

as broader, more balanced histories from David Bushnell and introductory texts that inform the context.¹²

At the regional level, scholars examine the drug trade in the Caribbean, the Andean region, Latin America, or the Western Hemisphere.¹³ This approach focuses less on a single commodity or country and more on the networks and context of insecurity or organized crime. Scholars like Ivelaw Lloyd Griffith and R. Evan Ellis emphasize the connective nature of narcotics trafficking and its transnationality, though they differ in the specifics of their approach.¹⁴ In regional analysis, drugs are often analyzed alongside other commodities like trafficked persons and weapons.¹⁵ Other cultural histories like Peter Andreas's work place the illicit movement of drugs through the Caribbean to the United States in the context of U.S. history and state formation—a hybrid of cultural and economic analysis.¹⁶ Another relevant body of literature from international relations, specifically regional and hemispheric relations, argues that the war on drugs is a critical, if not crucial, lens through which to view hemispheric relations since the 1970s.¹⁷

Many scholars who have focused on narcotics trafficking use a thematic rather than geographic lens. Significant differences distinguish scholars in their frameworks and models for understanding the movement of illicit narcotics and the most effective counternarcotics approach. Joshua Tallis compares maritime insecurity in the Caribbean to

¹² Marco Palacios, *Between Legitimacy and Violence: A History of Colombia 1875–2002* (Durham: University of North Carolina, 2006); David Bushnell, *The Making of Modern Colombia: A Nation in Spite of Itself* (Berkeley: University of California Press, 1993); Ann Farnsworth-Alvear, Marco Palacios, and Ana Maria Gomez Lopez, eds., *The Colombia Reader History, Culture, Politics* (Durham: Duke University Press, 2017).

¹³ Bruce Bagley and Jonathan Rosen, *Drug Trafficking, Organized Crime and Violence in the Americas Today* (Gainesville: University Press of Florida, 2015).

¹⁴ Ivelaw Lloyd Griffith, ed., *Caribbean Security in the Age of Terror: Challenge and Change* (Miami: Ian Randle Publishers, 2004); R. Evan Ellis, *Transnational Organized Crime in Latin America and the Caribbean* (New York: Lexington Books, 2018).

¹⁵ Kimberley L. Thachuk, ed., *Transnational Threats: Smuggling and Trafficking Arms, Drugs, and Human Life* (Westport, CT: Praeger, 2007).

¹⁶ Peter Andreas, *Smuggler Nation: How Illicit Trade Made America* (Oxford: Oxford University Press, 2014).

¹⁷ Lester D. Langley, *America and the Americas: The United States in the Western Hemisphere*, 2nd ed. (Athens: University of Georgia Press, 2010); Thomas Skidmore, Peter Smith, and James Green, *Modern Latin America*, 7th ed. (Oxford: Oxford University Press, 2010).

other regions in his argument for a community-policing approach—focusing on drugs in the maritime domain.¹⁸ In contrast, scholars like Ivelaw Lloyd Griffith use the model of non-traditional threats to examine illegal narcotics. In doing so, they place narcotics trafficking alongside terrorism and HIV/AIDS to contrast it with state-on-state violence.¹⁹ R. Evan Ellis and other scholars use a similar but distinct model of transnational organizations and crime to view narcotics trafficking.²⁰

A considerable amount of scholarship addresses the economics of narcotics trafficking—most of which is critical of current counternarcotics approaches. Writers like Dawn Paley argue that part of the reason illicit narcotics networks are so resilient and profitable is because the war on drugs has been profitable for governments and businesses—thus, they have little incentive to end it.²¹ Vanda Felbab-Brown argues in her work that narcotics trafficking is a key part of the illicit economy that fuels insurgencies and conflict around the world, and a body of work like that from William Marcy argues the militarization of the war on drugs has been part of what has made it a failure.²² Some scholars like Moises Naím place illegal narcotics smuggling in the context of other illicit economic activity—separating it from the Caribbean region and some of its associated violence to compare it with other, similarly illicit economic activity.²³

Official government and non-government organization reports form an important part of the literature because they are often the only source of statistics for key metrics like interdictions and arrests. Government reports like the Drug Enforcement Agency’s annual *National Drug Threat Assessment Summary*, the U.S. Coast Guard’s annual *Performance Report*, and discontinued reports from the Office of the National Drug Control Policy’s

¹⁸ Joshua Tallis, *The War for Muddy Waters: Pirates, Terrorists, Traffickers and Maritime Security* (Annapolis: Naval Institute Press, 2019).

¹⁹ Griffith, *Caribbean Security in the Age of Terror*, 10–11.

²⁰ Ellis, *Transnational Organized Crime*; Thachuk, *Transnational Threats*.

²¹ Dawn Paley, *Drug War Capitalism* (Chico, CA: AK Press, 2014).

²² Vanda Felbab-Brown, *Shooting Up: Counter Insurgency and the War on Drugs* (Washington, DC: Brookings Institution Press, 2010); William Marcy, *The Politics of Cocaine: How U.S. Foreign Policy Has Created a Thriving Drug Industry in Central and South America* (Chicago: Chicago Review Press, 2010).

²³ Moises Naím, *Illicit: How Smugglers, Traffickers and Copycats Are Hijacking the Global Economy* (New York: Random House, 2005).

High Intensity Drug Trafficking Area Program provide important data and analyses of sources not otherwise available to the public.²⁴ The United Nations' *World Drug Report* is also a key source because of its global scope.²⁵ Generally, these reports assume that counternarcotics is an enforcement issue, so they are uncritical of current drug control policies.

C. RESEARCH DESIGN

To answer these research questions, this thesis uses a macro analysis of three decades of adaptation in cocaine trafficking and law enforcement interdiction. It also has a micro-level analysis of a case study of narco-submarines that demonstrates trafficker adaptability. Taken together, these two analyses are illustrative of competitive adaptation in cocaine trafficking and the balloon effect, and they show the role that geography plays in shaping shifts in trafficking.

1. The Importance of Caribbean Geography

Caribbean geography plays a critical role in shaping maritime trafficking in the region both today and historically. Whether it was to avoid taxes from the Spanish crown or to run illegal rum into the United States during Prohibition, smugglers have relied on the region's complicated physical and political geography to move illicit goods for hundreds of years.²⁶ Traffickers have taken advantage of "myriad hidden bays, rivers, unmapped islands, ports, or open seas" to hide and segment their routes, moving illicit

²⁴ Drug Enforcement Administration, *2020 National Drug Threat Assessment*, DEA-DCT-DIR-008-21 (Washington, DC: Drug Enforcement Administration, 2021), https://www.dea.gov/sites/default/files/2021-02/DIR-008-21%202020%20National%20Drug%20Threat%20Assessment_WEB.pdf; U.S. Coast Guard, *Annual Performance Report: Fiscal Year 2019* (Washington, DC: U.S. Coast Guard, 2019), <https://www.uscg.mil/Portals/0/documents/budget/FY19-USCG-APR.pdf>; Office of National Drug Control Policy, *National Drug Control Strategy: High Intensity Drug Trafficking Area Program Annual Report* (Washington, DC: Executive Office of the President, 2003), <https://www.ojp.gov/pdffiles1/Digitization/202775NCJRS.pdf>.

²⁵ United Nations Office on Drugs and Crime, *Executive Summary: Policy Implications*, Booklet 1 of *World Drug Report 2022* (Vienna: United National Office on Drugs and Crime, 2022), https://www.unodc.org/res/wdr2022/MS/WDR22_Booklet_1.pdf.

²⁶ James L. Zackrison, "Smuggling and the Caribbean: Tinting Paradise throughout History," in *Transnational Threats: Smuggling and Trafficking Arms, Drugs, and Human Life*, ed. Kimberley L. Thachuk (Westport, CT: Prager Security International, 2007), 181–83.

goods with “almost complete impunity” for most of Caribbean history.²⁷ Traffickers also use political and jurisdictional boundaries to evade law enforcement, traveling in and out of international borders to prevent law enforcement pursuit. Last, the imbalance in wealth between the United States and its Caribbean neighbors means that moving goods from the Caribbean to North America or through the Caribbean will always be a lucrative endeavor.

Griffith argues that two primary geographic factors influence the narcotics trade in the Caribbean. First, because even smaller states like the Bahamas comprise hundreds of separate islands, they enable traffickers’ movements into, out of, and within the Caribbean. Second, the Caribbean straddles North America—the primary market for illegal drugs—and South America—the primary producer of drugs like cocaine and marijuana.²⁸ James Zackrison, a scholar of the drug war, summarizes the relationship between narcotics trafficking and Caribbean geography: “The geography seems to have been planned for smuggling operations between the three major land masses of North America and South America and Europe.”²⁹

The Caribbean also benefits from its position between resource-rich South American and consumption-heavy North America. It has been a “transit zone” of goods moving north to the United States and east to Europe for hundreds of years. Naval analyst Joshua Tallis argues, “The Caribbean’s geographic location has long been among the region’s most lucrative assets.”³⁰ Indeed, Miami, Florida, is closer to Barranquilla, Colombia (the largest Colombian city on the Caribbean coast), than Miami is to Chicago, and Florida has more than 8,000 miles of shoreline for traffickers to use.³¹ In the 1970s and 1980s, Miami was a perfect endpoint for cocaine smuggling because the market first

²⁷ Zackrison, 178.

²⁸ Ivelaw L. Griffith, “Caribbean Geopolitics and Geonarcotics: New Dynamics, Same Old Dilemma,” *Naval War College Review* 51, no. 2 (Spring 1998): 57.

²⁹ Zackrison, “Smuggling and the Caribbean,” 181.

³⁰ Tallis, *The War for Muddy Waters*, 69.

³¹ Stan Zimmerman, *A History of Smuggling in Florida: Rumrunners and Cocaine Cowboys* (Charleston, SC: History Press, 2006), 93.

developed in South Florida, and its physical geography enabled trafficking.³² Smuggling is a constant but unrecognized factor in Florida’s steamy history.

The Caribbean is also large enough to offer traffickers room to adapt. It spans more than one million square miles, which are effectively doubled when traffickers also use Eastern Pacific routes along the western side of Central America. The immense size and complex geography of the Caribbean and Eastern Pacific offer traffickers countless options for their routes. If there is heavy law enforcement presence in one area, traffickers can adapt and shift to another. If one country’s political climate is no longer permissive for smuggling, traffickers can easily shift the route to another.

2. The Balloon Effect

The ability of traffickers to shift their routes and methods rapidly is called the balloon effect, a concept commonly referenced in literature on the global narcotics trade.³³ The balloon effect is a metaphor that likens the resilience and adaptability of narcotics trafficking to those of a balloon filled with air. When pressure is applied to one or more areas, the balloon can change shape, but it does not pop. The same is true over the history of cocaine trafficking.

Law enforcement pressure can shift the contours of drug smuggling and force traffickers away from one area, but they quickly adapt to using another route or a new innovative platform. Zackrisson explains, “Enforcing one tactic on one side of the balloon only results in a bulge at another point—and pushing at two or three points at a time produces the same result. Only by deflating the balloon completely can the problem be solved.”³⁴ R. Evan Ellis, a scholar at National Defense University, explains the balloon effect as follows:

The specific routes, criminal approach, and mixture of activities by criminal groups evolve over time in response to patterns of law enforcement, emerging opportunities (such as permissive political conditions in a

³² Zimmerman, 7.

³³ Ellis, *Transnational Organized Crime*, 15.

³⁴ Zackrisson, “Smuggling and the Caribbean,” 190.

particular country), and characteristics of the criminal groups and the relationships between them.³⁵

Ellis also notes that the effect is more complicated than the simple geographic displacement of traffickers and their routes but rather is a metaphor for their competitive adaptation writ large, something that is often left out in more basic discussions about shifts in routes and platforms.³⁶ The balloon effect is also known by other names. According to Tom Wainwright, a journalist who has focused on the intersection of economics and the drug trade, the phenomenon is referred to as the “cockroach effect” in Latin America because “just like cockroaches, you can chase traffickers out of one room, but they soon take up residence somewhere else in the house.”³⁷

The balloon effect helps scholars and practitioners visualize the effects of increased law enforcement pressure and changes in policy, as well as major shifts—sometimes even “immense and immediate” changes—in routes, platforms, and methods used by traffickers since the illegal cocaine boom of the 1970s.³⁸ Understanding the speed and effectiveness with which traffickers can shift routes and adopt new methods is critical to grasping how they have persisted and been successful in the face of decades of law enforcement pressure, and increasingly capable interdiction tactics and technology. The history of Caribbean counternarcotics makes it clear that law enforcement pressure will shift traffickers from one route to another or from one type of platform to another. One example, as noted by Zackrison, is that “successes in air interdiction force smugglers to use ships.”³⁹ Indeed, it was partly the pressure on aerial networks that pushed traffickers to use narco-sub.

D. OVERVIEW OF CHAPTERS

This thesis consists of four chapters: an introduction, an overview of trafficker and law enforcement adaptation between 1970 and 2000, a case study of narco-submarines,

³⁵ Ellis, *Transnational Organized Crime*, 15.

³⁶ Ellis, 15.

³⁷ Tom Wainwright, *Narconomics: How to Run a Drug Cartel* (New York: Perseus Books, 2016), 14–15.

³⁸ Zackrison, “Smuggling and the Caribbean,” 191.

³⁹ Zackrison, 185.

and a conclusion. Chapter II provides a brief history of the modern cocaine boom and explains the adaptation of law enforcement interdiction efforts in the Caribbean. I use primary and secondary sources where appropriate to create a regional narrative that highlights major changes in smuggling methods over time. The narrative focuses primarily on the 20th century and more recent trends. Chapter II contextualizes traffickers' response and adaptation and explains some counternarcotics responses. However, these two lines of effort are closely intertwined and best explained together, as law enforcement and trafficking methods adapt and respond to each other.

Chapter III presents a case study of narco-submarines. It explains their origins and development from the perspective of an emerging innovative technology with development that was driven by law enforcement pressure, specifically increasing military involvement in counternarcotics. Closely examining narco-submarines as a specific technology helps elucidate the larger contours of the competitive adaptation between law enforcement and traffickers.

Chapter IV comprises the conclusion and trend analysis. I identify trends in the relationship between law enforcement pressure and trafficker adaptation that fall into two categories: geographic adaptation and technological adaptation. By examining the long *durée* of narcotics trafficking in the region *and* highlighting specific adaptations in response to law enforcement and military pressure, it is possible to draw relevant lessons for current and future policymakers and to forecast emerging and future trends in narcotics trafficking. This chapter concludes with a discussion of possible futures in Caribbean maritime trafficking and modest policy recommendations based on these futures.

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II. THE COCAINE BOOM AND ADAPTATION

Cocaine’s history is long and sinuous—and certainly not over.

—Paul Gootenberg⁴⁰

This chapter lays out the contemporary history of cocaine from the 1970s to the 1990s to explain how developments in law enforcement tactics and resources put pressure on narcotics trafficking, particularly after the U.S. military was drawn into supporting narcotics interdiction in the Caribbean. The history of cocaine trafficking is one of continuous innovation in transportation, starting as deck cargo on fishing vessels and evolving from submarines, to shipping containers, to liquid mixtures and even drywall—innovation forced by increasingly effective interdiction efforts by law enforcement organizations.⁴¹

Large quantities of cocaine were first trafficked into the United States in the early 1970s.⁴² Early cocaine trafficking followed the same routes and patterns as the more developed marijuana trade, much of it leaving from Colombia’s remote La Guajira peninsula and crossing the Caribbean on boats or planes before reaching South Florida. In turn, many of the marijuana traffickers relied on networks that smuggled coffee and other illegal products, such as liquor, cigarettes, and emeralds, northward. As quoted in Britto’s work, one trafficker recounted, “We used the same trails, the same roads, the same paths [as with coffee].”⁴³ These decades-old coffee-smuggling networks fed into maritime smuggling networks that terminated in the United States, and during the rise of the marijuana industry in the 1960s and 1970s, most of it also moved by maritime means.⁴⁴

⁴⁰ Gootenberg, *Andean Cocaine*, 316.

⁴¹ Centro Internacional de Investigaciones y Análisis Contra Narcotráfico Marítimo, *Modalidades del Narcotráfico Marítimo* [Modalities of Maritime Drug Trafficking] (Cartagena, Colombia: Centro Internacional de Investigaciones y Análisis Contra Narcotráfico Marítimo, 2019).

⁴² Peter Andreas, *Killer High: A History of War in Six Drugs* (New York: Oxford University Press, 2020), 213.

⁴³ Britto, *Marijuana Boom*, 79.

⁴⁴ Britto, 112.

The marijuana boom, or bonanza marimbera, as it was known locally, helped build robust smuggling networks that could be readily co-opted for cocaine trafficking.⁴⁵

As more cocaine flowed into the United States, the federal government began to react. After the Drug Enforcement Agency (DEA) was launched in 1973, efforts shifted from a focus on marijuana and heroin to one that included cocaine.⁴⁶ Cocaine seizures rose 700 percent between 1969 and 1975, though the vast majority was seized in the United States and not as it was trafficked north from South America, evidence that law enforcement was adapting in response to traffickers. The U.S. Coast Guard also started to make more drug seizures in the Caribbean. Before 1973, the U.S. Coast Guard had interdicted six drug-smuggling boats in its history; however, in 1974 alone, it interdicted seven boats, further indications that federal law enforcement was learning how to more effectively interdict traffickers in the transit zone.⁴⁷ By the mid-1970s, the federal government estimated that Colombian traffickers had been sending 300 kg of cocaine into the United States per month, but that was probably a large underestimate in hindsight, as traffickers had been flying medium and large airplanes loaded with cocaine from Colombia directly to the United States.⁴⁸ At the same time that federal law enforcement was seizing more cocaine, the traffickers were innovating new methods to bring in cocaine—over the heads of law enforcement.

During the cocaine boom in the 1970s, the supply side of the drug trade was also shifting from historic production areas in Peru and Bolivia to Colombia as producers adapted to changing conditions on the ground. In the early years of the cocaine boom, Colombians served as middlemen, exporters, and processors, but they would eventually come to dominate the entire supply chain by “muscling their way in,” according to drug

⁴⁵ Andreas, *Smuggler Nation*, 276.

⁴⁶ Gootenberg, *Andean Cocaine*, 307.

⁴⁷ John C. Trainor, “Coping with the Drug Runners at Sea,” *Naval War College Review* 40, no. 3 (Summer 1987): 77, <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=4299&context=nwc-review>.

⁴⁸ Nicholas Gage, “Latins Now Leaders of Hard-Drug Trade,” *New York Times*, April 21, 1975, <https://www.nytimes.com/1975/04/21/archives/latins-now-leaders-of-harddrug-trade.html>; Nicholas Gage, “Drug-Smuggling Logistics Bizarre and Often Fatal,” *New York Times*, April 22, 1975, <https://www.nytimes.com/1975/04/22/archives/drugsmuggling-logistics-bizarre-and-often-fatal-second-of-four.html>.

historian Peter Andreas.⁴⁹ Colombian historian David Bushnell recounts how Colombians—who started out by refining Peruvian coca paste into powdered cocaine and quickly shipping it out of South America—built the modern world of cocaine trafficking “into one of history’s richest and most volatile illicit trades.”⁵⁰ In Peru, the government’s reaction to the leftist *Sendero Luminoso* (Shining Path) guerrillas in the Peruvian highlands cut down on the coca grown in Peru and presented the Colombian cocaine producers with an opportunity.⁵¹ Peruvian growers adapted by simply moving to Colombia, which had a weaker central government, making the political climate easier for growers and producers to operate in, and they were subsumed into the nascent Colombian networks.⁵² Once the shift began, according to Bushnell, “Colombians eagerly took the opportunity international politics had handed to them,” and the cocaine business exploded as traffickers adapted to working with producers in Colombia instead of Peru.⁵³

As demand for cocaine intensified, traffickers—forced to adapt to both market demand and increasing law enforcement pressure—sought new and more efficient ways to bring their illicit goods to market. The legacy maritime routes that used fishing boats and old maritime smuggling networks could not keep up with increasing demand for cocaine and were also vulnerable to interdiction by the increased efforts of the U.S. Coast Guard because fishing vessels were slow and predictable.⁵⁴ At the same time, cocaine was proving far more lucrative than marijuana, and the higher profits allowed traffickers to adapt by investing in new platforms and modes of transportation—airplanes. Air routes soon began to displace the maritime routes, and pilots would drop packaged drugs to boats waiting below or into pre-designated drop zones.⁵⁵ Colombian historian Lina Britto writes of the transition, “Airplanes had clear advantages over ships as they took less time to arrive at

⁴⁹ Andreas, *Killer High*, 214.

⁵⁰ Gootenberg, *Andean Cocaine*, 301.

⁵¹ Ellis, *Transnational Organized Crime*, 27.

⁵² Gootenberg, *Andean Cocaine*, 300–303.

⁵³ Bushnell, *The Making of Modern Colombia*, 260.

⁵⁴ Jim Howe, *Red Crew: Fighting the War on Drugs with Reagan’s Coast Guard* (Annapolis: Naval Institute Press, 2018).

⁵⁵ Zackrisson, “Smuggling and the Caribbean,” 185.

their destination, they simplified the logistics for the exporter, and provided the US buyer more independence and autonomy.”⁵⁶ These air routes initially relied on small crop-dusting planes and recreational aircraft, but as demand continued to grow, they began to use refurbished U.S. military aircraft, some of which were surplus from the Vietnam War, and they relied extensively on ex-pilots from the wars in Southeast Asia.⁵⁷ Britto argues that one of the most important innovations during the Colombian bonanza marimbera was the use of air routes for narcotics trafficking.⁵⁸

Infamous traffickers like Carlos Lehder Rivas, who is often credited with bringing the adaptation of aviation to drug trafficking in the Caribbean, quickly fortified their air routes with clandestine runways and support facilities in remote areas where traffickers could stop to rest and refuel en route to the United States.⁵⁹ Then, the traffickers would drop their cargo in South Florida, either at sea to waiting boats or over land, and then fly back south. For example, Lehder was infamous for innovatively establishing an airbase for traffickers on Norman’s Key in the Bahamas, a few hundred miles off the coast of Florida.⁶⁰ Military planners would recognize this smuggler’s version of a forward arming and refueling point. In his book on competitive adaptation, scholar Michael Kenney uses the example of traffickers’ learning they could drop well-wrapped bales of cocaine out of airplanes into the Caribbean after they discovered that “coke floated.”⁶¹ They made the discovery after a DEA interdiction forced a smuggling plan to dump a full load of cocaine into the ocean.⁶²

In this early era of cocaine trafficking, even with increased law enforcement focus, it was still quite easy to evade detection and fly small aircraft directly into the United States

⁵⁶ Britto, *Marijuana Boom*, 112.

⁵⁷ Britto, 112.

⁵⁸ Britto, 112.

⁵⁹ Andreas, *Smuggler Nation*, 279.

⁶⁰ “Carlos Lehder: Pablo Escobar’s Crime Partner Freed from US Jail,” BBC News, June 17, 2020, https://www.bbc.com/news/world-latin-america-53070547?intlink_from_url=https://www.bbc.com/news/world/us_and_canada&link_location=live-reporting-story.

⁶¹ Kenney, *From Pablo to Osama*, 49.

⁶² Kenney, 49–51.

by choosing routes carefully and flying low, and traffickers could stay ahead of law enforcement. At the time, one congressional staffer stated, “There are more holes [in radar coverage of the border] than cheese. . . . All a drug smuggler has to do to be successful is hang a right when he gets to the border.”⁶³ At the same time as cocaine traffickers adapted aircraft to meet their needs, traffickers who had been successful with marijuana were also shifting to cocaine in response to consumer demand in the United States.⁶⁴ Cocaine was much more valuable per kilo, making it much more profitable and easier to move, creating a feedback loop of increasing profits that allowed traffickers to buy more planes.

By 1980, most cocaine was flowing out of Colombia and into Southern Florida by air, and it was spreading to other major U.S. cities like New York.⁶⁵ It had taken over a larger share of the American narcotics market, and there were twice as many cocaine dealers in New York City as heroin dealers.⁶⁶ Yet, Southern Florida was still the epicenter of the cocaine boom, and an estimated 70 percent of all cocaine and marijuana entering the United States flowed through South Florida.⁶⁷ According to James Zackrison, a former Latin America policy expert for the U.S. Navy, “Entire fleets of speedboats lining up to offload drugs from mother ships [were] the norm.”⁶⁸

The 1970s saw the birth of the modern cocaine boom and the beginning of competitive adaptation by traffickers. By the end of the decade, traffickers who initially relied on historic routes were innovating with new methods like aircraft and faster boats because they had the resources to innovate and because law enforcement in the United States and Colombia was beginning to apply pressure to cocaine traffickers. The American

⁶³ Lindsey Gruson, “Cocaine Smuggler’s Story Shows U.S. Net with ‘More Holes Than Cheese,’” *New York Times*, November 20, 1986, <https://www.nytimes.com/1986/11/20/us/cocaine-smuggler-s-story-shows-us-net-with-more-holes-than-cheese.html>.

⁶⁴ Gootenberg, *Andean Cocaine*, 304–307.

⁶⁵ Andreas, *Killer High*, 215.

⁶⁶ Andreas, 213.

⁶⁷ Evan Munsing and Christopher J. Lamb, *Joint Interagency Task Force-South: The Best Known, Least Understood Interagency Success*, Strategic Perspectives, No. 5 (Washington, DC: National Defense University, 2011), 8, <https://ndupress.ndu.edu/portals/68/documents/stratperspective/inss/strategic-perspectives-5.pdf>.

⁶⁸ Tallis, *The War for Muddy Waters*, 69.

public was also becoming increasingly worried about the cocaine boom, and their worry would bloom into hysteria by the end of the 1980s. The more popular cocaine became among American consumers, the more worried the public became, and the more attention it received from the federal government. The 1980s would see major changes in how the United States enforced its counterdrug policy, as President Ronald Reagan drafted more and more of the federal government and eventually the military into the war on drugs. Under Reagan's patronage, the war on drugs would cease to be a metaphor, and the military would be increasingly used in domestic and international counternarcotics efforts.⁶⁹

A. THE 1980s: LAW ENFORCEMENT DRAFTS THE MILITARY

In the 1980s, the U.S. military was drawn into supporting counternarcotics, mostly in the Caribbean and Latin America, as drug use in the United States rose, and counterdrug rhetoric by elected leaders reached a fever pitch. President Ronald Reagan entered office in 1981 ready to take aggressive action on drugs after making it a key issue in his campaign. The Regan era would see increasing federal resources, including the military, diverted to the war on drugs, which in turn would force traffickers to innovate and adapt to the increased pressure of law enforcement backed by military resources. The U.S. government wanted to step up pressure on traffickers and sought to do this by militarizing drug interdiction, a major escalation in its tactics.

This militarization of counternarcotics over the course of the decade put unprecedented pressure on traffickers because it brought new resources and military technologies to interdiction. Military radar, aircraft, and ships were all drafted into counternarcotics. These advancements almost completely closed air trafficking routes into the United States and pushed maritime routes to Central America, where cocaine would travel north across the U.S.–Mexico border rather than directly into the United States. Nevertheless, this reliance on military assets failed to significantly reduce the quantity of cocaine entering the United States because traffickers were quick to adapt. This pressure forced traffickers to adapt and develop new routes and brought about textbook examples

⁶⁹ Michael S. Sherry, *In the Shadow of War: The United States since the 1930s* (New Haven, CT: Yale University Press, 1995), 457–58.

of the balloon effect, whereby law enforcement’s pressure in one area or against one method compelled traffickers to adapt and shift to other routes or methods.

One example of the new resources given to law enforcement was an aerial radar system for monitoring incoming plane traffic. By 1980, the United States had deployed a Tethered Aerostat Radar System (TARS) in Southern Florida with a “look down” radar to help catch smugglers, a major technological innovation and the first of its kind for law enforcement. The new aerostats could lift radars up to high altitudes where they could detect low-flying aircraft at the maximum effective range, unmitigated by the curvature of the earth.⁷⁰ These radars were eventually deployed along the whole of the Gulf Coast and helped shift trafficking routes from using a terminus in South Florida to landing drugs in Central America and Mexico and running them across the southern U.S. border.⁷¹ Traffickers were forced to adapt by shifting to overland routes that fed into the southwestern United States or to innovate by employing new maritime platforms and techniques like narco-submarines. U.S. Customs and Border Patrol credits TARS with helping to reduce illicit air incursions into the southern United States, from over 8,500 at its height to fewer than 50 per year today.⁷² According to Customs and Border Protection (CBP) officials, manned aircraft have not been a significant smuggling threat since the early 1990s, a testament to the success of TARS and other programs taking aim at aerial drug trafficking.⁷³

As aerial routes became more dangerous for traffickers, the ones that remained shifted to aerial routes terminating in Central America, where there was less radar coverage and governments had few resources to interdict smuggler planes—an example of the balloon effect. Maritime traffickers also adapted by using boats that either made runs from

⁷⁰ Office of the Assistant Secretary of Defense for Research and Engineering, Rapid Reaction Technology Office, *Lighter-Than-Air Vehicles* (Washington, DC: Office of the Assistant Secretary of Defense for Research and Engineering, Rapid Reaction Technology Office, 2012), 34.

⁷¹ Andreas, *Smuggler Nation*, 281.

⁷² Tim Wright, “How Many Drones Are Smuggling Drugs across the U.S. Southern Border?,” *Smithsonian Magazine*, June 2020, <https://www.airspacemag.com/flight-today/narcodrones-180974934/>.

⁷³ Aaron Schmersahl, “Fifty Feet above the Wall: Cartel Drones in the U.S.–Mexico Border Zone Airspace, and What to Do about Them?” (master’s thesis, Naval Postgraduate School, 2018), 17, <https://www.hsdl.org/?view&did=811367>.

an offshore mother ship or picked up cocaine from dead drops.⁷⁴ However, the cartels were always seemingly “three to five years” ahead of law enforcement in competitive adaptation.⁷⁵

In April 1981, Attorney General William French Smith, under the Reagan administration, appointed the Task Force on Violent Crime, which would produce recommendations on counterdrug policy within 120 days. The task force’s report would make several important recommendations that shaped the war on drugs over the next decade. The report contained three important recommendations for increasing cooperation between law enforcement, the Department of Justice, and the military. The first was a recommendation that the U.S. Navy “assist in detecting air and sea drug traffic.”⁷⁶ The second point recommended that law enforcement agencies make use of abandoned or underused military bases and facilities for “correctional facilities.”⁷⁷ And the third recommendation was for the creation of “a border policy designed to effectively detect and intercept the illegal importation of narcotics, including the use of *military assistance*” (emphasis added).⁷⁸ All three recommendations were ways for law enforcement to adapt, escalate, and increase pressure on traffickers.

Coast Guard personnel soon began to operate from Navy vessels transiting the Caribbean, including capital warships. In 1982, the nuclear-powered, guided missile cruiser USS *Mississippi* interdicted a drug-smuggling vessel with 25 tons of marijuana aboard.⁷⁹ However, at first, the utility of military resources was limited, in part, by a lack of coordination with law enforcement and a lack of understanding on their part, of what

⁷⁴ Andreas, *Smuggler Nation*, 281.

⁷⁵ Gootenberg, *Andean Cocaine*, 306.

⁷⁶ National Institute of Justice, *Attorney General’s Task Force on Violent Crime: Final Report* (Washington, DC: Department of Justice, 1981), viii, <https://www.ojp.gov/pdffiles1/Digitization/78548NCJRS.pdf>.

⁷⁷ National Institute of Justice, viii.

⁷⁸ National Institute of Justice, ix.

⁷⁹ Trainor, “Coping with the Drug Runners at Sea,” 81.

assets the services had to contribute and how to best employ them. Thus, military assistance had little initial impact on traffickers.⁸⁰

In 1982, President Reagan established the South Florida Task Force in response to shocking levels of violence in South Florida, as his administration sought more ways to fight drug trafficking and adapt to more aggressive traffickers. The influx of cocaine traffickers into Southern Florida and provoked internecine conflict led to “the bloodiest [seven months] in South Florida’s history,” with events like the “Dadeland Mall massacre” receiving national news coverage.⁸¹ The task force, led by Vice President George H. W. Bush, focused on interdiction efforts, with a mandate to block air and sea routes into South Florida. Federal funding for counternarcotics over the next five years was also doubled, effectively flooding South Florida with law enforcement resources.⁸² The task force comprised hundreds of federal law enforcement officers but also included representatives from the Army and the Navy.⁸³ The South Florida Task Force, along with a bevy of Coast Guard assets, stemmed some of the drugs flowing into Florida on fishing vessels and pleasure craft.⁸⁴ However, the effectiveness of the task force spurred traffickers to respond with more high-speed go-fast boats and drop drugs out of airplanes to waiting boats and onto designated drop zones in a contest of back-and-forth adaptation.⁸⁵ While successful locally, the task force was criticized as failing to stop the overall flow of drugs. As Munsing and Lamb note, “Like water following the path of least resistance, drugs found other points of entry along America’s porous borders,” and law enforcement officers referred to their work in interdiction as “mopping the floor” instead of turning “off the faucet,” a metaphor uncannily similar to the balloon effect.⁸⁶ As the balloon effect describes, the drugs were

⁸⁰ Ralph F. Couey and David R. Coletta, “A National Drug Interdiction System,” *USNI Proceedings* (February 1987): 95–97.

⁸¹ Brian Hamacher, “Dadeland Mall Massacre: Thursday Marks 40th Anniversary of Infamous ‘Cocaine Cowboys’ Shootout,” NBC 6 South Florida, July 11, 2019, <https://www.nbcmiami.com/news/local/dadeland-mall-massacre-thursday-marks-40th-anniversary-of-cocaine-cowboys-shootout/127956/>.

⁸² Andreas, *Killer High*, 215.

⁸³ Munsing and Lamb, *Joint Interagency Task Force-South*, 8.

⁸⁴ Zackrison, “Smuggling and the Caribbean,” 185.

⁸⁵ Zackrison, 185.

⁸⁶ Munsing and Lamb, *Joint Interagency Task Force-South*, 8.

still getting through despite doubled federal funding and military support to law enforcement because traffickers could adapt to increasing pressure and adjust their routes and methods.

In his 1983 State of the Union address, Reagan officially “declared war” on drugs, saying, “This administration hereby declares an all-out war on big-time organized crime and the drug racketeers,” thus ratcheting up the administration’s rhetoric even further.⁸⁷ President Reagan also announced the creation of the National Narcotics Border Interdiction System (NNBIS), intended to address the lack of coordination and inefficiencies in counternarcotics by the military and federal, state, and local agencies.⁸⁸ The Navy provided liaisons at each of the six regional centers to coordinate naval support to the detection and monitoring mission with E-2, P-3, and S-3 reconnaissance aircraft and to Coast Guard operations.⁸⁹ Writing in the U.S. Naval Institute’s *Proceedings*, Navy liaisons to the NNBIS centers argued in 1985 that while progress was slow because agencies were still learning how the NNBIS worked, the system was “getting results,” as drug seizures and interdictions were on the rise.⁹⁰ However, hindsight makes clear that increases in seizures were the result of increasing drug flows overall, and they had little effect in stemming the flow of cocaine into the United States.

In 1984, a joint Navy–Coast Guard unit, the Caribbean Squadron, was formed for counternarcotics. Highlighting the significant naval support given to counternarcotics operations, even at the height of the Cold War, the joint unit usually contained at least one guided missile cruiser, one or more destroyers, and several frigates, all with Coast Guard law enforcement detachments (LEDETs) and vessels. Oilers and amphibious ships also supported the Caribbean Squadron and hosted LEDETs from time to time.⁹¹ These surface assets were then supported by dozens of land- and ship-based aircraft from the Coast

⁸⁷ Sherry, *In the Shadow of War*, 445.

⁸⁸ Ronald Reagan, “Announcement of the Establishment of the National Narcotics Border Interdiction System,” American Presidency Project, March 23, 1983, <https://www.presidency.ucsb.edu/node/262113>.

⁸⁹ Couey and Coletta, “A National Drug Interdiction System,” 95–97.

⁹⁰ Couey and Coletta.

⁹¹ John Weldon Lockwood, “Blocking Caribbean Drug Traffic,” *USNI Proceedings* (December 1989): 101–6.

Guard, Navy, Air Force, and Marine Corps. Overall, the Navy provided about 80 percent of the surface and air assets for counternarcotics work over the Caribbean—thousands of steaming days and flight hours per year.⁹² But despite this surge of combat power, which included over 100 Navy vessels by 1989, Caribbean Squadron was averaging just over 10 seizures or interdictions per year—and having little impact on the flow of narcotics into the United States.⁹³ During the same period, estimates of the total number of vessels engaged in narcotics trafficking were as high as 18,000.⁹⁴ Increases in the Navy’s support to counternarcotics in the Caribbean led to more arrests and drug seizures—though they were minuscule compared to the resources allocated for the mission. For example, according to the *New York Times*, despite the Navy’s 2,000 sorties and 2,500 at-sea days in 1987, Navy support in the Caribbean and beyond resulted in the interdiction of only 27 smuggling ships.⁹⁵

The military was also active in the skies above the Caribbean. In fiscal year 1985, it flew more than 3,000 sorties and 10,000 flight hours of dedicated surveillance in support of counternarcotics with Air Force, Navy, and Marine Corps aircraft.⁹⁶ In 1987, the Navy alone reported over 2,000 sorties for the counterdrug mission, but the real number might have been much higher if incidental surveillance were included—when Department of Defense (DoD) aircraft flying other missions reported suspected trafficking—especially because “reconnaissance” flights were often recorded as training flights.⁹⁷ By 1988, only three years later, the number had almost tripled to over 28,000 flight hours, as the floodgates of congressional money opened for DoD support to counternarcotics.⁹⁸ Another

⁹² Lockwood.

⁹³ Lockwood.

⁹⁴ Thomas J. Chasse and Michael M. Cobb, “Narcotics and National Security: Refining the Military Option” (master’s thesis, Naval Postgraduate School, 1990), 143.

⁹⁵ Richard Holloran, “In War on Drugs, Military Has Marginal Results,” *New York Times*, May 30, 1988, <https://www.nytimes.com/1988/05/30/us/in-war-on-drugs-military-has-marginal-results.html>.

⁹⁶ Jeff R. Brown, “Non-Traditional Mission and the U.S. Military: Past, Present, and Prospects” (master’s thesis, Naval Postgraduate School, 1995), 21, https://calhoun.nps.edu/bitstream/handle/10945/31406/95Jun_Brown_Jeff.pdf.

⁹⁷ Holloran, “In War on Drugs, Military Has Marginal Results.”

⁹⁸ Brown, “Non-Traditional Mission and the U.S. Military,” 22.

plan for the Navy to contribute to counterdrug operations was for it to buy and operate specially modified P-3 Orion airplanes for tracking surface vessels smuggling drugs.⁹⁹

The Reagan administration's National Security Strategies were also examples of its adapting the national security apparatus for drug interdiction. The 1987 *National Security Strategy* attempted to push the military even further into the drug war, in part by tying military support to anti-Communist forces in Latin America to counternarcotics, even though right- and left-wing groups across the region used the narcotics trade to fund their operations. According to the White House,

Aggressive Marxist regimes in Cuba and Nicaragua have made the Western Hemisphere, once considered indisputably secure for the United States, an area of strategic opportunity for the Soviet Union . . . the ongoing problem of the drug trade and the growing political strength of the drug traffickers who—often in collusion with local guerrilla groups—have begun to pose serious challenges for the reborn Latin democracies.¹⁰⁰

And in the Reagan administration's 1988 *National Security Strategy*, counternarcotics was named a "a priority effort" and a threat not only to governments in Latin American but "to the social fabric of the United States itself."¹⁰¹ It asserted that the Reagan government was already "supplying resource and expertise" to any government in the region "wishing to engage with us in this priority effort."¹⁰²

During this dramatic expansion of federal counternarcotics efforts, it was the National Defense Authorization Act (NDAA) of 1989, the annual bill providing funding for the U.S. military, that fully drafted the military into the war on drugs. The 1989 NDAA made the DoD the "single lead agency of the Federal Government for the detection and

⁹⁹ John H. Cushman, "Debate in Capital Growing on Plane in Fight on Drugs," *New York Times*, August 8, 1986, <https://www.nytimes.com/1986/08/08/us/debate-in-capital-growing-on-plane-in-fight-on-drugs.html>.

¹⁰⁰ White House, *National Security Strategy of the United States* (Washington, DC: White House, 1987), 13–14, <https://history.defense.gov/Portals/70/Documents/nss/nss1987.pdf?ver=FUZbPLY3ZDfa4UTDpMkNzw%3d%3d>.

¹⁰¹ White House, *National Security Strategy of the United States* (Washington, DC: White House, 1988), 26, <https://history.defense.gov/Portals/70/Documents/nss/nss1987.pdf?ver=FUZbPLY3ZDfa4UTDpMkNzw%3d%3d>.

¹⁰² White House, 26.

monitoring of aerial and maritime transit of illegal drugs into the United States.”¹⁰³ This new mission lead represented a major shift from earlier efforts, which used a task force approach that merely included military personnel, and was the largest single step in fully adapting federal structures to bring the military into the war on drugs.¹⁰⁴ The bill also pushed for greater use of Army and Air Force National Guard assets for counternarcotics, directed the DoD to oversee communications integration efforts in the interagency “dedicated to the interdiction of illegal drugs,” and opened the door for much closer military cooperation with the U.S. Coast Guard.¹⁰⁵ Intended to overwhelm traffickers with a flood of military resources supporting interdiction efforts, the result would be more innovation on the part of traffickers, who adapted more quickly than the government. Unsurprisingly, only four years later, Colombian law enforcement discovered the first narco-submarine purpose-built for trafficking, and the volume of cocaine flowing into the United States remained relatively stable despite the massive spike in resources directed at interdiction.

In response to the 1989 NDAA, the U.S. military organized military joint task forces (JTFs) to lead its efforts in detection and monitoring for illegal narcotics, and they became operational at the end of the decade. The establishment of the JTFs was the most important organizational innovation to this point in the war on drugs by law enforcement. The JTFs were an adaptation that allowed more efficient and coordinated applications of resources to drug interdiction, particularly military resources, and they leveraged military expertise in planning, command and control, and communications. The intent was to establish new organizations better adapted to make use of the military’s resources and capability for interdiction. The Pentagon established JTF-5 in Alameda, California; JTF-6 in El Paso, Texas; JTF-4 in Key West, Florida; and cells at North American Aerospace Defense Command (NORAD) and U.S. Southern Command.¹⁰⁶ These JTFs were some of

¹⁰³ National Defense Authorization Act, Fiscal Year 1989, Pub. L. No. 100-456, § 1102, 102 Stat. 1918 (1988), <https://www.govinfo.gov/content/pkg/STATUTE-102/pdf/STATUTE-102-Pg1918.pdf>.

¹⁰⁴ Munsing and Lamb, *Joint Interagency Task Force-South*, 9–10.

¹⁰⁵ National Defense Authorization Act of 1989, § 1102.

¹⁰⁶ Munsing and Lamb, *Joint Interagency Task Force-South*, 11.

the most significant and, by some accounts, successful law enforcement innovations of the drug war. The descendants of these commands, including Joint Interagency Task Force South in Key West, are still active to this day. Compared to other military organizations, JTF-4 operated on a “shoestring budget,” but it could still bring far more resources to bear than traditional law enforcement agencies, especially expensive platforms like military reconnaissance and surveillance aircraft, helicopters, and naval vessels.¹⁰⁷ JTF-4 had three missions—it ran an intelligence fusion center, it conducted detection and monitoring with military assets, and it coordinated interagency detection and monitoring.¹⁰⁸

JTF-4 did not have operational assets permanently assigned to it, so it had to ask the services for available forces that could be spared. Therefore, the number of aircraft hours and ship days dedicated to the counterdrug efforts peaked in the early 1990s when the military no longer had to worry about the Soviet threat but had not yet drawn down in size.¹⁰⁹ In 1989, the Navy spent over 2,000 steaming days and 10,000 flight hours in support of counternarcotics but expected to have those figures rise significantly, to 3,600 steaming days and nearly 41,000 flight hours, in 1990.¹¹⁰

While JTF-4 was more effective than previous attempts at organizing multiple federal agencies for counternarcotics, it still ran into organizational and cultural issues. The DoD-led JTF-4 was interested primarily in interdiction and not in prosecutions or tracking targets for long periods, which are important to law enforcement and the Department of Justice for developing cases and bringing charges against higher-level targets. With limited assets, the military leadership at JTF-4 also wanted to interdict targets as quickly as possible and then move on to the next one.¹¹¹ These differences in culture and perceived metrics of success still exist between the DoD and law enforcement agencies in counternarcotics. However, as detailed in the official history of Joint Interagency Task

¹⁰⁷ Munsing and Lamb, 12.

¹⁰⁸ Munsing and Lamb, 12.

¹⁰⁹ Munsing and Lamb, 12.

¹¹⁰ Scott M. Allen, “Hot on their Tail: Navy, Law Enforcement Agencies Team Up to Stop Drug Smugglers,” *All Hands Magazine*, June 1990, <https://media.defense.gov/2019/Apr/10/2002112697/-1/-1/1/AH199006.pdf>.

¹¹¹ Munsing and Lamb, *Joint Interagency Task Force-South*, 12.

Force South, the successor to JTF-4, “Despite these limitations, JTF-4 appears to have improved counterdrug performance. For the years 1991, 1992, and 1993, JTF-4 contributed over 50 percent of the total cocaine seized by law enforcement agencies.”¹¹² These statistics indicate that military support was the most effective tool the federal government had for drug interdiction. Therefore, military support in detection and monitoring likely spurred trafficker innovation during this period.

The ramp-up in federal enforcement, use of military assets, and establishment of the JTFs increased the number of seizures, but another critical measure of counternarcotics performance, the price of a kilo of cocaine in Miami, had fallen significantly—from between \$47,000 and \$62,000 in 1980 to between \$9,000 and \$14,000 just eight years later in 1988.¹¹³ Lower prices are generally understood to reflect greater availability, indicating that the volume of cocaine arriving in Miami had risen significantly during the 1980s, despite increased enforcement and a more than doubling of the federal funds dedicated to counternarcotics and the use of innovative organizational structures.¹¹⁴ Law enforcement adaptations at the policy level, such as the creation of the JTFs and the application of military maritime domain awareness platforms, were important tools but took time to implement tactically and were quickly out-cycled by trafficker innovation. The massive increase in resources spent on counternarcotics was not effective because traffickers adapted to the new methods by shifting away from Caribbean routes, developing new methods that were less susceptible to detection by military platforms, and doing so more quickly than law enforcement could adapt.

B. THE END OF THE COLD WAR AND THE 1990s

The administration of George H. W. Bush came to office bent on continuing the drug war started under Nixon and enlarged and expanded under Reagan, with more resources and better tactics. President Bush used his first national address in September 1989 to talk about the importance of the war on drugs, and he famously used a bag of crack

¹¹² Munsing and Lamb, 15.

¹¹³ Andreas, *Killer High*, 215.

¹¹⁴ Andreas, 215.

cocaine that was seized near the White House as a prop.¹¹⁵ According to historian Michael Sherry, Bush deployed “the full arsenal of military metaphors when he declared his drug war.”¹¹⁶ Bush’s war was to be waged on everyone who “uses drugs,” “sells drugs,” or merely “looks the other way.”¹¹⁷ The public was also united behind drug interdiction, and 1989 and 1990 were the only two years that Gallup polls had Americans ranking “drugs” the number one “important issue facing the nation.”¹¹⁸

Congressionally approved budgets confirmed that counternarcotics efforts were a cash cow for the military, with counternarcotics-dedicated funding for the DoD rising from \$300 million in 1989 to \$1.1 billion in 1991, nearly quadrupling in the two years overlapping the end of the Cold War.¹¹⁹ Funding would peak in 1992 at \$1.22 billion.¹²⁰ This dramatic increase in funding drove a similar increase in operational metrics like flight hours dedicated to counternarcotics support by DoD aircraft, which soared from 18,000 hours in 1989 to over 94,000 hours in 1993.¹²¹ Ship days at sea on the counterdrug mission also rose from just over 2,000 to more than 5,000 days in the same period.¹²²

The rapid shift in the DoD from drug shy to all-in meant a surge in assets to the JTFs, especially Navy assets to JTF-4 in the Caribbean. The Navy had already been “unquestionably the largest single DoD contributor to the maritime/aerial detection and monitoring effort of the JTF” and was poised to be more so as naval ships, including capital

¹¹⁵ “President George H. W. Bush 1989 Address on the War on Drugs,” September 5, 1989, C-SPAN, video, 2:46, <https://www.c-span.org/video/?c4815128/president-george-hw-bush-1989-address-war-drugs>.

¹¹⁶ Sherry, *In the Shadow of War*, 431.

¹¹⁷ Sherry, 450.

¹¹⁸ Adam Isacson, “Mission Creep: The U.S. Military’s Counterdrug Role in the Americas,” in *Drug Trafficking, Organized Crime, and Violence in the Americas Today*, ed. Bruce M. Bagley and Jonathan D. Rosen (Gainesville: University of Florida Press, 2015), 89.

¹¹⁹ Gary K. Weeter et al., *Drug Control: Status Report on DOD Support to Counternarcotics Activities*, GAO/NSIAD-91-117 (Washington, DC: General Accounting Office, 1991), 9, <https://www.gao.gov/assets/nsiad-91-117.pdf>.

¹²⁰ Peter Zirnite, *Reluctant Recruits: The U.S. Military and the War on Drugs* (Washington, DC: Washington Office on Latin America, 1997), 2.

¹²¹ Brown, “Non-Traditional Mission and the U.S. Military,” 44.

¹²² Brown, 44.

vessels, were freed from Cold War missions.¹²³ In the early 1990s, during the peak naval commitment to counternarcotics, the Navy had four to eight ships—including an aircraft carrier at one point on station—and 10–20 land-based maritime patrol aircraft supporting surveillance orbits.¹²⁴ It is worth remembering that this same period saw U.S. forces still deployed to the Middle East and around the world, which further highlights the value of the military resources applied to drug interdiction in the Caribbean.

By 1991, it was clear that the military’s support to law enforcement was forcing changes in the way traffickers were operating, even if they were not reducing the overall availability of drugs on the U.S. market. The success of JTF-4 at maritime interdiction with U.S. Coast Guard LEDETs on Navy vessels was also having an impact. Traffickers were forced to shift away from South Florida and the Bahamas to Puerto Rico and the Lesser Antilles as their primary maritime routes.¹²⁵ A 1991 RAND Corporation study on military air interdiction operations found,

Civilian smuggling aircraft now rarely fly directly from South America to landing sites within the United States. Instead, these aircraft are diverting to landing sites outside the United States, such as Mexico, or drop their cargos to boats waiting beyond U.S. Waters. . . . Drug interdiction efforts do appear to be diverting drug smugglers from the easier routes. Whether this diversion is sufficient to cause drugs to be less available or more costly remains to be seen.¹²⁶

Despite changes in trafficking patterns, the overall effectiveness of the massive DoD effort was limited. A scathing 1993 report from the General Accounting Office found that despite increased seizures, “cocaine production [had] increased, most smugglers . . . still [had not been] apprehended, and the estimated cocaine flow onto American streets

¹²³ Richard E. Hagy, “The U.S. Navy’s Role in Joint Task Force (JTF) Counternarcotics Operations: ‘Mission Impossible’ or ‘a Recipe for Success’” (master’s thesis, Naval War College, 1991), 6, <https://www.hsdl.org/?view&did=718335>.

¹²⁴ Hagy, 7.

¹²⁵ Zackrisson, “Smuggling and the Caribbean,” 185.

¹²⁶ John Ahart and Gerald Stiles, *The Military’s Entry into Air Interdiction of Drug Trafficking from South America* (Santa Monica, CA: RAND Corporation, 1991), v, <https://www.rand.org/content/dam/rand/pubs/notes/2007/N3275.pdf>.

[had] not appreciably declined.”¹²⁷ This resilience in the drug flow was largely a result of traffickers’ rapidly adjusting to law enforcement pressure, shifting their routes, and adapting to new platforms. The report argued that the exponential funding increases for the DoD’s counterdrug budget were not tied to measurable goals or measures of effectiveness; in fact, it found the DoD had not established agency-level goals at all. Furthermore, DoD activities like surveillance flights were more expensive than beneficial and overwhelmed law enforcement agencies with far more intelligence than they could process, and the federal government, while applying massive resources, was struggling to adapt and effectively apply those resources.¹²⁸ A report in 1988 strongly criticized the federal government’s strategy of focusing on interdiction—nearly all DoD support to counternarcotics was for interdiction—and found “no direct correlation between resources spent to interdict and the long-term availability of imported drugs in the domestic market.”¹²⁹ It was also critical of the lack of relevant goals and metrics for military organizations supporting interdiction, noting the difficulty in establishing goals partly because federal agencies could not agree on a common estimate of the volume of narcotics entering the United States.¹³⁰

C. BUSH AND CLINTON CONTINUE THE WAR ON DRUGS

The Bush administration’s National Security Strategies in 1990, 1991, and 1993 continued to emphasize the administration’s focus on counternarcotics even in a dramatically changed geopolitical environment. In all three strategies, countering illegal drugs was called out as a major priority of the administration. In 1990, the administration wrote,

Traffic in illicit drugs imposes exceptional costs on the economy of the United States, undermines our national values and institutions, and is

¹²⁷ Robert J. Stolba et al., *Drug Control: Heavy Investment in Military Surveillance Is Not Paying Off*, GAO/NSIAD-93-220 (Washington, DC: General Accounting Office, 1993), 4, <https://www.gao.gov/assets/nsiad-93-220.pdf>.

¹²⁸ Stolba et al., 4.

¹²⁹ General Accounting Office, *Drug Control: Issues Surrounding Increased Use of the Military in Drug Interdiction*, GAO/NSIAD-88-156 (Washington, DC: General Accounting Office, 1988), 17, <https://www.gao.gov/assets/nsiad-88-156.pdf>.

¹³⁰ General Accounting Office, 26.

directly responsible for the destruction and loss of many American lives. The international traffic in illicit drugs constitutes a major threat to our national security and the security of other nations.¹³¹

The Bush administration also pushed for the use of larger and more expensive military assets for maritime interdiction. In 1990, the administration intended to deploy the USS *John F. Kennedy*, an aircraft carrier, with its battle group off the Colombian coast to interdict drug-smuggling boats and planes in an unprecedented escalation of force against traffickers.¹³² Even though the *Kennedy* set sail from Norfolk and made it to the Caribbean, the plans were ultimately scrapped because of Colombian resistance to the presence of the battle group just outside its territorial waters. Pentagon officials had said that amphibious ships and helicopter carriers would have also taken up station as part of a sea base in support of counterdrug operations.¹³³

By the mid-1990s Colombia was the world's largest producer of illicit cocaine, surpassing Peru in 1995 amid skyrocketing production, as producers adapted to take advantage of political instability in Colombia.¹³⁴ Coca production fell in Peru during the early 1990s, in a rare counternarcotics success story, but at the regional level, coca production remained steady because it quickly shifted to Colombia where political conditions were ripe, as the Colombian state was on the verge of collapse. Colombian cartels fought with each other and the government in increasingly brazen attacks including widespread political assassinations and terrorism. It was another textbook case of the balloon effect. Successful counternarcotics efforts in Peru simply shifted coca production across the border to Colombia and destabilized that country instead. In Colombia, leftist guerrilla groups like the *Fuerzas Armadas Revolucionarias de Colombia* (Colombian Revolutionary Armed Forces; FARC) entered into shaky alliances with the cartels over

¹³¹ White House, *National Security Strategy of the United States* (Washington, DC: White House, 1990), 7, <https://history.defense.gov/Portals/70/Documents/nss/nss1990.pdf>.

¹³² Chassee and Cobb, "Narcotics and National Security," 148.

¹³³ Bernard E. Trainor, "Colombians Balk at a Crucial Part of the U.S. Drug Plans," *New York Times*, January 7, 1990, <https://www.nytimes.com/1990/01/07/us/colombians-balk-at-a-crucial-part-of-us-drug-plans.html>.

¹³⁴ Skidmore, Smith, and Green, *Modern Latin America*, 213.

coca production and refining, and these alliances fielded a force with as many as 20,000 soldiers—controlling large swaths of territory and fracturing the country.¹³⁵

Other developments during the Clinton years represent some of the most rapid trafficker adaptations to law enforcement pressure. Clinton pushed for increased counternarcotics at the U.S.–Mexican border and made a land border focus part of his administration’s policy with Presidential Decision Directive/NSC-14. However, this push did little to stifle the overall supply of narcotics coming into the United States from across the Caribbean but rather temporarily shifted the primary flows from entering the United States at the Mexican border to entering via South Florida, yet again. Before the directive, nearly 80 percent of the cocaine entering the United States had come through Mexico, and after the directive and policy change, as much as 80 percent transited maritime routes into South Florida.¹³⁶ James Zackrison argues that the rapid change in smuggling routes is evidence that law enforcement can be effective; however, “the smugglers succeeded, too, as there was no net drop in the volume of cocaine sold in the United States.”¹³⁷ However, by the end of the 1990s and into the early 2000s, increased law enforcement pressure forced the percentage of drugs moving directly into the United States via maritime routes down to as little as 5 percent—instead, most were moved out of Colombia by maritime routes and then transhipped into the United States by land.¹³⁸

By the mid-2000s, as much as 90 percent of cocaine coming out of Colombia made it to the United States over the U.S.–Mexico border, and the DEA estimated that only 1 percent came directly into the United States from Colombia, a dramatic change from 20 years earlier when 90 percent had come directly from Colombia. Over the entire period from 1980 to 2000, the volume of cocaine entering the United States via Mexico and Caribbean routes persisted, with a steady supply entering the United States throughout the

¹³⁵ Skidmore, Smith, and Green, *Modern Latin America*, 214.

¹³⁶ Tallis, *The War for Muddy Waters*, 71.

¹³⁷ Zackrison, “Smuggling and the Caribbean,” 191.

¹³⁸ Tallis, *The War for Muddy Waters*, 75.

period.¹³⁹ These major shifts are examples of the balloon effect in action, showing that even in cases of major U.S. policy changes, traffickers can adapt rapidly enough to survive and keep moving cocaine into the United States, regardless of law enforcement's geographic concentration or the topline budget for counternarcotics.

From the beginning of the cocaine boom in the early 1970s to the mid-2000s, the story of cocaine trafficking has been one of constant adaptation. Table 1 provides an overview of the changes in policy, enforcement, and trafficker behavior.

¹³⁹ Trevor Munroe, "The Menace of Drugs," in *Caribbean Security in the Age of Terror: Challenge and Change*, ed. Ivelaw Lloyd Griffith (Miami: Ian Randle Publishers, 2004), 158.

Table 1. Summary of Major Shifts in Cocaine Trafficking and Interdiction Efforts, 1960–2000

	1960s	1970s	1980–1986	1986–1989	1989–2000
U.S. Policy	Cocaine is illegal, but counterdrug policy is focused on heroin and marijuana.	Cocaine is illegal, but counter drug focus is on heroin and marijuana.	Reagan administration shifts focus to cocaine and increases federal resources committed to counterdrug enforcement. Policies increasingly force law enforcement (LE) agencies to coordinate and work together.	U.S. military is pulled more into drug interdiction after the 1986 NDAA and federal resources are increased. More focus on interdiction closer to the source, and eradication in source countries.	U.S. military is pulled more into drug interdiction after the 1989 NDAA, and federal resources and spending are increased through 1993, and then decreased subsequently after the 1993 peak in counterdrug funding. More focus on source country counternarcotics efforts.
U.S. LE Action	Enforcement is focused on heroin and marijuana. Small amounts of cocaine are not considered a threat.	Enforcement is shifting to include cocaine, but it is not effective.	South Florida Task Force is formed, supported by the U.S. Coast Guard and “incidental” support from the U.S. military, increasing interdiction effectiveness in South Florida.	TARS and better aerial enforcement effectively close Florida and the Gulf Coast to air routes. Increased LE pressure in the Central and Eastern Caribbean.	Increased LE pressure in the Central and Eastern Caribbean. Short but intense focus on the U.S.–Mexico border. Establishment of JTFs is one of most effective steps in drug interdiction.
Impact on Traffickers	Traffickers are more or less free to bring in cocaine.	More shipments are interdicted but with little net impact. Increased demand in the U.S. market fuels innovation. Traffickers shift production from Peru and Bolivia to Colombia.	It becomes increasingly difficult to use routes that lead directly into South Florida.	Traffickers can no longer fly large volumes of cocaine into the U.S. and need to find other routes and methods.	Traffickers continue to capitalize on Central American routes and look for more effective platforms to move cocaine by maritime means under pressure from the JTFs. Production in Peru and Bolivia decreases.
Trafficker Adaptation	Traffickers use established smuggling routes and diaspora networks instead of creating their own.	Traffickers shift to using their own boats and planes. Air routes become more common. This is as much a result of wanting to move more volume as feeling pressure from LE.	Traffickers experiment and diversify methods and routes, pioneering routes through Central America and using faster planes and boats with novel methods of concealment. Traffickers also begin using other ports of entry into the United States.	Traffickers shift to routes through Central American that cross the U.S.–Mexico border and away from direct to U.S. routes.	Traffickers develop narco-submarines and other increasingly creative methods and use them to move cocaine to Central America via Western Caribbean or Eastern Pacific routes.

Producers adapted by moving from Peru to Colombia to take advantage of the relative anarchy in the Colombian jungle and hide from law enforcement. Traffickers adapted and evolved from relying on old, slow maritime routes that also smuggled coffee, alcohol, and cigarettes to flying cocaine directly into South Florida on planes. When the U.S. military was drafted into supporting law enforcement during the 1980s and brought with it high-speed aircraft and advanced radar, traffickers adapted and shifted their methods and routes again. Instead of moving cocaine directly to Florida, they moved their cocaine first to Central America by boat or plane, where there was less government control and less capable air border enforcement. Then, taking advantage of geography, they moved the cocaine northward by land routes and across the U.S.–Mexico border until, for a brief time, extreme enforcement pressure on the border pushed traffickers back to using South Florida routes.

This continual cycle of competitive adaptation relied on the unique geography of the Caribbean. Traffickers had multiple routes from Colombia and South America to the massive cocaine market in the United States. They could also cross into the United States by land, sea, or air—giving them flexibility to adapt their routes and their methods in response to law enforcement tactics. The ultimate proof of their adaptability was the price of cocaine, which remained relatively stable even at the height of U.S. spending on interdiction in the early 1990s. It is no coincidence that at the peak of interdiction efforts, the first narco-submarine was discovered. It, too, was an innovation intended to adapt trafficking to the militarization of law enforcement interdiction efforts with a vessel design that was harder to detect at sea.

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III. NARCO-SUBMARINES AS AN ADAPTATION

Narco-subs are small cargo vessels up to 100 feet in length that can usually carry 1–10 tons of cargo—almost always powdered cocaine—long distances with a very low probability of detection or interdiction.¹⁴⁰ Because their superstructure is exposed only barely above the waterline, if at all, they are hard to detect with radar and hard to identify visually. They are designed specifically to avoid detection by law enforcement vessels and aircraft. As described by U.S. Southern Command,

The vessels are designed and built by traffickers in Colombia to smuggle large volumes of cocaine over long distances in a manner that is difficult to detect. Since the vessels have a low profile—the hulls only rise about a foot above the waterline—they are hard to see from a distance, leave little wake and produce a small radar signature. . . . The [narco-sub], once perceived as an impractical and risky smuggling tool, has proven successful as an innovative and highly mobile, asymmetrical method of conveyance.¹⁴¹

Semi-submersibles are usually built out of fiberglass laid over wooden frames, and then fitted with maritime diesel engines and commercial navigation equipment like GPS.¹⁴² Most are constructed in remote jungle shipyards on the western coast of Colombia, far from law enforcement or even civilian presence. Often multiple vessels are constructed at a time, and the most common designs can be completed in 30–45 days.¹⁴³ From these initial construction sites, vessels are floated down rivers and streams before they are loaded with their cargo closer to the coast. Loading further inland would weigh the semi-submersibles down and limit their ability to travel on shallower inland waterways.¹⁴⁴

¹⁴⁰ This paper uses the U.S. ton, also called the “short ton,” as a unit of measure, equivalent to 2,000 lbs. or 907 kg. This should not be confused with the British “long ton” or the metric ton, both of which are slightly larger.

¹⁴¹ Joseph Drenzo, “What the Semi-submersibles Mean,” Defense Media Network, August 12, 2010, <https://www.defensemedianetwork.com/stories/what-the-semisubmersibles-mean/>.

¹⁴² Javier Guerrero C., “Narcosubs: Technological Innovation in the War on Drugs,” Center for International Maritime Security, June 19, 2018, <https://cimsec.org/narcosubs-technological-innovation-in-the-war-on-drugs/>.

¹⁴³ Vice, “Mother Board: Colombian Narcosubs,” October 26, 2011, YouTube, video, 7:45, https://www.youtube.com/watch?v=2Rp-C1ph_g8&t=9s.

¹⁴⁴ Vice, 11:00.

Experts estimate that as much as one-third of the cocaine that arrives in the United States travels aboard these vessels.¹⁴⁵ Less than one-quarter of known transits are intercepted due to a lack of interdiction assets.¹⁴⁶ U.S. Southern Command also receives as little as 20 percent of the intelligence, reconnaissance, and surveillance it requests, and most of these resources are met not with military assets but with CBP assets.¹⁴⁷ Thus, less than 5 percent of low-profile vessel transits are intercepted, making them an extremely effective platform for trafficking cocaine out of South America. The difficulty in finding them at sea has led to their moniker, the “sasquatch of the Pacific” or “bigfoot,” by law enforcement.¹⁴⁸ Colombian traffickers, however, are more likely to call them *el ataúd* (the coffin) because of the many that have been lost at sea.¹⁴⁹ One observer described the pre-departure routine of the semi-submersible crews as akin to a “kamikaze” ritual because of the danger involved in crossing hundreds or thousands of miles of open ocean in small artisanal vessels.¹⁵⁰ According to Admiral Craig Faller, the commander of U.S. Southern Command, American assets could interdict only about 9 percent of “known drug movement” in 2019—a token amount, even though it was an increase over prior years.¹⁵¹

A. LAW ENFORCEMENT DISCOVERIES

It is no coincidence that the first known “narco-submarine” was discovered in San Andrés, Colombia, in 1993, the same year military support to counternarcotics operations

¹⁴⁵ Drenzo, “What the Semi-submersibles Mean.”

¹⁴⁶ Richard Sisk, “SouthCom Pushes for More Anti-Drug Ships,” *Military.com*, March 17, 2014, <https://www.military.com/daily-news/2014/03/17/southcom-pushes-for-more-anti-drug-ships.html>.

¹⁴⁷ Brian W. Everstine, “SOUTHCOM Only Getting 20 Percent of Needed ISR,” *Air Force Magazine*, January 30, 2020, <https://www.airforcemag.com/southcom-only-meeting-20-percent-of-isr-need/>.

¹⁴⁸ Drenzo, “What the Semi-submersibles Mean”; David Kushner, “Drug-Sub Culture,” *New York Times Magazine*, April 23, 2009, <https://www.nytimes.com/2009/04/26/magazine/26drugs-t.html>.

¹⁴⁹ Kushner.

¹⁵⁰ Vice, “Colombian Narcosubs,” 15:00.

¹⁵¹ Craig S. Faller, “Posture Statement before the 116th Congress, Senate Armed Services Committee,” Senate Armed Services Committee, January 30, 2020, https://www.southcom.mil/Portals/7/Documents/Posture%20Statements/SASC%20SOUTHCOM%20Posture%20Statement_FINAL.pdf?ver=2020-01-30-081357-560.

peaked.¹⁵² San Andrés is a small Colombian island near the coast of Nicaragua, putting it conveniently between the Colombian coast and Central America. This vessel was made from two fiberglass sailing boat hulls attached to each other to create an enclosed vessel and was completely submersible but relied on a tall, snorkel-like mast to provide oxygen for the engines. An article in *Jane's Terrorism and Security Monitor* reports that the U.S. Coast Guard interdicted an experimental semi-submersible in 1989, but this interdiction has not been confirmed by other sources.¹⁵³ This vessel, if it was indeed the first, was a prototype of the submersibles and semi-submersibles in use today and was most likely an innovation to help smugglers avoid increasingly effective interdiction efforts by U.S. law enforcement supported by the military. Over the next 30 years, the designs would mature into distinct types of purpose-built smuggling vessels designed from scratch. The simplest explanation for the innovation of narco-sub is that they were a reaction to law enforcement pressure. The U.S. military's support to detection and monitoring, especially TARS, had almost completely closed the U.S. border to aerial smuggling routes, and the use of naval vessels meant more law enforcement pressure in the Caribbean, complicating maritime routes. By 1993, most routes moved cocaine from Colombia to Central America, where it moved north over land, but new methods were still needed to move cocaine from Colombia to Central America via maritime routes.

In 1994 and 1995, two more vessels were found in Cartagena and Tayrona, respectively, both places on Colombia's Caribbean coast. Unlike the Frankenstein construction of the vessel found in San Andrés, both of these could have fully submerged with the aid of a snorkel. "Cartagena" had a welded aluminum hull potentially capable of diving to depths of 20 meters and carrying seven tons of cargo and six passengers. It also carried sophisticated radar and navigational aids.¹⁵⁴ Tayrona was, according to one analyst,

¹⁵² Byron Ramirez, "Colombian Cartel Tactical Note #1," *Small Wars Journal* (February 2014), <https://smallwarsjournal.com/jrnl/art/colombian-cartel-tactical-note-1>.

¹⁵³ "Insurgent Submersibles," *Jane's Terrorism and Security Monitor*, June 5, 2008, <https://customer.janes.com/Janes/Display/jtasm5147-jtasm-2008>.

¹⁵⁴ "Narcosubmarino Es Colombiano" [Narcosubmarine Is Colombian], *El Tiempo* [Time], August 15, 1995, <https://www.eltiempo.com/archivo/documento/MAM-387160>.

“the first true submarine discovered.”¹⁵⁵ It had a relatively small payload of only one ton but was equipped with an independent air supply, radar, and depth meter.¹⁵⁶ The diversity of designs in the mid-1990s point to two possible conclusions: either the Colombian government had stumbled upon a mature trafficking capability with a robust engineering base that supported multiple independent construction sites and competing designs, or submersibles and semi-submersibles were still immature, and criminal groups had not yet converged on a mature design. The advanced nature of the designs suggests that the builders had help from foreign, probably Russian, naval engineers and that authorities were not catching the trend as it started but rather after it had already matured.¹⁵⁷

Several signs have pointed to Russian or other state-level engineering expertise in the early designs. This is not to suggest that state-actors were working with cartels and criminal groups but rather that engineers who had expertise, likely military, in naval construction were involved. Indeed, with the collapse of the Soviet Union and its military industrial complex, significant numbers of naval engineers, including experts in the design and construction of submarines, found themselves suddenly out of work in the early 1990s. During the Cold War, the Soviet Union built hundreds of nuclear and conventional-powered submarines, most of which have since been scrapped or are rusting in the Arctic.¹⁵⁸

At least once, in 1995, Cuban intermediaries attempted to organize the sale of a decommissioned Soviet submarine from the Russian mafia to Colombian drug cartels.¹⁵⁹ It was a plot fit for a movie, with one of the Cubans nicknamed “Tarzan” and wiretaps deployed at a strip club—it was eventually made into the 2018 movie *Operation Odessa*. According to the Cubans, the submarine would have cost \$35 million and had been

¹⁵⁵ H. I. Sutton, *Narco Submarines: Covert Shores Recognition Guide* (self-pub., 2020), 32.

¹⁵⁶ Sutton, 32.

¹⁵⁷ Byron Ramirez and Robert J. Bunker, *Narco-Submarines: Specially Fabricated Vessels Used for Drug Smuggling Purposes* (U.S. Army Foreign Military Studies Office, 2015), 39–41.

¹⁵⁸ Alec Luhn, “Russia’s ‘Slow-Motion Chernobyl’ at Sea,” BBC, September 1, 2020, <https://www.bbc.com/future/article/20200901-the-radioactive-risk-of-sunken-nuclear-soviet-submarines>.

¹⁵⁹ Mireya Navarro, “Russian Submarine Drifts into Center of a Brazen Drug Plot,” *New York Times*, March 7, 1997, <https://www.nytimes.com/1997/03/07/us/russian-submarine-drifts-into-center-of-a-brazen-drug-plot.html>.

intended to move 60 tons of cocaine per trip from the West Coast of Colombia to Santa Barbara, California.¹⁶⁰ Far from “just a pipe dream,” as the defendants’ lawyers called it when they were indicted by the DEA, the group had gone as far as meeting with a Russian admiral to tour several different models of submarines in Europe.¹⁶¹ And this purchase would have followed the sale of as many of 20 ex-Soviet transport aircraft that were sold to the Colombian cartels to move cocaine in the early 1990s.¹⁶²

Few if any semi-submersibles were interdicted in the late 1990s, likely because traffickers were using them successfully and because the cartels were easily moving large quantities of cocaine via airplane. Semi-submersibles may have been transiting the Eastern Pacific and Caribbean unmolested at this time. It is unclear whether the absence of interdictions meant that cartels were successful in using them undetected or they were favoring other methods like air transport.

The evolution in maritime trafficking platforms, if forced by military support to counternarcotics, also moved in a military direction, continuing to build on international expertise. In 2000, a Colombian police raid on a suspected gasoline theft ring came with a surprise. A nearly complete submarine was discovered in a warehouse in Facatativá, Colombia, near Bogotá. The submarine remains the largest ever discovered and the most advanced. If completed, it would have been 120 feet long and able to carry 150–200 tons of cocaine and six crew members. It used a modern, all-metal, double-hull construction.¹⁶³ According to Colombian police, the submarine was found with papers and documents written in Russian, and a connection to the Russian mafia was heavily suspected but never proven.¹⁶⁴ Built far from the coast in a country without major railroads, the submarine would have had to be disassembled and trucked to the coast hundreds of miles away, a

¹⁶⁰ Mark Fineman, “Case Links Russian Sub, Colombia Drugs,” *Los Angeles Times*, June 21, 1998, <https://www.latimes.com/archives/la-xpm-1998-jun-21-mn-62197-story.html>.

¹⁶¹ Fineman.

¹⁶² William C. Rempel and Craig Pyes, “Ukraine Supplying Planes to Colombia Drug Traffickers,” *Los Angeles Times*, February 20, 1996.

¹⁶³ Sutton, *Narco Submarines*, 34.

¹⁶⁴ Andrew Selsky, “Cops Puzzled Over Drug Submarine,” *Washington Post*, September 30, 2000, https://www.washingtonpost.com/wp-srv/aponline/20000930/aponline155340_000.htm.

significant operation in itself and evidence that the vessel was a major investment for traffickers.

B. INTERNATIONAL CONNECTIONS

There have also been links reported between the designs in Colombia and those for artisan submersibles made by the Tamil Tigers insurgent group in Sri Lanka. In 2009, the Sri Lankan military found three semi-submersibles under construction in the jungle of Mullaitivu. The Sri Lankan minister of defense declared, “With this discovery the [Tamil] will go down in history as the first terrorist organization to develop underwater weapons.”¹⁶⁵ Reporting is spotty, but *Jane’s* cites examples of unfinished Tamil semi-submersibles from 2000 and later, noting that the intended uses are unclear but that they were “intended for offensive operations rather than for smuggling.”¹⁶⁶ A potential example from even earlier, in the early 1990s, is thought to have been intended to release mines at sea.¹⁶⁷ Sri Lankan crew members have also been captured at sea in Colombian semi-submersibles, suggesting a connection and exchange in expertise.¹⁶⁸ U.S. officials have asserted that the now-prevalent semi-submersible designs can be traced back to two men, a Sri Lankan and a Pakistani, who allegedly provided plans to Colombian traffickers in 2006, though the existence of domestic Colombian designs from nearly 15 years earlier casts doubt on the theory that the Colombian vessels have Sri Lankan ancestry.¹⁶⁹

The next significant development in semi-submersibles was the capture of a vessel off the coast of Vigo, Spain, in 2006, the first such vessel discovered in Europe.¹⁷⁰ The vessel was built in southern Spain, but it bears an obvious similarity to the semi-submersibles being made in Colombia and South America. However, the details of the

¹⁶⁵ Kushner, “Drug-Sub Culture.”

¹⁶⁶ “Insurgent Submersibles,” *Jane’s Terrorism and Security Monitor*.

¹⁶⁷ “Insurgent Submersibles.”

¹⁶⁸ Craig Collins, “Twilight of the Semi-submersible?,” Defense Media Network, November 21, 2010, <https://www.defensemedianetwork.com/stories/twilight-of-the-semi-submersible/>.

¹⁶⁹ Armando Hernandez, Rick A. Galeano, and Mario Escobar, “The Semi-submersible Network” (master’s thesis, Naval Postgraduate School, 2012), https://calhoun.nps.edu/bitstream/handle/10945/27844/12Dec_Hernandez_Galeano_Escobar.pdf; Kushner, “Drug-Sub Culture.”

¹⁷⁰ BBC News, “Spanish Police Find ‘Drugs’ Sub.”

design are not closely related to any other known vessels, including a folding snorkel-mast and radar antenna.¹⁷¹ The general but not specific resemblance implies a transfer of ideas but not techniques or personnel. The Vigo vessel was also used differently from Latin American examples. It was intended to embark with cocaine from vessels at sea and then transfer the drugs to other locations along the coast—unlike the concept of operations for submersibles leaving South America fully loaded and then offloading at sea, off the coast of Central America. It could carry over six tons of cocaine and over 1,000 gallons of fuel, giving it range to deliver to markets in the United Kingdom and Northern Europe, and likely be used for shipments up and down the European coast.¹⁷²

During the 2010s, semi-submersibles continued to increase in prevalence. New types of vessels would emerge and then disappear—an indication that law enforcement was not interdicting a large enough sample to understand the trends in construction and concept of operations as they shifted over time. The increased sophistication of the vessels also forced traffickers to seek out university-educated navigators and naval engineers, either by enticing them with money or kidnapping them.¹⁷³

An important example of the advances in the design and engineering of narcosubs was a massive vessel captured in Ecuador in 2010. Thanks to a tip, Ecuadorian authorities seized a 74-foot-long vessel powered by four diesel engines and capable of carrying as much as nine tons of cocaine plus a crew of four to six.¹⁷⁴ The Kevlar and carbon fiber vessel was a significant enough development that the United States sent down a team of

¹⁷¹ Sutton, *Narco Submarines*, 38.

¹⁷² M. F., “La Red del ‘Narcosubmarino’ de Vigo Preparaba Otro Alijo de 6.000 Kilos de Coca” [The “Narcosubmarine” Network from Vigo Was Preparing Another Cache of 6,000 Kilos of Coca], *Faro de Vigo*, March 13, 2008, <https://www.farodevigo.es/sucesos/2008/03/13/red-narcosubmarino-vigo-preparaba-alijs-18055365.html>; U. Foces, “La Red del Narcosubmarino Abandonado en la Ría de Vigo Se Enfrenta a 121 Años de Cárcel” [The Abandoned Narco-Submarine Network in the Vigo Estuary Faces 121 Years in Prison], *Faro de Vigo*, January 11, 2011, <https://www.farodevigo.es/sucesos/2011/01/11/red-narcosubmarino-abandonado-ria-vigo-17788069.html>.

¹⁷³ Michelle Jacome Jaramillo, “The Revolutionary Armed Forces of Colombia (FARC and the Development of Narco-Submarines,” *Journal of Strategic Security* 9, no. 1 (2016): 58, <https://digitalcommons.usf.edu/cgi/viewcontent.cgi?article=1509&context=jss>.

¹⁷⁴ Jim Popkin, “Authorities in Awe of Drug Runners’ Jungle-Built, Kevlar-Coated Supersubs,” March 29, 2011, *Wired*, <https://www.wired.com/2011/03/ff-drugsub/>.

analysts from the Office of Naval Intelligence to do a “stern-to-snorkel assessment.”¹⁷⁵ Like modern diesel-electric submarines, the vessel would have run on batteries and diesel engines, using batteries when submerged and diesels on the surface. A senior DEA official called it a “quantum leap in technology” in an interview with *Wired*.¹⁷⁶ The vessel remains the only one of its type that has been discovered by law enforcement.

Also, during this time, so-called narco-torpedoes also came into use. These unmanned vessels were either towed or affixed to another vessel and moved clandestinely. They are difficult for law enforcement to detect because the ship towing the torpedo can be engaged in completely innocuous activity and moving along normal routes. More advanced examples of narco-torpedos were fitted with radio or GPS location-monitoring devices and had remote controlled ballast so they could surface or submerge on command. They could be towed by cooperative vessels or attached discretely and towed by vessels ignorant of their presence.

In 2019, a semi-submersible vessel was interdicted off the coast of Galicia, Spain, after traveling at sea for nearly a month. The case was significant because it was the first vessel known to have transited the Atlantic Ocean carrying cocaine from South America to Europe. It caused such a media buzz that it has since been recounted in a book, *Operación Mar Negra* (Operation Black Tide) and made into a television series of the same name that fictionalizes the lives of the semi-submersible’s crew into a redemption story.¹⁷⁷ The vessel had been carrying three tons of cocaine, and authorities believed it was likely headed to deliver its cargo in the United Kingdom.¹⁷⁸ The 66-foot-long vessel was towed to port by Spanish police, and two of the three crew members were arrested.¹⁷⁹ The Galician vessel

¹⁷⁵ Popkin.

¹⁷⁶ Popkin.

¹⁷⁷ Sergio Saffon, “Operation Black Tide: The Voyage of a Drug Sub Across the Atlantic,” InSight Crime, February 21, 2022, <https://insightcrime.org/news/operation-oil-slick-the-voyage-of-a-drug-sub-across-the-atlantic/>.

¹⁷⁸ Sam Jones, “Cocaine Seized from ‘Narco-Submarine’ in Spain Was Likely Headed for UK,” *Guardian*, November 27, 2019, <https://www.theguardian.com/world/2019/nov/27/police-in-spain-find-three-tonnes-of-cocaine-in-narco-submarine>.

¹⁷⁹ James Marson, “First ‘Narco-Submarines’ Caught after Crossing the Atlantic,” *Wall Street Journal*, October 18, 2020, <https://www.wsj.com/articles/inside-the-first-narco-submarine-caught-after-crossing-the-atlantic-11603033200>.

represents a significant expansion of semi-submersible trafficking routes and demonstrates how far the vessels can travel—it might have stopped in the Azores to take on more fuel as well. This trans-oceanic endurance is the latest adaptation intended to gain an advantage over law enforcement in a specific way, allowing traffickers to have the advantage of low-profile vessels for transatlantic routes. Such vessels may also be a response to more effective interdiction in the Caribbean overall and increasing demand for cocaine in Europe, Colombian authorities estimate that at least two semi-submersibles arrive in Europe every year and a further two in Africa.¹⁸⁰

In November 2020, the Colombian military, in coordination with the DEA and Colombian National Police, raided a semi-submersible boatyard with an unusually large vessel, distinct from yet similar to the vessel captured in Ecuador in 2010.¹⁸¹ The fully submersible vessel could carry an estimated eight tons of cocaine, making it one of the largest vessels discovered.¹⁸² Only time will tell whether this recent discovery is part of a trend toward larger or more sophisticated fully submersible vessels. However, criminal organizations seem to believe semi- and fully submersible vessels are well worth their \$1 million to \$2 million construction cost and are continuing to build and use them in both the Caribbean and the Eastern Pacific, as well as new routes across the Atlantic. This vessel represents yet another round of innovations, increasingly larger vessels, and is proof that traffickers continue to innovate and adapt their platforms and routes in the face of law enforcement pressure.

¹⁸⁰ Saffon, “Operation Black Tide.”

¹⁸¹ H. I. Sutton, “Rare Fully-Submersible Narco-Submarine Captured in Colombia,” *Covert Shores* (blog), November 6, 2020, <http://www.hisutton.com/Narco-Submarine-2020-11-06.html>.

¹⁸² “Capturados Once Presuntos Integrantes de una Organización Narcotraficante” [Eleven Alleged Members of a Drug-Trafficking Organization Captured], Radio 1040 AM, November 6, 2020, <https://radio1040am.com/2020/11/06/capturados-once-presuntos-integrantes-de-una-organización-narcotraficante/>.

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IV. CONCLUSION

Trafficking organizations, like any profit-minded business, continually seek ways to move their product to market at the lowest cost and as safely as possible. These organizations are in a constant process of iterative adaptation with law enforcement in the interdiction zone, and because drug trafficking generates immense profits, these organizations can invest significant resources to innovation and adaptation.¹⁸³ Law enforcement agencies try to identify and interdict as many cocaine shipments as possible in accordance with government policy while the traffickers continually update their playbook of routes and platforms to get as many shipments through as possible. This tussle for control forces law enforcement to adapt in response, and the cycles continues unless a major change in policy or the market disrupts it—a cycle that Colombian scholar Oscar Palma Morales has compared to a cyclist pedaling on a stationary bicycle, spending tremendous amounts of energy but ultimately going nowhere.¹⁸⁴ Javier Guerrero C., another Colombian scholar, describes the relationship between traffickers and law enforcement as a “game of cat and mouse between interdiction and evasion . . . that can be understood as the symbiotic relationship that creates the conditions for innovation, generating a constant arms race between drug traffickers and state agencies.”¹⁸⁵ According to the United Nations Office on Drugs and Crime, between 2010 and 2019, the prevalence of cocaine use globally was fairly stable, but in North America specifically, it was rising slightly—an indication that enforcement was not effective at significantly reducing the overall flow of cocaine the global or national level.¹⁸⁶

¹⁸³ Vice, “Colombian Narcosubs,” 24:50.

¹⁸⁴ Oscar Palma Morales and Juan Sebastián Hernández Sandoval, “La Sorprendente Adaptabilidad de los Narco Traficantes en el Mar” [The Surprising Adaptability of Drug Traffickers at Sea], *La Silla Vacía*, November 11, 2022, <https://www.lasillavacia.com/historias/historias-silla-llena/la-sorprendente-adaptabilidad-de-los-narcotraficantes-en-el-mar/>.

¹⁸⁵ Guerrero C., “Narcosubs.”

¹⁸⁶ United Nations Office on Drugs and Crime, *Drug Market Trends: Cocaine Amphetamine-Type Stimulants*, Booklet 4 of *World Drug Report 2021* (Vienna: United Nations Office on Drugs and Crime, 2021), 35, 41, https://www.unodc.org/res/wdr2021/field/WDR21_Booklet_4.pdf.

A. FINDINGS

Over the last several decades of U.S. counternarcotics policy, the most significant change to enforcement policy was the Reagan administration’s use of the military to support law enforcement. Though military resources and platforms were used strictly in support of law enforcement agencies, and not independently, the military’s unique capability and large pool of resources saw servicemembers taking a de facto leading role in detection and monitoring. When the 1989 NDAA named the DoD the “lead agency” for aerial and maritime detection and monitoring, they took a de jure leading role, in addition to other responsibilities. This organizational change coincided with other factors that catapulted the military into a major counterdrug role. The end of the Cold War left the military and the individual services searching for missions and justification for funding—thus, the war on drugs became an opportunity for the services to demonstrate their continued relevance.

At the same time, public perception that crack cocaine use had reached epidemic levels in urban America was provoked by the media and the American public, of whom more than half believed drugs to be the number one issue facing America.¹⁸⁷ Last, the election of President George H. W. Bush, who had run President Reagan’s South Florida Task Force and led the Reagan administration’s counterdrug efforts, ensured that the White House would continue to pursue an aggressive counterdrug policy. This mission was more than borne out in statements from Bush himself but also Secretary of Defense Dick Cheney and Secretary of State Stuart Baker III. Together, these events made counternarcotics a key priority of the DoD and the Navy, shaping American drug policy and the military’s role in drug enforcement today. Though fewer resources are devoted to the war on drugs today than during the late 1980s or 1990s, the U.S. military has continued to support counternarcotics operations and is still the lead agency for “detection and monitoring,” without having a significant impact on the volume of drugs entering the United States.

Over just a few years, military support for the detection and monitoring mission added tens of thousands of hours of flight hours in military aircraft—far more advanced

¹⁸⁷ Isacson, “Mission Creep,” 89.

than what domestic law enforcement agencies and the Coast Guard had previously—and thousands more of at-sea days for Coast Guard detachments to perform search and seizure operations. This new support, which measured in dollars peaked at \$1.22 *billion* in the early 1990s, put huge pressure on traffickers who were forced to adopt new methods. This support would also nearly completely close off the southern United States to clandestine air routes after a series of military radars were installed along the Gulf Coast. However, traffickers adapted and continued to smuggle cocaine on commercial flights. But this effective closure of the airspace over the southern border forced smugglers to innovate more in the maritime space and likely led directly to the narco-submarines that are so prevalent today. The key lesson here is that increasing law enforcement pressure can lead to major innovation among traffickers—both in routes and methods—and if law enforcement does not or cannot anticipate and prepare for that innovation, the overall flow of drugs or contraband will continue.

Understanding that the origin of the narco-submarine innovation is likely the increased law enforcement pressure, specifically the dramatic expansion of military support to law enforcement, is important because it makes manifest the iterative adaptation cycle between law enforcement and traffickers. Using it as a case study gives policymakers and practitioners a better understanding of how future trafficking adaptation may look and reminds them of a failed interdiction-focused counterdrug policy. Finally, it demonstrates the importance of looking beyond the short-term policy implications of changes to counternarcotics enforcement toward the ways traffickers might adapt to such modifications to enforcement.

Future trafficker adaptation will likely move in two general directions simultaneously. The first is *geographic adaptation*, which is heavily influenced by the specific nature of Caribbean geography, whereby traffickers shift to using routes with less law enforcement activity or less effective law enforcement activity. The greater Caribbean region is ideal for smugglers because the numerous small states and innumerable islands offer a nearly unlimited options for traffickers to reorganize smuggling routes and adapt to external pressure. This has happened repeatedly during the history of illicit cocaine. The first major geographic shift in modern history was the shift from using direct routes from

Colombia to the United States—when federal counternarcotics efforts were relatively weak—to using routes that passed through Central America or the Western Caribbean on the way north to the United States. Later, as law enforcement counternarcotics operations became more effective, partly because of military support, traffickers shifted from the Western Caribbean to the Eastern Pacific. The shift from Caribbean routes to routes in the eastern Pacific was another major shift, though there is evidence this trend is reversing in response to more law enforcement focus on the region and the slow collapse of Venezuela.¹⁸⁸ The Caribbean and Eastern Pacific offer ideal political geography for traffickers because they contain dozens of smaller nations, which make international law enforcement and cooperation difficult as traffickers move between multiple jurisdictions. It also increases the likelihood that internal issues within nations in the region can create advantageous conditions for trafficking, as is happening in Venezuela.¹⁸⁹ Further, the Pacific coast of Colombia and Ecuador, where many maritime trafficking routes begin, is less populated than the Caribbean coast of Colombia, making it easier for traffickers to operate without attracting unwanted attention. The physical geography of the Caribbean, with thousands of small islands, sheltered inlets, and jungle, is also ideal for different methods of trafficking and offers many different routes north. In response to continued law enforcement focus on the Eastern Pacific and increasingly weak Venezuelan sovereignty, traffickers are likely to shift more of their resources back to Caribbean routes from the Pacific. Given these conditions, law enforcement should anticipate and prepare options for this shift in trafficking routes instead of waiting until after a shift has already happened.

The second direction that trafficker adaptation can take in response to evolving law enforcement pressure is in the platforms used. As traffickers did with narco-submarines, they can create entirely new platforms or adapt existing platforms to fit their needs. Unmanned systems are one potential front of innovation for traffickers. Andres Angel

¹⁸⁸ H. I. Sutton, “The Elusive Prey: Narco-Submarines in the Caribbean,” *Strife* (blog), May 13, 2021, <https://www.strifeblog.org/tag/h-i-sutton/>; Walker Mills, “Maritime Security and Colombia with Dr. Oscar Palma Morales,” August 14, 2022, in *Sea Control*, produced by Jonathan Selling, podcast, MP3 audio, 33:24, <https://cimsec.org/sea-control-371-maritime-security-and-colombia-with-dr-oscar-palma-morales/>.

¹⁸⁹ Marcos Ommati, “Is Venezuela Becoming a Major Cocaine Producer?,” *Dialogo Américas*, May 17, 2022, <https://dialogo-americas.com/articles/is-venezuela-becoming-a-major-cocaine-producer/>.

Montoya, in a 2009 interview with Vice Media, predicted that unmanned systems would be the future of cocaine smuggling, saying, “I think that the future of these devices . . . was to make them completely automatic and operated by remote control. . . . That’s where the development was going.”¹⁹⁰ In the same interview, Montoya also predicted that trafficking organizations would work toward building trans-Atlantic capable semisubmersibles, something which has since happened. These systems could also make multiple trips. Today, most semi-submersibles are sent on a one-way trip and sunk after handing off their cargo.

Smuggling trends on the U.S.–Mexico border have may also be foreshadowing trends in trans-Caribbean narcotics trafficking. There have been numerous examples of traffickers using unmanned aerial vehicles (UAVs), or drones, to move illegal drugs across the U.S. border since at least 2010.¹⁹¹ Since then, the use of unmanned systems to smuggle drugs across the U.S.–Mexico border has exploded. CBP officials have told reporters that because the small drones are very difficult to find and track, there are no good estimates of how many are being used for trafficking. One officer said, “I don’t think anybody can give a good, solid number.”¹⁹² Another border security expert said,

We have a lot of physical evidence and proof that there are a lot of these drug flights with drones . . . but because of the lack of a methodology, and a lack of sensors and trained observers, we cannot know how big the problem is. But what things we have seen suggests that the problem is much larger than anybody realizes.¹⁹³

The CBP rank and file gave similar answers when asked to estimate how many drone flights were carrying drugs across the border: “Hundreds to thousands of flights? . . . I couldn’t even tell you an average of five a month or five a week.”¹⁹⁴ Trafficker innovation has led to the use of new platforms (drones) to which law enforcement does not have an

¹⁹⁰ Vice, “Colombian Narcosubs,” 24:20.

¹⁹¹ Alejandro Sanchez, “Worst Case Scenario: The Criminal Use of Drones,” Council on Hemispheric Affairs, February 2, 2015, <http://www.coha.org/worst-case-scenario-the-criminal-use-of-drones/>.

¹⁹² Wright, “How Many Drones Are Smuggling Drugs?”

¹⁹³ Wright.

¹⁹⁴ Wright.

effective response. Small drones do not yet have the capability to carry drugs across the Caribbean or even from island to island. However, they could be utilized in shorter cross-border movements or movements between traffickers on land and at sea. Furthermore, commercial investment in small drones means that they will become cheaper, more capable, more widespread, and more effective, with a longer range and larger payloads that will open new opportunities for traffickers.

At the same time, there are also examples of trafficking platforms that suggest traffickers are pursuing maritime unmanned systems, either submersibles or surface vessels. As far back as 2014, the Colombian Navy has been seizing remote-controlled, unmanned underwater vessels for smuggling cocaine.¹⁹⁵ Often, these are small, relatively crude systems controlled remotely by a boat or vessel traveling alongside them. New, more advanced models of fully submersible and semi-submersible drones for transporting drugs have been seized in recent years, indicating that traffickers are both trying to innovate and taking advantage of advances in unmanned systems technology. In 2021, an American was caught trying to design and build an unmanned, underwater system that would have carried drugs up to 100 miles from its point of origin autonomously.¹⁹⁶ In July 2022, Spanish police seized unmanned semi-submersibles—one under construction had yet to be finished. They might have been used to carry drugs from Morocco to Spain across the Strait of Gibraltar, but similar systems could be used to carry drugs north into the Caribbean from Colombia or Venezuela.¹⁹⁷ Similar to UAVs, the mostly military research into unmanned underwater vessels indicates significant potential for those systems to improve in range as well as payload.

¹⁹⁵ Centro Internacional de Investigación y Análisis Contra Narcotráfico Marítimo, *Modalidades de Narcotráfico Marítimo* [Modalities of Maritime Drug Trafficking] (Cartagena, Colombia: Centro Internacional de Investigaciones y Análisis Contra Narcotráfico Marítimo, 2022), 97, <https://cimcon.armada.mil.co/sites/default/files/sites/default/files/descargas/pdf/Modalidades%20CMCON%202022.pdf>.

¹⁹⁶ Katya Bleszynska, “Underwater Drone Would Have Secretly Delivered Cocaine to Europe,” *Insight Crime*, April 13, 2021, <https://insightcrime.org/news/underwater-drone-would-have-secretly-delivered-cocaine-to-europe/>.

¹⁹⁷ “Drug-Smuggling ‘Drone Submarines’ Seized for the First Time in Spain,” *CBS News*, July 5, 2022, <https://www.cbsnews.com/news/spain-seizes-underwater-drug-smuggling-drones-first-time/>.

Other pressures beyond law enforcement may impact trafficking patterns and innovation. Certainly, changes in demand can shape trafficking, and increasing demand for cocaine in Europe and elsewhere has pushed traffickers to adopt novel techniques and routes to move more cocaine in those directions, including developing semi-submersibles with intercontinental reach.¹⁹⁸ The increasing prevalence of the drug Fentanyl, which can be created synthetically and is potent in extremely small quantities may also disrupt some of the legacy traffic in cocaine. Another source of external pressure, the global COVID-19 pandemic, also put stress on traffickers. U.S. law enforcement reported that during the pandemic, traffickers adjusted by relying more heavily on drones, tunnels, and cryptocurrency to move illicit profits.¹⁹⁹ Even more recently, in 2022, changing monetary policy in the United States, specifically rising interest rates has helped devalue the Colombian peso against the U.S. dollar, and spike cocaine profits.²⁰⁰ While the cocaine trade is very resilient overall, it can quickly change shape in response to external pressures and developments like a balloon being squeezed.

In addition to experimenting with unmanned semi-submersibles, traffickers have also experimented with electric propulsion and fully submersible vessels to secure an advantage over law enforcement. In both 2017 and 2020, the Colombian Navy seized fully electric semi-submersibles.²⁰¹ These vessels might have functioned fully submerged for brief periods and would have been much quieter than vessels using diesel motors—though they likely relied on towing for at least some of their journey.²⁰² In May 2022, Colombian authorities captured what seems to be the first example of an operational, fully submersible

¹⁹⁸ Marson, “First ‘Narco-Submarines’ Caught.”

¹⁹⁹ Steve Fisher and Kirk Semple, “Hit Hard by Pandemic, Mexico’s Drug Cartels Tweaked Their Playbook,” *New York Times*, December 29, 2020, <https://www.nytimes.com/2020/12/29/world/americas/mexico-pandemic-drug-trade.html>.

²⁰⁰ Nelson Matta Colorado, “Narcos Explotan Bonanza de Coca y la Disparada del Dólar,” [Narcos Exploit the Cocaine Bonanza and the Rising Dollar] *El Colombiano*, January 10, 2023, <https://www.elcolombiano.com/colombia/narcos-colombianos-aprovechan-la-bonanza-por-la-devaluacion-del-peso-KH19785593>.

²⁰¹ Centro Internacional de Investigación y Análisis Contra Narcotráfico Marítimo, *La Amenaza de los Semisumergibles* [The Threat of Semi-submersibles] (Cartagena, Colombia: Centro Internacional de Investigaciones y Análisis Contra Narcotráfico Marítimo, 2022), 62, 67.

²⁰² H. I. Sutton, “Rare Electric Narco Submarine Seized in Colombia,” USNI News, November 16, 2020, <https://news.usni.org/2020/11/16/rare-electric-narco-submarine-seized-in-colombia>.

vessel on the Arauca River, on the border between Colombia and Venezuela.²⁰³ It is unclear exactly what route the vessel would have been traveling because it was captured inland, but it represents a significant improvement in capability over any other design that has been seized in operation.²⁰⁴ Other, more advanced examples of fully submersible vessels have been found, but they were still under construction—and not yet operational. These discoveries might also be informed by selection bias in that law enforcement authorities cannot detect or seize more advanced and fully submersible trafficking vessels. Colombian Navy officers have also speculated that the next front in semisubmersible adaptation will be to make the vessels “more invisible to airplane detection,” which would help protect them from navy and coast guard aircraft.²⁰⁵ One way to avoid detection by aircraft would be to dive deeper and use a fully submersible vessel. The seizure of novel submersibles is proof that traffickers are continuing to innovate in response to law enforcement pressure by experimenting with new technologies and modifications to narco-submarines.²⁰⁶ It is also possible that traffickers are experimenting with fully submersible vessels but that the higher cost and significant skill required to operate them is an excessive investment when semi-submersibles are capable enough. Operating fully submersible submarines is exceedingly dangerous and usually requires years of training, the early history of submarine development is full of tragic accidents.

B. FINAL THOUGHTS

Ultimately, it is impossible to accurately predict how traffickers will adapt to current and future law enforcement pressure. However, it is certain that they will continue to adapt both their methods and their routes to keep their business viable as they have over the last several decades using both technological innovation and geographic flexibility

²⁰³ “Questions Surround Venezuela’s Recent Seizure of Rare Drug Sub,” Insight Crime, May 6, 2022, <https://insightcrime.org/news/questions-surround-venezuela-seizure-rare-drug-sub/>.

²⁰⁴ H. I. Sutton, “First Time Rare Fully-Submersible Narco Submarine Caught,” *Covert Shores* (blog), May 2, 2022, <http://www.hisutton.com/Fully-Submersible-Narco-Submarine-Apr-2022.html>.

²⁰⁵ Vice, “Colombian Narcosubs,” 16:30.

²⁰⁶ Byron Ramirez, “Narco-Submarines: applying Advanced Technologies to Drug Smuggling,” *Small Wars Journal*, August 3, 2014, <https://smallwarsjournal.com/jrnl/art/narco-submarines-applying-advanced-technologies-to-drug-smuggling>.

within the greater Caribbean. Former trafficker Andres Angel Montoya asserted that traffickers would continue to be able to adapt because, “All of the drug trafficking organizations in Colombia have educated people working for them, people that are always looking for ways to beat the system. They are always on the cutting edge. It doesn’t matter how much it will cost, the profits will be enough to pay the bills.”²⁰⁷ Because these criminal organizations are “always looking for ways to beat the system,” and they can devote significant resources to doing so, they have consistently been able to stay “one step ahead,” in Montoya’s words.²⁰⁸ To date, law enforcement, even with significant assistance from the military and international partners, has not significantly reduced the availability of cocaine in the United States, which indicates that it might not be possible to do so through interdiction. Like the metaphor of a balloon introduced earlier, pressure on one part of the balloon will only force more air to another part of the balloon, and the volume of air will remain constant.

From another perspective, counternarcotics is about managing the availability of drugs and limiting drug-related deaths, and it is unreasonable to expect that any level of counternarcotics efforts could totally stem the flow of illegal drugs. Even when counternarcotics resource levels peaked in the 1990s, at a level far higher than it is today, traffickers could still successfully move drugs north because they could quickly adapt. The same holds true in the future, so U.S. counterdrug approaches should focus on areas besides interdiction. It is imperative that law enforcement agencies in the United States and abroad focus on anticipating how traffickers will adapt to shifts in law enforcement policies and tactics. An overemphasis on short-term increases in seizures can push traffickers to adopt new routes and platforms that make interdiction much more difficult in the long term. Only by recognizing that traffickers will adapt and innovate in response to changes in law enforcement pressure and policy can agencies anticipate that adaptation and prepare appropriate responses to it.

²⁰⁷ Vice, “Colombian Narcosubs,” 25:40.

²⁰⁸ Vice, 25:40.

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