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THESIS

**THE IDLE THREAT? AN ASSESSEMENT OF THE
ECONOMIC, MILITARY, AND STRATEGIC
CONSEQUENCES OF AN IRANIAN CLOSURE OF THE
STRAIT OF HORMUZ**

by

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September 2010

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STRAIT OF HORMUZ**

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ABSTRACT

The continual developments in the Iranian nuclear program have caused increased concern not only for the United States but the majority of the international community as well. While several rounds of United Nations sanctions have been placed on Iran, this has not deterred it from continuing its nuclear advancements. The United States has publicly announced that it does not support Iran's developing nuclear program and will inflict measures to ensure that it discontinues these advances. While these measures have not been clearly defined, Iran has stated that hostile actions taken by the international community, specifically the United States or Israel, may result in the closure of the Strait of Hormuz. While Iran has used this threat in the past, primarily in the Iraq-Iran War, its full strength has never come to fruition. This thesis aims to determine whether closing the Strait of Hormuz is a viable option as an Iranian retaliation mechanism against increased sanctions from the international community and the United States, or a direct attack from either Israel or the United States, by analyzing the economic, strategic, and military consequences for Iran, the United States and the Gulf Cooperation Council States.

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LIST OF ACRONYMS AND ABBREVIATIONS

AAV	Amphibious Assault Vehicle
ACC	Air Combat Command
AEF	Aerospace Expeditionary Force
AETC	Air Education and Training Command
AFGSC	Air Force Global Strike Command
AFMC	Air Force Material Command
AFSPC	Air Force Space Command
AFSOC	Air Force Special Operations Command
AMC	Mobility Command
AR	Army Reserves
ARNG	Army National Guard
BSB	Brigade Support Battalion
BSTB	Brigade Special Troop Battalion
CAB	Combat Aviation Brigade
CENTCOM	Central Command
EAC	Eastern Area Command
ESG	Expeditionary Strike Group
EW	Electronic Warfare
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
HBCT	Heavy Brigade Combat Team
IAEA	International Atomic Energy Association
IBCT	Infantry Brigade Combat Team
ILSA	Iran Libya Sanctions Act
IRGC	Islamic Revolutionary Guard Corps
IOC	International Oil Company
ISR	Intelligence, Surveillance, Reconnaissance
JTFME	Joint Task Force Middle East
LAV	Light Armored Vehicle
LNG	Liquefied Natural Gas

LST	Landing Ship, Tank
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
MLP	Mobile Landing Platform
NIOC	National Iranian Oil Company
NPT	Nuclear Non-Proliferation Treaty
OPEC	Organization of the Petroleum Exporting Countries
PNZ	Partitioned Neutral Zone
QEAF	Qatar Emiri Air Force
QDR	Quadrennial Defense Review Report
RAFO	Royal Air Force of Oman
RAO	Royal Army of Oman
RNO	Royal Navy of Oman
RSADF	Royal Saudi Air Defense Force
RSAF	Royal Saudi Air Force
RSLF	Royal Saudi Land Force
RSN	Royal Saudi Navy
RSTA	Reconnaissance, Surveillance, and Target Acquisition
SAC	Southern Area Command
SAM	Surface to air Missile
SANG	Saudi Arabian National Guard
SBCT	Stryker Brigade Combat Team
SDV	SEAL Delivery Vehicle
SEAL	Sea, Air, and Land
THAAD	Terminal High Altitude Area Defense
TSS	Traffic Separation Scheme
UAE	United Arab Emirates
AF & AD	Air Force & Air Defense
UAV	Unmanned Aerial Vehicle
WAC	Western Area Command

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I. IRANIAN NUCLEAR PROGRAM

A. INTRODUCTION

Developments in the Iranian nuclear program since the 1990s have been and continue to be at the height of controversy between United States and Iranian relations. Iran is a member of the Nuclear Non-Proliferation Treaty (NPT), agreeing to the peaceful use of nuclear technology, disarmament, and non-proliferation, but has been found in violation of the treaty by the International Atomic Energy Agency (IAEA) on several occasions, beginning as early as 2003. With such violations, the United States imposed multiple sanctions on Iran, and the Bush administration discussed the possibility of airstrikes against Iran's nuclear facilities, as they were an existential threat to Israel.¹

With these realities in mind and the current developments in the Iranian nuclear program, the question that arises is: If the United States or Israel either attacked Iran's nuclear facilities or imposed a significant regime of sanctions on Iran, as described by President Obama, would Iran close the Strait of Hormuz in retaliation? How would the world, specifically the United States and Iran itself, respond to the closing of Hormuz and what would be the economic and strategic advantages and disadvantages if Iran closed the Strait?

An in-depth and elaborate analysis of Iran's nuclear program is outside the scope of this thesis; however, a brief history must be addressed in order to establish whether or not Iran would close the Strait of Hormuz as a retaliatory mechanism. In all scenarios, there is a cause and an effect; in this thesis, the effect is the closure of the Strait of Hormuz, caused either by military offensive action by the United States or Israel, or greater sanctions placed upon Iran. Iran's developing nuclear program is central to this casual mechanism: thus, a brief look into the history of the Iranian nuclear program, as well as its present developments, is in order.

¹ Asli U. Bali, "The US and the Iranian Nuclear Impasse," *Middle East Report*, no. 241 (2006): 18–19.

B. THE BEGINNING OF IRAN'S NUCLEAR PROGRAM AND THE U.S. RESPONSE

Prior to the Iran-Iraq War (1980–1988), Iran made significant strides concerning its nuclear future under the Shah. In 1957, Iran signed an agreement with the United States on cooperating in the peaceful use of atomic energy as part of the Atoms for Peace Program. In 1970, Iran signed the NPT, and finally, in 1974, it concluded a safeguard agreement with the IAEA.² Iran was encouraged by and worked with the United States, France, India, Germany, Denmark, and South Africa in order to build up its nuclear energy program. The United States provided enriched uranium, depleted uranium, and thermal reactors to Iran, whereas France agreed to repair reactors as well as provide enriched uranium and reactors. Iran signed a nuclear cooperation agreement with India, and solidified a contract with Germany to construct reactors in Bushehr as well as to be provided with enriched uranium. Denmark supplied Iran with enriched uranium and Iran agreed to buy yellowcake from South Africa in order to support its nuclear goals of building an enrichment plant. While the close Cold War relationship between Iran and the United States facilitated Iran in the advancement of its nuclear energy program, the United States scrutinized every action taken by Iran. And, in 1979, after several disagreements concerning safeguards and intelligence reports of a possible nuclear weapons program, the United States ceased to provide Iran with enriched uranium. This was just the beginning of the lack of cooperation concerning Iran's nuclear program between the United States and Iran and, with the fall of the Shah, this relationship became more cantankerous.

C. IRANIAN ADVANCEMENTS THROUGHOUT THE 1980s AND 1990s AND THE U.S. RESPONSE

The 1980s and 1990s revealed continuous advancements within the Iranian nuclear program, and there were “strong indications that Ayatollah Khomeini revived Iran's nuclear weapons program after Iraq started to use chemical weapons against Iran

² Andrew Rathmell, *Iran's Weapons of Mass Destruction*, In Jane's Intelligence Review 6 (Coulsdon, UK: Jane's Information Group, 1995), 10.

during the Iran-Iraq War.”³ During this time, Iran sought out help from several countries to continue their nuclear program but, due to pressure from the United States, initially only Russia and China were willing to assist Iran in such an endeavor. Regardless of a lack of international concession, Iran was able to continue building up its nuclear program and was provided with enriched uranium, money, and technical support by Russia, China, Argentina, South Africa, India, and Pakistan. China abandoned its promise to assist in the construction of a uranium hexafluoride conversion plant at Isfahan, but Iran maintained the blueprint of the project in order to continue moving ahead while, at the same time, procuring an \$800 million contract with the Russian nuclear energy ministry to complete work on a light-water reactor at Bushehr.⁴ Not only was the United States no longer supporting Iran in its pursuit of nuclear technology, it also was actively siding against Iran throughout the 1980s and 1990s, specifically during the Iran-Iraq War. The combination of U.S. distrust of Iran concerning its nuclear program, Iranian actions directed toward the United States after the fall of the Shah, and the constant threats by Iran to close the Strait of Hormuz during the Iran-Iraq War caused the United States to further isolate Iran.

The mid-1990s saw no change to the U.S. perception of Iran and “in 1995 and 1996, the Clinton Administration and Congress added sanctions on Iran in response to growing concerns about Iran’s weapons of mass destruction.”⁵ These sanctions banned U.S. companies from partaking in business deals with Iran as well as prohibiting the financing of Iranian petroleum projects. The U.S. Congress expanded upon President Clinton’s sanctions and passed the Iran-Libya Sanctions Act (ILSA) in 1996. This act imposed “sanctions of up to \$20 million annually on any company investing in Iran’s gas and oil sector.”⁶ With the continual advancements in the Iranian nuclear program and a less than desirable relationship between Iran and the United States, the Clinton

³ Anthony H. Cordesman and Khalid R. Al-Rodhan, *Iran’s Weapons of Mass Destruction: The Real and Potential Threat* (Washington, D.C.: Center for Strategic and International Studies, 2006), 107.

⁴ Asli U. Bali, “The US and the Iranian Nuclear Impasse,” *Middle East Report* no. 241 (2006): 13.

⁵ Kenneth Katzman, “Iran: U.S. Concerns and Policy Responses,” *Congressional Research Service* (2010): 40.

⁶ Anthony H. Cordesman and Khalid R. Al-Rodhan, *Iran’s Weapons of Mass Destruction: The Real and Potential Threat* (Washington, D.C.: Center for Strategic and International Studies, 2006), 312.

Administration attempted to send positive signals to newly elected Iranian president Khatami, but to little avail. The lack of direct talks between Iran and the United States, coupled with the outpouring of enriched uranium and reactor progress in Iran, meant the Clinton Administration partially agreed with President Reagan's branding of Iran as a member of a "confederation of terrorist states,"⁷ and associated such a state with weapons of mass destruction. Without knowing the exact intentions of the Iranian nuclear program or whether it was being designed in order to arm terrorist organizations, the United States prepared for the worst and dually combated terrorism and Iran's nuclear program through the previously listed sanctions. During the administration of President George W. Bush, these sanctions continued.

D. PRESIDENT GEORGE W. BUSH ERA

Following the September 11, 2001, terrorist attacks on the World Trade Center in New York City, U.S. policy toward Iran and its nuclear program became even more stringent. While Iranians were not directly responsible for the attacks on the United States, it was still enhancing its nuclear program, and without a clear vision of Iran's intent, U.S. policy toward Iran became more rigorous. President Bush's "administration undertook multi-faceted efforts to limit Iran's strategic capabilities through international diplomacy and sanctions-both international sanctions as well as sanctions enforced by its allies, outside Security Council mandates."⁸ There were conflicting reports concerning the completion percentage of the Bushehr power plant, with estimates ranging from 40 percent to 90 percent and, while Iran was a signatory of the NPT, the United States was wary of its intentions. The July-December 2001 unclassified CIA report to Congress specified that:

⁷ Susan Wright, "Terrorists and Biological Weapons: Forging the Linkage in the Clinton Administration," *Politics and the Life Sciences* 25 no.1/2 (2006): 63.

⁸ Kenneth Katzman, "Iran: U.S. Concerns and Policy Responses," *Congressional Research Service* (2010): 40-41.

Iran [was] vigorously pursuing programs to produce indigenous WMD-nuclear, chemical, and biological...despite Iran's status in the Treaty on the Nonproliferation of Nuclear Weapons (NPT), the United States is convinced Tehran is pursuing a nuclear weapons program.⁹

With these thoughts in mind, the United States set out on a mission to expose the entirety of Iran's nuclear program.

Beginning in August 2002, the full spectrum of the Iranian nuclear program began to surface as Iran openly declared its long-term plan to construct nuclear power plants. Upon this proclamation, and unofficial reports of undeclared nuclear facilities, the IAEA began to scrutinize Iran's program intensely, and discovered "unreported Iranian activities over an 18-year period... [including] undeclared enrichment activities, undeclared reprocessing experiments and the import of undeclared fissile materials from foreign suppliers."¹⁰ While these discoveries were made, Iran technically was not in violation of any IAEA safeguard obligations or the NPT. The fact that Iran was not found in violation of the NPT did not deter the IAEA and several countries from becoming even more wary of Iran's nuclear program, thus more IAEA inspections were conducted. IAEA inspections revealed that P-1 and P-2 centrifuges, uranium hexafluoride, uranium tetrafluoride, and uranium dioxide, all essential ingredients in the conversion to and enrichment of nuclear fuel, had not been reported by Iran at the time of receipt. Also, Iran restricted the IAEA from inspecting the Parchin military complex for a period of time, and then only allowed them access to certain parts of the site. Upon the completion of their extensive inspection of the Iranian nuclear program, the IAEA concluded, in November 2004, that:

many aspects of Iran's nuclear fuel cycle activities and experiments, particularly in the areas of the uranium enrichment, uranium conversion and plutonium separation, were not declared to the Agency in accordance with Iran's obligations under its Safeguard Agreement...Iran's policy of concealment continued until October 2003, and has resulted in many

⁹ Central Intelligence Agency, "Unclassified Report to Congress, July-December 2001," Central Intelligence Agency, https://www.cia.gov/library/reports/archived-reports-1/july_dec2001.htm#3.

¹⁰ Asli U. Bali, "The US and Iranian Nuclear Impasse," *Middle East Report* no. 241, (2006): 13-14.

breaches of its obligation to comply with the Agreement...Since that time, good progress has been made in Iran's correction of those breaches and in the Agency's ability to confirm certain aspects of Iran's current declarations, which will be followed up as a routine safeguards implementation matter.¹¹

While no solid evidence was found to discredit Iran's nuclear program completely, the IAEA still cautioned "that the existence of a weapons program could not be discounted, as a result of incomplete information and a series of unresolved questions."¹² Even with the IAEA's findings in Iran, the United States still believed that Iran was concealing its true intentions concerning its nuclear program, based on the myriad of discrepancies and reporting violations from Iran's past. Britain, France, and Germany began to negotiate with Iran in order to remedy discrepancies found by the IAEA, as well as to encourage Iran to halt its enrichment activities based on several incentives. The Paris Agreement ensued and Iran agreed to adjourn its enrichment activities. However, this Agreement was too vague in nature and never fully came to fruition. Instead, Iran agreed to intense scrutiny by the IAEA while still being able to continue with their enrichment activities.

The Bush Administration's policy concerning Iran and its nuclear program was at the forefront of U.S. policy beginning in 2005. With stalemates between Iran and the EU-3 (Britain, France, and Russia) as well as between Iran and the IAEA, the United States became more fearful of the Iranian nuclear program, because they believed it to be military in nature, which posed an existential threat to Israel; therefore, such a threat must be eliminated.¹³ With U.S. intelligence reports reflecting that Iran's nuclear program could be used for purposes other than nuclear power, and with Iran's consistent reported violations of materials and progress concerning its nuclear developments, the United States had to be prepared to combat this potential threat. Many options were presented to the White House; one military plan called "for the use of a bunker-buster tactical nuclear

¹¹ International Atomic Energy Agency, "Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran," International Atomic Energy Agency Board of Governors, <http://www.iaea.org/Publications/Documents/Board/2004/gov2004-83.pdf>.

¹² Asli U. Bali, "The US and the Iranian Nuclear Impasse," *Middle East Report* no. 241 (2006): 17.

¹³ *Ibid.*, 19.

weapon, such as the B61-11, against underground nuclear sites.”¹⁴ This option never came to fruition. The Bush Administration focused their efforts “on passing sanctions against Iran at the Security Council.”¹⁵ The United States took the offensive and, instead of waiting for action from Iran, took action in the form of sanctions against Iran, which were supported by a majority of the international powers. The sanctions affected Iran to an extent, but were not enough to influence Iran to halt its nuclear progress. With the coming of President Barack Obama into office, Iran’s nuclear ambitions continued to escalate.

E. PRESIDENT BARACK OBAMA’S APPROACH

With the continual progress of its nuclear developments,

Iran vehemently insist[ed] on the right to develop such technology, citing international law, the need to find energy alternatives, and the inalienable right of developing countries to enter the modern world by harnessing what it sees to be the cutting of science... [and] it add[ed] that it has no intention of expanding its current nuclear program to producing weapons.¹⁶

Such strong convictions coming from Iran at the beginning of President Obama’s tenure shaped his policy of consistent and direct diplomacy with Tehran in order to persuade it to limit its nuclear program strictly to technology while abandoning any developments in the military and weapons realm. While there was openness on the part of the United States for engagements with Iran, President Obama did not lift the U.S. ban on trade and investments with Iran. The United States continued to monitor the progress of the Iranian nuclear program through U.S. intelligence reports and IAEA inspection reports; but, with Iran’s apparent unwillingness to engage in direct talks with the United States, Iran’s expressed stance of not attempting to develop nuclear weapons was becoming less believable to the United States.

¹⁴ Seymour M. Hersh, “The Iran Plans,” *New Yorker*, April, 17, 2006, 2, http://www.newyorker.com/archive/2006/04/17/060417fa_fact?currentPage=1.

¹⁵ Asli U. Bali, “The US and the Iranian Nuclear Impasse,” *Middle East Report* no. 241 (2006): 19.

¹⁶ Ervand Abrahamian, *A History of Modern Iran* (New York: Cambridge University Press, 2008), 195.

The apprehensive feelings concerning Iran's nuclear program were validated prior to October 1, 2009, when it was discovered that "Iran was secretly building a second uranium enrichment facility near Qom."¹⁷ While Iran immediately conceded to having this new site, and claimed that, like the site in Natanz, Qom also was being used for energy purposes, the international community could find few explanations to validate this proclamation. Following this discovery, the major powers of the international community—the United States, Britain, France, Germany, Russia, and China—met in Geneva in October 2009 and discussed nuclear issues. The six powers proposed a concession, which stipulated that "if Iran [told] inspectors the truth and curb[ed] its most dangerous nuclear activities, there would also be co-operation in other advanced nuclear technologies, including the civilian power-generation that it claim[ed] to be its sole aim."¹⁸ The proposal was neither accepted nor denied but cooperation from Iran seemed to be nonnegotiable.

With such shrewd conciliation tactics from Iran, and its apparent determination to continue down the nuclear path, the international community was not shocked when Iran announced to the world on February 11, 2010, that its nuclear program, which previously could be refined to 3.5%, was capable of enriching to 20%. This fact alone proved President Obama's conviction that Iran was on a course that would lead to the development of nuclear weapons-grade material.¹⁹ Iran's past discrepancies with reporting nuclear advances, the apparent lack of willingness to cooperate with international powers, and the continued advancements in its nuclear program, were evidence enough to motivate United States and international action. President Obama has already declared that if Iran does not to begin to negotiate with international powers concerning its nuclear program, it will face "strong and smart economic sanctions."²⁰

¹⁷ Iran Defence & Security Report, "Political Overview: Foreign Policy," Iran Defence & Security Report Q2 2010.

¹⁸ At the tipping-point; Iran, the world and the bomb, *The Economist* (2009).

¹⁹ United Press International, "Daily Briefing: Iranian Nukes," United Press International, <http://www.upi.com/Daily-Briefing/2010/02/10/Iranian-nukes/UPI-84691265812022/>.

²⁰ United Press International, "Iran warns U.S. against military option," United Press International, http://www.upi.com/Top_News/Special/2010/04/08/Iran-warns-US-against-military-option/UPI-46531270751522/.

While the United States has not indicated that it will take military action against Iran if it does not begin to concede to international pressures pertaining to its nuclear program, there also has not been an indication that an attack on Iran is completely out of the realm of possibilities. Some further form of action from the United States is in the near future for Iran if it does not significantly diminish its nuclear ambitions, and the United States is not standing alone in this ultimatum.

F. ISRAEL EQUALS THE UNITED STATES

The United States is not standing alone in its endeavor to curb Iran's nuclear program. A majority of the major international powers support this stance; one country in particular, Israel, a strong ally of the United States, has considerable trepidation about Iran's nuclear program. Israel is important in this scenario because Iran has stipulated in the past that any action taken by either Israel or the United States would be viewed as an action taken by both, thus Iranian counter-actions would not discriminate between the United States or Israel because of their special relationship. There are several theories behind why Iran wants a nuclear program: advancements for civilian purposes, covered under article 4 of the NPT; a bargaining tool with the United States in order to seek security guarantees from Washington; and simply just wanting to say that it has "the bomb" for deterrent purposes.²¹ Regardless of the actual intentions behind Iran's nuclear program, Israel is standing firm in its conviction that a nuclear-armed Iran would be devastating for the international community. Such fear and outright refusal from Israel to accept a nuclear Iran "generated testimony in Congress by CENTCOM commander General Petraeus indicating that Israel has become so frightened by a prospect of a nuclear Iran that it might decide to launch a strike on Iran's nuclear facilities."²² The Bush administration did not support such an action by Israel and neither does the Obama administration. Instead, for the time being, the United States is committed to austere sanctions on Iran and has not given Israel the "green light" to attack Iranian nuclear facilities. It has already been determined that the United States has not taken military action

²¹ Therese Delpech, *Iran and the Bomb: The Abdication of International Responsibility* (New York: Columbia University Press, 2007), 9–14.

²² Kenneth Katzman, "Iran: U.S. Concerns and Policy Responses," *Congressional Research Service* (2010): 44.

against Iran off the table, but an Israeli offensive posture appears to be more likely at this stage in the game. Whether the United States agrees or disagrees with offensive actions that Israel may take, it is all the same to Iran: it will retaliate with brute force.

G. CONCLUSION

The goal of this thesis is not to analyze the Iranian nuclear program and the U.S. response; however, the history sets the stage for the remainder of this research. Since the time of the Shah, Iran has been developing nuclear technology and, in 2010, it is continuing a more aggressive plan. While the United States and a majority of the international community supported Iran's desire for nuclear technology in the beginning of its development, this is no longer the case today. Throughout Iran's nuclear history, it has repeatedly concealed its progress and its resources and has lost the trust of the international community, specifically the United States, in its pursuit of nuclear advancement. While several international entities, including the EU-3 and the United States, have attempted to engage in communications with Iran in order to craft a plan that appeased both the international community and Iran concerning its nuclear program, no proposal has yet to come to fruition. Iran feels that its nuclear program is being discriminated against, specifically by the United States, and whether this is actually the case or just an Iranian notion, the United States is going to act, in some form or another, to curb Iranian nuclear ambitions. Significant sanctions have been placed on Iran for decades and, in light of Iran's continual developments in its nuclear program, these sanctions are going to increase. The United States feels that it needs to combat Iran's nuclear program, and whether pressure is applied through greater sanctions, to cripple the Iranian economy, or a type of offensive military action, to force Iran to cease its nuclear development, Iran will retaliate. Throughout recent history, Iran has continually threatened to close the Strait of Hormuz as a retaliatory mechanism. It threatened to do so in the Iran-Iraq War, and it continues to offer this threat to the international community any time discord begins to arise. While Iran has never committed the act, disputes over Iran's nuclear program are causing the United States to act, and these actions could be the scenario that ultimately triggers Iran to react by carrying out such a significant threat.

II. STRAIT OF HORMUZ

A. GEOGRAPHICAL STATISTICS AND IMPORTANCE

The Strait of Hormuz, which connects the Persian Gulf to the Gulf of Oman, is considered one of the world's most strategically important choke points.. “Geographically, the strait is bound in the Persian Gulf by a line drawn northward from Ra’s Shaykh Mas’ud on the western side of the Musandam Peninsula to Jazireh-ye Hengam south of the Iranian coast, and in the Gulf of Oman by a line drawn from Ra’s Dabbah on the eastern side of the Musandam Peninsula to Damagheh-ye Kuh on the Iranian coast.”²³ The strait is approximately 104 miles long and, at its narrowest, is between 21 and 26 nautical miles wide. Iran is the only non-Arab state that not only borders the Persian Gulf but also borders the Strait, claiming 635 nautical miles of the Persian Gulf coast and 636,000 square miles that borders the Strait.²⁴ The water depths in the Persian Gulf average between 40 and 50 fathoms, but in the Strait of Hormuz, depths are less on the Iranian side and may be as shallow as nine fathoms. Due to the narrowness of the Strait, all vessels must follow the Traffic Separation Scheme (TSS). The TSS is designed to prevent collisions in the Strait and has two equal lanes, one inbound and one outbound, both of which are two miles wide. The Strait experiences swells and tidal currents throughout the year, when these are combined with reduced visibility due to fog or sandstorms, navigation through the Strait can be a challenging experience, especially during the summer months. Long transits in a narrow, crowded waterway, with areas of shallow water conducive to running aground, and unpredictable weather and current conditions, make navigating the Strait of Hormuz a complicated operation, which is undertaken by over a dozen vessels every day.

²³ R.K. Ramazani, *International Straits of the World: The Persian Gulf and the Strait of Hormuz* (Netherlands: Sijthoff & Noordhoff International Publishers BV Alphen aan den Rijn, 1979), 1.

²⁴ *Ibid.*, 5–7.

The Strait of Hormuz is important because of its strategic location between the Persian Gulf and the Gulf of Oman, which leads to the Arabian Sea. It has been considered the “world’s most important oil chokepoint due its daily oil flow of 16.5–17 million barrels (first half of 2008E), which is roughly 40 percent of all seaborne traded oil (or 20 percent of oil traded worldwide).”²⁵ While amounts of oil transiting the Strait vary from year to year based on international economics, it cannot be debated that approximately 60% of the world’s oil reserves are located in the Persian Gulf and the primary means of transporting this good, vastly sought after by the international community, is the Strait of Hormuz. While there are some alternate pipeline routes to transport oil from the Persian Gulf countries, the rate at which this could happen is significantly less compared to transporting it on tankers and sending it through the Strait. It must also be noted that the Strait is of international importance because countries in Asia, North America, and Europe all depend on the oil that comes from the Persian Gulf. The Gulf States depend on their oil export revenues but they also depend on imports as well. The Strait of Hormuz is a vital waterway for the international community but, in order to fully understand the magnitude of its importance, the specific products that transit the Strait—as well as which countries benefit from the vital waterway—need to be analyzed.

B. ECONOMIC INTERESTS

1. Iran

While there are land pipelines able to transport natural resources from the Gulf coast countries to the rest of the world, the primary means for exporting these resources is the Strait of Hormuz, which makes it such a vital waterway in the Middle East. The Gulf countries are responsible for the majority of crude oil reserves throughout the world and Iran has no small part in this claim. “Iran alone is estimated to hold 11.1 percent of the world’s oil reserves (132.0 billion barrels of oil), and 15.3 percent of the world’s natural

²⁵ U.S. Energy Information Administration Independent Statistics and Analysis, “World Oil Transit Chokepoints: Strait of Hormuz,” U.S. Energy Information Administration, http://www.eia.doe.gov/cabs/World_Oil_Transit_Chokepoints/Hormuz.html.

gas reserves (970.8 trillion cubic feet),”²⁶ making it the owner of the fifth-largest oil reserves and second-largest petroleum reserves. Such staggering numbers of natural reserves make Iran a petroleum-dependent economy, gaining the majority of its revenue from oil and natural gas exports.

While the international economy is always changing and Iran’s oil revenue is constantly in flux, oil exports that transit the Strait of Hormuz remain its primary means of revenue. Iran experienced a decrease in oil production and revenue after the Islamic Revolution in 1979 as well as during the Iran-Iraq War (1980–88) and then witnessed a steady increase in both throughout the 1990s, which highlights the fluctuation in the Iranian economy. Overall, however, “over the longer period, from 1960 to 2002, the annual rate of growth was 4.6 percent.”²⁷ Compared to other oil exporting Middle Eastern countries, Iran fared the best and was able to sustain its economy primarily through oil revenues, despite the fact that its oil production reached its peak in 1974 and was on a slow decline until 2002. Although Iran has the oldest oil fields in the Persian Gulf, it is preparing to output above 7.3 million b/d in 2020 compared to its target output in 2010 of 5.6 million b/d.²⁸ With such an ambitious increase in the span of just a decade, Iran may have a hefty maintenance expense in its future but, from this statistic, one can gather that Iran plans to continue using oil exports as its primary means of revenue, the majority of which must transit the Strait of Hormuz.

By looking into the Iranian economy, both past and present, it becomes apparent just how much the state relies on its oil exports for sustainability. In 1999, the Iranian economy “relied heavily on oil export revenues (around 80% of total export earnings, 40%–50% of the government budget, and 10%–20% of GDP).”²⁹ And, in 2008, the U.S. Energy Information Administration (EIA) reported that “Iran’s net oil export

²⁶ BP, *Statistical Review of World Energy*, June 2005.

²⁷ Valerie Marcel, *Oil Titans: National Oil Companies in the Middle East* (Washington, D.C.: Brookings Institution Press, 2006), 240.

²⁸ Gawdat Bahgat, *American Oil Diplomacy in the Persian Gulf and the Caspian Sea* (Gainesville, FL: University Press of Florida, 2003), 109.

²⁹ Global Security, “Oil,” Global Security.org, <http://www.globalsecurity.org/military/world/iran/oil.htm>.

revenues amounted to approximately \$73 billion...oil exports provide approximately half of Iran's government revenues, while crude oil and its derivatives account for nearly 80 percent of Iran's total exports."³⁰ Without the Strait of Hormuz open to transport the majority of Iranian exports throughout the world, Iran would be reducing its revenue considerably. With approximately 40 percent of the world's seaborne oil exports transiting the Strait, and with the EIA predicting that oil exports passing through the Strait will increase from 15 million b/d today to 30–34 million b/d by 2020, Iran will undoubtedly continue to prosper in this exporting endeavor.³¹

While Iran appears content in continuing to export oil in order to maintain its national revenue, the last few decades have revealed that Iran also has an abundance of natural gas that it could export in order to increase its revenue. "Iran holds 15.3 percent of the world's proven natural gas reserves (second only to Russia)."³² With this alternative, compared to oil, Iran has been able to capitalize on its abundant reserves both nationally and internationally. And while natural gas is less appealing to the international market compared to oil, Iran has been able to profit from this natural resource. One such example is the \$20 billion contract that Iran and Turkey signed, solidifying the agreement that Iran would supply natural gas to Turkey for 22 years.³³ This revenue from one single country could prove profitable for the Iranian economy, but transporting gas through land pipelines is much less complicated than transporting it as liquefied natural gas (LNG). The Indian-Iranian communications concerning Iranian natural gas exports is much more of a challenge compared to the transaction with Turkey because the delivery process is more complex. A pipeline through Pakistan does not seem feasible in the near future, so the natural gas would need to be converted to LNG and then shipped to India via the Strait of Hormuz. With such a profitable trade partnership with Turkey as a model, Iran may continue to explore this exporting option, once again, enunciating the importance of the Strait.

³⁰ U.S. Energy Information Administration, "Iran: Oil," U.S. Energy Information Administration Independent Statistics and Analysis, <http://www.eia.doe.gov/emeu/cabs/Iran/Oil.html>.

³¹ Eric Watkins, "Showdown in Hormuz," *Oil & Gas Journal* (2009): 30.

³² *Ibid.*, 110.

³³ *Ibid.*, 113.

While Iran is beginning to diversify its exports from primarily oil to both oil and natural gas, and the Strait of Hormuz is a significant factor in this process, it is also important concerning Iranian imports. Prior to discovering its multitude of natural gas reserves, and even today, Iran's primary import is gasoline due to the fact that it lacks refining capabilities. While Iran is becoming more technologically savvy in this area and beginning to utilize this resource more, it does not take away from the fact that "Iran gasoline imports approximated 130,000 bbl/d/ in 2009, nearly 80 percent of total product imports."³⁴ Without this vital resource, the majority of which is imported via the Strait of Hormuz, from countries including China, Russia, and India, Iran would face serious consequences.

The National Iranian Oil Company (NIOC) is primarily responsible for the oil and natural gas production throughout Iran and, while its abundant supply of these reserves has proven to be both profitable and lacking at times, assistance from foreign investors has aided Iran in exponentially increasing its profit margin. By attracting International Oil Companies (IOCs) from Europe, Canada, and Japan, Iran has been able to increase production in offshore fields as well as to explore new technologies for future natural gas projects and oil exports. And "since 1995, when Iran officially invited foreign investors to participate in the development of its oil and gas fields, the two sides signed deals worth more than \$10 billion."³⁵ This statistic again points to the fact that Iran depends on the exports of its oil and natural gas resources for its primary means of state revenue. While Iran profits significantly from its oil exports that transit the Strait of Hormuz and possible future exports of LNG, and depends on this vital waterway for its imports, other countries rely on an open Strait for their imports and exports as well.

2. The United States

Prior to the 1960s, the United States was the world's largest crude oil producing area, responsible for 50 to 65 percent of the world's oil and supplying around 20 to 25

³⁴ U.S. Energy Information Administration, "Iran: Oil," U.S. Energy Information Administration Independent Statistics and Analysis, <http://www.eia.doe.gov/emeu/cabs/Iran/Oil.html>.

³⁵ *Ibid.*, 116.

percent of non-U.S. demand in addition to its own rapidly-rising requirements.³⁶ Although the United States' oil production increased throughout the 1950s and 1960s, the 1970s brought with it increased oil consumption but decreased production, forcing the United States to depend primarily on other countries for its oil imports, making the Strait of Hormuz central to this dependency not only for the United States itself but also for U.S. allies. By 1965, the Middle East became the dominant oil producer, thus U.S. interest in the Middle East oil sector increased. While Middle East oil exporters are not the main providers of American oil imports,

The United States has a legitimate and critical interest in seeing that Persian Gulf oil continues to flow copiously and relatively cheaply...[because] the global economy built over the last 50 years rests on a foundation of inexpensive, plentiful oil, and if that foundation were removed, the global economy would collapse.³⁷

Since the 1990s, the United States has relied on several countries for its oil imports, including Canada, Mexico, Venezuela, Nigeria, and Saudi Arabia. While the first four countries lie outside the Middle East and are not subject to transportation through the Strait of Hormuz, Saudi Arabia, depends on the Strait to export a large majority of its oil exports, particularly to the United States. While Saudi Arabia is not the sole supplier of U.S. oil imports, and the United States imports less than 25 percent of its oil from the Persian Gulf, it has become one of the major partners for the United States in the oil market. The United States and Saudi Arabia share a special relationship, focused around oil cooperation and, since the 1930s, American companies have had the overwhelming majority of Saudi oil exploration and development projects. U.S. imports of Saudi oil reached their peak in 2003 with 647,666 thousand barrels and then declined to 570,137 thousand barrels in 2004, but have been on a steady incline over the last five years with imports of 560,823 thousand barrels in 2005, 534,143 thousand barrels in

³⁶ Exxon Corporation, Public Affairs Dept, *Middle East Oil and Gas* (New York: Exxon Background Series, 1984): 5.

³⁷ Kenneth M. Pollack, "Securing the Gulf," *Foreign Affairs* 82, no. 4 (2003): 3.

2006, 541,987 thousand barrels in 2007, and 559,750 thousand barrels in 2008.³⁸ With a gradual increase in imports from Iraq and Kuwait as well, the United States' interest in the Strait of Hormuz is paramount, as these Gulf coast countries use this waterway as their primary means of transporting their exports. These Middle Eastern relationships may prove to be vital for the United States in the future concerning its oil imports because, although Canada and Mexico will effectively remain strong allies in the oil import market, the United States could lose valuable imports due to its "tense relationship with Venezuela."³⁹

The United States is concerned with Middle East oil, not only for itself but also for its allies, specifically Japan. Following the United States, Japan is the second largest importer of oil and relies mainly on the Middle East for these imports. According to the EIA, in 2007 Japan received 28 percent of its oil imports from Saudi Arabia and 25 percent from United Arab Emirates.⁴⁰ The significance behind over 50 percent of Japanese oil imports coming from these two countries rests on the fact that they must transit the Strait of Hormuz in order to reach Japan. While the United States is not the recipient of this large quantity of Middle Eastern oil exports, it still has an interest in the unimpeded passage of oil tankers through the Strait in order to supply its close ally, Japan, with the essential natural resource.

3. GCC States

The Gulf Cooperation Council (GCC) was established in 1981 and its membership consists of Saudi Arabia, Bahrain, Kuwait, Qatar, the United Arab Emirates (UAE), and Oman. These countries formed this Council based on their similar political systems, Islamic beliefs, and free-trade economic policies. The GCC was originally

³⁸ U.S. Energy Information Administration, "Petroleum Navigator: Annual U.S. Imports from Saudi Arabia of Crude Oil and Petroleum Products," U.S. Energy Information Administration Independent Statistics and Analysis, <http://tonto.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MTTIMUSSA1&f=A>.

³⁹ Josef Braml, "Can the United States Shed Its Oil Addiction?" *The Washington Quarterly* (2007): 119.

⁴⁰ U.S. Energy Information Administration, "Japan: Oil," U.S. Energy Information Administration Independent Statistics and Analysis, <http://www.eia.doe.gov/emeu/cabs/Japan/Oil.html>.

formed to provide collective security for all six countries during the Iran-Iraq War (1980–88), and together they have continued to build on their alliance by working together militarily, through equipment sharing and joint exercises. Oil exports remain a central concern for the GCC countries and an open Strait of Hormuz is crucial to their economic security as a whole.

While all countries bordering the Persian Gulf account for the majority of proven oil reserves throughout the world, the six GCC countries possess over 40 percent of the world’s crude oil reserves, in excess of 60 percent of OPEC’s reserves, and have been projected to account for over 50 percent of the world’s trade in oil by the end of this century.⁴¹ With such staggering statistics, it becomes apparent that these GCC countries depend primarily on their oil exports as their main source of state revenue. And, over the past several decades, the GCC countries’ dependence on oil exports has, for the most part, continued to increase.

a. Saudi Arabia

Beginning as early as 1935, American companies began to drill for oil within Saudi Arabian territory but it was not until 1938 when the first significant reserve was discovered and exportation began. Since this time, it has been discovered that Saudi Arabia alone holds 21 percent of the world’s proven oil reserves.⁴² Estimated to have 263 billion barrels of oil, it is the leader in world oil reserves as well as in oil production and exportation. While it may be redundant to emphasize, Saudi Arabia relies almost solely on oil exports for state revenue. Over the past decade, oil has accounted for between 73 and 85 percent of the country’s revenues.⁴³ Saudi has a multitude of oil fields throughout its territory, including Ghawar, Abqaiia, Zuluf, Marjan, Safaniyah, Manifa, and Berri, and each location produces a different grade of crude oil ranging from

⁴¹ Hossein Askari and Babak Dastmaltschi, “Evolution Of A GCC Oil Policy,” in *The Gulf Cooperation Council: Moderation and Stability in an Interdependent World*, ed. John A. Sandwick (Colorado: American-Arab Affairs Council, 1987), 85–86.

⁴² Vera de Ladoucette, “Saudi Arabia’s Oil and Gas Industry,” in *The Gulf Oil and Gas Sector: Potential and Constraints* (United Arab Emirates: The Emirates Center for Strategic Studies and Research, 2006), 146.

⁴³ *Ibid.*, 148.

extra light to heavy. With Saudi's biggest importing clients being the United States, Japan, and China, it has multiple transportations methods to export its oil but "most Saudi oil exports move by tanker from Gulf terminals at Ras Tanura and Ju'ayma."⁴⁴ With this fact in mind, Saudi Arabia has a keen interest in the free and open passage of the Strait of Hormuz. However, it does not rely solely on naval assets to export its oil and in the 1980s constructed a 5-million-bbl/d capacity east-west pipeline from the Eastern Province to Yanbu, which borders the Red Sea. Not only does Saudi Arabia rely on its oil exports as its primary means of state revenue, but it also is the region's leading producer of gas and has been expanding on this sector since 1984. The Saudi Basic Industries Corporation (SABIC) remains one of the world's top petrochemical producers and these exports contribute to the government's revenue significantly. Saudi Arabian imports are also vital to its economic prosperity and, in 2008, the U.S. Department of State estimated that Saudi imports totaled \$103 billion.⁴⁵ Their imports range from food to transportation equipment and come from several countries throughout the world, with two of their biggest trading partners being China and Japan. In order to import these goods from Asia, Saudi Arabia has a keen interest in the Strait of Hormuz, as a majority of their imports must transit this passageway. While Saudi engages in trade of goods and oil via land routes, the Strait of Hormuz is still its primary vehicle of both exports and imports.

b. Bahrain

Saudi Arabia is the biggest producer and exporter of oil among the GCC states and relies on this resource for the majority of its revenue, but smaller producers also rely on revenue from their oil exports. Oil was first discovered in Bahrain in 1932 and while Bahraini oil production does not add significantly to the Middle East production or export totals, Bahrain itself relies heavily on this commodity. Its oil production has vacillated since its inception, reaching a high point in the 1970s, but on

⁴⁴ U.S. Department of State Bureau of Near Eastern Affairs, "Background Note: Saudi Arabia," U.S. Department of State, <http://www.state.gov/r/pa/ei/bgn/3584.htm>.

⁴⁵ *Ibid.*

average its production is less than 38,000 b/d.⁴⁶ Although Bahrain is surrounded by oil producing giants, it does not produce even a fraction of what Saudi Arabia or Kuwait can; however, its economy still relies heavily on oil revenue, using the Bahrain Refinery as its main vehicle. Bahrain's saving grace may be that of its Saudi shared field, Abu Safah, which produces over seven times what Bahrain can produce and export on its own. This joint endeavor is vital for the Bahraini economy so it is a fair assumption to believe that Bahraini interests coincide with Saudi interests when it comes to oil exportation. Aside from just its oil exports, "Bahrain is poor in natural resources...[and] imports virtually all of its needs."⁴⁷ The Strait of Hormuz directly correlates to Bahraini imports because three of its major trading partners are the United States, China, and Japan. Tankers transport the majority of goods to Bahrain and they all must transit the Strait. While the majority of Bahrain's current revenue comes from oil production, the majority of which is a joint project with Saudi Arabia, which it exports both via land routes and tankers through the Strait, it relies almost solely on imports for its every day survival, thus it has a significant stake in the open and free passage of traffic through the Strait.

c. Kuwait

While Bahrain is the smallest GCC country and does not produce significant amounts of oil compared to its GCC counterparts, Kuwait, another smaller GCC state is one of the top oil producers among them. Like all of the GCC states, oil production is said to be the backbone of the Kuwaiti economy and without its oil revenues, it would be in a serious predicament. Oil was first discovered in Kuwait in 1938 at the Burgan field and, since that time, multiple oil fields have been discovered. Today, the small country, covering 6,880 square miles, holds approximately 8 percent of the world's oil reserves, totaling 104 billion bbl. Kuwait also claims an additional zone, the Partitioned Neutral Zone (PNZ), which it shares with Saudi Arabia, that holds an

⁴⁶ J.E. Peterson, "Life After Oil: Economic Alternatives for the Arab Gulf States," *Mediterranean Quarterly* 20 no. 3 (2009): 12.

⁴⁷ Emile A. Nakhleh, *Bahrain: Political Development in a Modernizing Society* (Lexington: D.C. Heath and Company, 1976), 95.

additional 5 billion bbl.⁴⁸ These reserves are the primary vehicle for Kuwaiti economic prosperity and its “petroleum accounts for nearly half of the GDP, 95 percent of export revenues, and 95 percent of government income.”⁴⁹ While Kuwait is looking for options to diversify its economy so as to not rely solely on oil revenue for its survival, for the near future, these exports of approximately 2.3 million bbl/day are crucial to the Kuwaiti economy survival. Kuwait’s top five trading partners are Japan, South Korea, India, the United States, and Taiwan. The Indian and Asian exports cannot be transported via land routes so they must be sent on tankers through the Strait of Hormuz. Kuwait can also use the Saudi Arabian crude oil pipeline to transport the United States’ oil imports to the Red Sea in order to bypass the Strait, making this an effective alternative, however, with the majority of Kuwaiti oil exports traded to Japan, South Korea, and Indian, Kuwait has a vested interest in the free and open passage of tankers through the Strait. Kuwait is also known to possess 1.8 trillion cu m of natural gas reserves but it does not export this resource like it does oil. However, it does import natural gas as well as food and vehicle parts. Its top two import trading partners are the United States and Japan and both utilize tankers to transport their exports to Kuwait, which again enunciates the importance of the Strait of Hormuz to Kuwait.

d. Qatar

Another smaller country that produces a significantly lesser amount of oil among the GCC states is Qatar. Oil was first discovered in 1940 at the Dukhan field, the only onshore field, which has since been divided into Khatiyah, Fahahil, Jaleha, and Diyab. Since 1940, three offshore fields have been discovered and Qatar has capitalized on these resources to increase their state revenue. Qatar possesses approximately 15.2 billion barrels of oil reserves, making it the sixth most plentiful oil reserve country in the Middle East. With such resources, it is among the top 12 oil exporting countries in OPEC. Qatar also possesses some of the most natural gas reserves of all of the GCC

⁴⁸ U.S. Energy Information Administration Independent Statistics and Analysis, “Kuwait: Oil,” U.S. Energy Information Administration, <http://www.eia.doe.gov/cabs/Kuwait/Oil.html>.

⁴⁹ Central Intelligence Agency The World FactBook, “Middle East: Kuwait,” Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook/geos/ku.html>.

countries and capitalizes on increasing its revenue through exporting this resource as well. It holds approximately 890 trillion cubic feet of natural gas reserves, which accounts for nearly 15 percent of the world's total natural gas reserves. These two natural resources are the driving force behind the sustainability of the Qatar economy and "oil and gas...account for more than 50% of GDP, roughly 85% of export earnings, and 70% of government revenues."⁵⁰ Qatar's number one oil importer is Japan, but it also exports to South Korea, India, and Thailand. As there is no pipeline to transport oil to Asia, Qatar has to export this resource via tankers that must transit the Strait of Hormuz. As the world's leading exporter of LNG, Qatar is able to use the Dolphin pipeline to transport LNG to the UAE, however, non Middle Eastern countries are its biggest importers. And in 2008 "Qatar exported nearly 1.4 Tcf of LNG...of this amount approximately 435 Bcf (8.7 million tons [MMt]) went to South Korea, 400 Bcf (8.2 MMt) to Japan, 300 Bcf (6.2 MMt) to India, 165 Bcf (3.4 MMt) to Spain, and 3 Bcf (less than 0.1 MMt) to the United States."⁵¹ Qatar has a significant stake in the free and open passage of the Strait of Hormuz not just because its exports of LNG account for a large majority of its revenue but also for its imports. Qatar is estimated to have spent \$20.87 billion on food and machinery and transport equipment imports in 2009. Its top four trading partners for imports, all of which primarily use tankers to transport their goods to Qatar via the Strait of Hormuz and Persian Gulf, are the United States, Germany, Italy, and Japan, respectively. With so many commodities being delivered to Qatar via this vital passageway, it only enunciates just how much of an interest Qatar has in the Strait.

e. United Arab Emirates

The GCC state with the most interest in the Strait of Hormuz may be the UAE, as it has had disputes with Iran in the past over Strait sovereignty. Regardless of these disputes however, the UAE uses the Strait as its primary vehicle for imports and exports. The UAE is comprised of seven emirates and its leading three oil producers are

⁵⁰ Central Intelligence Agency The World Fact Book, "Middle East: Qatar," Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook/geos/qa.html>.

⁵¹ Energy Information Administration Country Analysis Briefs, "Qatar," Energy Information Administration, <http://www.eia.doe.gov/emeu/cabs/Qatar/pdf.pdf>.

Abu Dhabi, Dubai and Sharjah. Oil explorations first began in 1939 but the first exports were not initiated until 1963 and, since that time, the UAE has depended significantly on its oil and natural gas exports for revenue. Together, Abu Dhabi, Dubai, Sharjah, and Ras al Khaimah account for approximately 97.8 billion barrels of proven oil reserves, making the UAE the seventh largest reserve holder in the world. The UAE produces 3046 million bbl/day of oil but only consumes 463,000 bbl/day, leaving 2.7 million bbl/day for exporting. The UAE also has a significant percentage of the world's natural gas reserves, totaling 6.071 trillion cu m, making it the sixth largest natural gas reserve holder in the world. It produces 50.24 billion cu m and exports 7.567 billion cu m, but it consumes 59.42 billion cu m, so it must import 16.75 billion cu m.⁵² The vast majority of UAE oil and natural gas exports are transported to Asia, with Japan being its biggest importer, receiving 40 percent of its oil exports, followed by South Korea and India. Today, the bulk of UAE's oil and natural gas exports to these countries are transported via tankers through the Strait of Hormuz; however, there is a pipeline under construction that would bypass the Strait and send UAE's resources to the Gulf of Oman. More than half of the UAE's available crude exports are projected to be transportable through this pipeline, which is expected to be operational in 2011.

The UAE has been attempting to find alternate sources of revenue and “successful efforts at economic diversification have reduced the portion of GDP based on oil and gas output to 25%.”⁵³ As the UAE produces less natural gas than it consumes, it must rely on other countries for this vital import. Its main trading partner in this arena is Qatar. The Strait of Hormuz is not significant in this realm of UAE imports because the Dolphin Pipeline transports natural gas from Qatar to the UAE and Oman. However, the UAE does depend on other imports, including machinery and transportation equipment and food, and its main trading partners in this realm are China, India, and the United

52 Central Intelligence Agency The World Fact Book, “Middle East: United Arab Emirates,” Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook/geos/ae.html> and Energy Information Administration Country Analysis Briefs, “United Arab Emirates,” Energy Information Administration, <http://www.eia.doe.gov/emeu/cabs/UAE/Full.html>.

53 Central Intelligence Agency The World Fact Book, “Middle East: United Arab Emirates,” Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook/geos/ae.html>.

States, respectively. As products such as these cannot be transported through a land pipeline, the Strait of Hormuz becomes significant once again for UAE's imports.

f. Oman

The last GCC state, while it is the closest to the Strait, may be the country with the least amount of direct personal interest in the Strait of Hormuz, at least during the present day. Oman began exporting oil in 1967, and since that time it has become increasingly dependent on oil and natural gas exports as the primary means of revenue. Oman has 5.5 billion bbl of proven oil resources, which produce 806,000 bbl/day. Oil consumption is 81,000 bbl/day and exports total 593,700 bbl/day. Its natural gas reserves total 849.5 billion cu m and it exports 10.89 billion cu m.⁵⁴ Although these numbers are significantly high for the region, and Oman depends upon them, it does not need to rely solely on the safe and open passage through the Strait of Hormuz in order to fuel its economic prosperity.

Several oil fields lie within Omani territory, including Yibal, al-Huwaisha, Fahud, and Lekhwair in the more northern territory and Jalmud, Birba, and Rahab farther to the south. In this thesis, Lekhwair may be the most significant older oil field, simply because of its location. Lekhwair is the oil field farthest to the north inside Oman and this is significant concerning the Strait of Hormuz, because its exports do not need to pass through the Strait in order to transit to four of its five main exporting partners. With the exception of the UAE, Asia has the monopoly on Omani exports and in order for Omani oil to get to China, South Korea, Japan, and Thailand, only the southeastern portion of the Gulf of Oman needs to be transited, as Oman's only exporting terminal, Mina al-Fahal, lies near its capital, Muscat. Concern about the Strait of Hormuz for Omani LNG exports is similar to that of oil exports, as well. "During 2008, Oman exported approximately 385 Bcf of LNG, nearly two-thirds of which went to South Korea, while the remainder went to Japan, India, Taiwan, and Spain."⁵⁵ Oman has several gas fields but, similar to the

⁵⁴ Central Intelligence Agency The World Fact Book, "Middle East: Oman," Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook/geos/mu.html>.

⁵⁵ Energy Information Administration Country Analysis Briefs, "Oman," Energy Information Administration, <http://www.eia.doe.gov/cabs/Oman/NaturalGas.html>.

majority of its oil fields, they do not lie close to the Strait of Hormuz. Specifically, Oman's newer developing fields, Khazzam and Makarem, are located in country, farther inland and south from Muscat, its Sham field, located in Block 44, also a significant distance from the Strait, and its Kauther field located approximately 250KM inland from Muscat. While all of these oil and natural gas fields do not lie directly in the Strait of Hormuz, and the majority of the exports do not have to transit the Strait, with developing discoveries and projects in Oman, this may not be the case in the future.

Oman's West Bukha oil field is one specific example of possible greater personal and direct interest in Oman's interest in the Strait of Hormuz. West Bukha is located in Block 8, directly offshore in the Strait of Hormuz. While production is still making progress, "initial flow rates are 10,000 barrels of 42 degrees API gravity oil and 30 million cubic feet per day of associated gas from two wells produced through a recently installed six-slot unmanned platform located in 90 meters of water some 25 kilometers from the Musadam Peninsula."⁵⁶ It appears that Oman is going to rely on this newer discovery over the next several decades and, with increased Omani presence in the area, as well as no longer being able to rely primarily on the Gulf of Oman to transport some of its resources, the Strait of Hormuz becomes even more significant for Oman.

Although the majority of Oman's oil and LNG exports do not need to transit the Strait of Hormuz, in the future, this may no longer be the case, which will increase its interest in the Strait more directly, but Oman has always had a more indirect concern in Hormuz. Strictly because of the location of its Musadam Peninsula, directly next to the Strait of Hormuz, Oman has always had a concern in it, specifically concerning its GCC partners. While Oman alone does not solely depend on it for import and export traffic, as a majority of the other GCC states do, Oman is overall concerned with regional security. Iran has always presented a strong presence in the Strait of Hormuz region and has challenged its security and free and open passage throughout history. "Control of the shipping channels through the Strait would give Iran added leverage over a large part of the world's oil traffic as well as many of the Gulf's

⁵⁶ Rigzone, "West Bukha Delivers First Oil Offshore Oman," Rigzone, http://www.rigzone.com/news/article.asp?a_id=73083.

imports.”⁵⁷ Oman has always focused on more peaceful means in dealing with Iran and its possible pursuit of regional hegemony and control over the Strait; however, it also supported the United States’ pursuit to curb Iranian military and economic actions that affected other GCC states. The bottom line is that Oman is concerned with Iranian aggression concerning the Strait of Hormuz and although its economy would not suffer as much as some other GCC states, the overall regional security is important to Oman and the free and open passage of traffic through the Strait of Hormuz is central to this goal.

⁵⁷ Anthony H. Cordesman, *Bahrain, Oman, Qatar, and the UAE: Challenges of Security* (Colorado: Westview Press, 1997), 128–129.

III. IRAQ-IRAN WAR

A. INTRODUCTION

In order to understand whether or not Iran would close the Strait of Hormuz in retaliation against either an attack from Israel or the United States or from greater sanctions being placed upon it due to its refusal to abandon its nuclear program, a look into a specific moment in history where Iran flirted with this idea needs to be examined. The Iraq-Iran War (1980–88), also known as the First Gulf War, was an eight-year battle between Saddam Hussein’s Iraq and Ayatollah Khomeini’s Iran. While the war began with Iraqi offensive maneuvers, as time progressed throughout the eight years, the tides shifted and instead of their initial defensive force, the Iranian military conducted offensive exercises. After hundreds of thousands of deaths, economic hardship, and no real victor, the war officially ended when both sides accepted United Nations Security Council Resolution 598, which called for a ceasefire and the return to pre-war territorial boundaries between Iraq and Iran. The war was fought both on land and at sea and, while territory was gained and lost by ground forces, naval engagements and strategic operations contributed greatly to the conclusion of the war. One such significant aspect of the Iraq-Iran War was the strategy used concerning the Persian Gulf and the Strait of Hormuz.

This section aims to identify the role of the Strait of Hormuz during the war by analyzing actions taken by Iran concerning the Strait, United States pressure on Iran, and land mines and attacks on vessels in the Strait, in order to understand why Iran did not close the Strait during the War. It will begin with a brief synopsis of the Iraq-Iran War, including the fighting forces of both sides and significant milestones reached; proceed to focusing solely on Iranian actions during the war specifically paying close attention to its actions during the Tanker War period in the Persian Gulf and the Strait of Hormuz, including the use of land mines and attacks on naval vessels, as well as the United States’ role concerning the Strait; then address alternate courses of action that Iran could have taken concerning the Strait of Hormuz; and conclude with an insight into why Iran did not close the Strait of Hormuz during the War.

B. THE IRAQ-IRAN WAR IN SHORT

The Iraq-Iran War (1980–88) can best be described as being “in the classic mould in that it represented not simply—or principally—a dispute over territory, but rather a contest over power and ideas.”⁵⁸ This statement is solidified by the fact that at the end of the long, eight-year war, neither Iraq nor Iran could claim to be the true victor because they had endured economic hardship and the loss of lives, not new land to claim as their prized possession. The war officially began in September 1980, but the year leading up to the Iraqi invasion of Iran cannot be overlooked.

Shah Mohammed Reza Pahlavi fled Iran in January 1979 and, shortly after, his regime was overthrown by Ayatollah Khomeini during the Islamic Revolution. In April, the Islamic Republic of Iran was officially declared with Ayatollah Khomeini as its supreme leader and this new regime brought with it significant changes from the days of the Shah. As the Islamic Republic rested on the pillars of Islam, Saddam Hussein was viewed as a hindrance. And as a member of the Iranian leadership, Hujjat al-Islam Sadeq Khalkhali stated, “we have taken the path of true Islam and our aim in defeating Saddam Hussein lies in the fact that we consider him the main obstacle to the advance of Islam in the region.”⁵⁹ With this statement in mind, the Islamic Republic began to urge Iraqis to revolt against the Ba’ath regime. They also reinitiated support for the Kurds in Iraq as well as Shi’a movements that attacked Iraqi officials. While the Islamic Republic was assisting in the attempts on prominent Iraqi leaders’ lives and extracting their foreign ambassador from Iraq, the newly ascended president of Iraq, Saddam Hussein, was not fighting back in 1979. In fact, instead of attacking a brand new regime, Saddam invited the leaders of the Islamic Republic into Iraq and wanted to establish peaceful relations and co-existence with Iran. With his offer on the table, Saddam was left standing alone, and as the Islamic Republic was not showing any signs of peacefully co-existing with the Iraqi regime, Saddam began to take action. He sought out the Shi’a who were attacking his officials and expelled them from Iraq and then fighting along the border began. With

⁵⁸ Efraim Karsh, editor, *The Iran-Iraq War: Impact and Implications* (New York: St Martin’s Press, 1989), 13.

⁵⁹ Efraim Karsh, *The Iran-Iraq War 1980-1988* (Oxford: Osprey Publishing, 2002), 13.

his realist mentality, Saddam saw the Islamic Republic as an unrelenting force that needed to be contained and believed that “the only way to deflect the Iranian threat was to exploit Iran’s temporary weakness following the revolution and to raise the stakes for both sides by resorting to overt, state-supported armed force.”⁶⁰ With this thought ever present, the Iraq-Iran War officially began in September 1980 when Iraqi forces invaded Iran after officially annulling the 1975 Algiers Agreement, in which Iraq “abandon[ed]...its claim to full sovereignty over the whole of the Shatt al-Arab waterway and...agree[d] that the Thalweg (or median line of the deepest channel) should thenceforth constitute the boundary between Iran and Iraq.”⁶¹

During the first three months of the war, Iraq was on the complete offensive and was able to conquer the Shatt al-Arab and Khorramshahr and conduct an air raid on Iran’s main oil terminal while Iran was primarily fixed on the defensive, less one significant attack on Iraq’s nuclear research center. While Iran rejected Saddam’s ceasefire in the beginning of the war, it was not until January of 1981 that Iran began to actively take the offensive. In Iran’s first move after about an eight-month stalemate, military forces attempted to break the Iraqi lines near Susangerd but were only successful for a few days until Iraqi forces were able to “envelop the advancing Iranian division and almost annihilate it in one of the largest tank battles of the war.”⁶²

By the spring of 1981, both sides had been able to regroup and reorganize, but Iran was able to capitalize on this more than Iraq. Iran was able to push Iraqi forces out of Susangerd and then advance to Abadan, lifting the siege. During this time, Iran had rejected another ceasefire initiated by Saddam during Ramadan and Iraqi morale was in a downward spiral. Iran capitalized on this loss of momentum on the Iraqi side and initiated Operation Jerusalem Way. For approximately a week, the two forces fought amid terrible weather conditions and, by the end, “Iran had retaken the town of Bostan and forced the Iraqis to retreat and redeploy.”⁶³ Upon this defeat, with Iraqi morale even

⁶⁰ Efraim Karsh, *The Iran-Iraq War 1980-1988* (Oxford: Osprey Publishing, 2002), 14.

⁶¹ Shahram Chubin and Charles Tripp, *Iran and Iraq at War* (Colorado: Westview Press, 1988), 23.

⁶² Efraim Karsh, *The Iran-Iraq War 1980-1988* (Oxford: Osprey Publishing, 2002), 32.

⁶³ *Ibid.*, 34.

lower than before, Saddam agreed to depart Iran if a negotiated settlement would follow. These statements only enraged Iran; their next set of offensive tactics came in the spring of 1982.

The Iranian forces began Operation Undeniable Victory and it was the largest campaign since the beginning of the war. Through this Iran was able to drive Iraqi forces out of the Dezful Shush area and then continued on with Operation Jerusalem where Iran regained the territory that Iraq had first conquered, Khorramshahr. At the end of this two-day battle, “the panic-stricken Iraqis fled in large numbers, leaving behind a substantial amount of military equipment and some 12,000 of their own troops to become prisoners of war.”⁶⁴ With Iraqi forces sustaining defeat after defeat, the Iranians only used this as momentum to continue fighting all the while rejecting Saddam’s ceasefire proposals.

Saddam ultimately extracted his forces from inside Iran and staged them on the border in order to show Iran that he wanted to begin negotiations. This signaling was ignored and instead Iran initiated Operation Ramadan, followed by Operation Muslim Ibn Aqil, then Operation Muharram, Operation Before Dawn, and Operation Dawn 1–4. Each of these Iranian offensive campaigns either penetrated only slightly into Iraq territory including Basra, Amara, Kurdistan, and Penjwin, or their advances were unsuccessful.

In February 1984, the Tanker wars began, which will be expanded upon in a later section. Fighting continued between both sides and, on February 7, “the two sides were soon engaged in what came to be known as the ‘first war of the cities’ (there would be five such wars before the end of the war).”⁶⁵ By the end of 1984, Iran had made the most progress through Operation Dawn 5 and 6, which was the largest Iranian offensive campaign to date. Iran continued with Operation Khaibar and Operation Dawn 7 but was only able to occupy limited territory in Mehran and Majnun Island. In 1985, the Iraqi offensive moved to take Qasr-e-Shirin and failed but was successful in air raids against

⁶⁴ Efraim Karsh, *The Iran-Iraq War 1980-1988* (Oxford: Osprey Publishing, 2002), 36.

⁶⁵ *Ibid.*, 41.

Kharg Island. The Iranian forces during 1985 failed to take Basra during Operation Badr and then continued with their offensive campaign in Kurdistan. That year also witnessed the second war of the cities. By 1986, the United Nations proposed a resolution for a ceasefire after Iraq had attacked Majnun Islam and Iran captured the Fao Peninsula in Operation Dawn 8 and conducted an offensive into Kurdistan in Operation Dawn 9. By the end of this year, Iraq had captured Mehran but then lost it to Iran during Operation Karbala 1 and had several successful air raids on Iranian oil terminals. Iran continued with Operation Karbala 2–4 with offensive campaigns in Kurdistan, the Fao Peninsula, and Basra.

Nineteen-eighty-seven experienced the third and fourth war of the cities. Iran initiated Operation Karbala 5–9 and moved toward Basra, where it sustained heavy casualties and a loss, the Sumar area, Kurdistan, and the Qasr-e-Shirin area. They also undertook Operation Fatah 4 in Kurdistan. Significant effects on shipping through the Persian Gulf and Strait of Hormuz occurred during 1987 as well, and this will be analyzed in more depth in the proceeding sections. Finally, the UN Security Council passed Resolution 598, calling for a ceasefire and while Iraq accepted it, Iran rejected it. In 1988, after the fifth war of the cities, Iraqi offensive actions in Halabja, the recapturing of the Fao Peninsula and territory around Salamchek by Iraq, the driving of Iranian forces out of Majnun Island, and eventually pushing back into Iranian territory and then retreating, both Iraq and Iran finally were ready to begin peace talks in Geneva in August.

C. IRANIAN ACTIONS IN THE PERSIAN GULF AND STRAIT OF HORMUZ

1. Direct/Indirect Attacks on Merchant Vessels

While Iran had sustained years of attacks on their oil terminals and exporting facilities, they had yet to attack merchant shipping in the Persian Gulf. Because Iraq did not have many direct targets, Iran took a different approach in order to combat Iraq in the Gulf and “in the absence of Iraqi targets the only alternatives were those ships trading with her Gulf allies...[and] attacks upon them, therefore, became part of Iran’s own

indirect strategy.”⁶⁶ Nineteen-eighty-four brought with it the beginning of Iranian attacks on merchant vessels and the first attack came on May 13, 1984 against a Kuwaiti tanker *Umm Casbah*. This attack did come as a shock to Iraq because Iran had been making threats about closing the Strait of Hormuz but had yet to make good on that promise, so Iraq believed that Iran was full of empty threats. But “Iran’s patience [had] worn out and she was prepared to retaliate against Iraq’s friends as the Gulf War maritime struggle entered a new phase.”⁶⁷

As Iraq had “declared a “total exclusion zone” around Kharg Island, Iran’s principal export terminal,”⁶⁸ and was attacking Iranian friendly vessels, Iran continued on with its maritime campaign and fired upon another Kuwaiti tanker, *Bahrah*, as well as a Saudi tanker, *Yanbu Pride*. Both of these attacks occurred outside of designated war zones, so any doubts that Iraq had about Iran’s commitment, was quelled. While these attacks caused an international commotion, Iran justified the attacks “as a response to the aid given by a number of regional states to Iraq and the indivisibility of security in the Gulf.”⁶⁹ Iraq retaliated by hitting Panamanian, Iranian, and Liberian naval vessels and in one month “nine merchant vessels [were] known to have been hit: five by the Iraqis and the remainder by the Iranians.”⁷⁰

Iran continued with its attacks on merchant shipping in the Gulf and attacked another Kuwaiti tanker, *Kazimah*, near Lavan Island but also began to search vessels entering the Gulf. While Iran was mainly looking for any type of weapons going into Iraq, their ability to stop any and all traffic transiting the Strait of Hormuz “demonstrated Iran’s regional dominance in a vital waterway and her determination to use that power.”⁷¹ While Iraq could not prevent Iran from seizing and searching every vessel that transited

⁶⁶ Martin S. Navias and E.R. Hooton, *Tanker Wars: The Assault on Merchant Shipping During the Iran-Iraq Crisis, 1980-1988* (New York: I.B. Tauris Publishers, 1996), 72.

⁶⁷ *Ibid.*, 77.

⁶⁸ Sharam Chubin and Charles Tripp, *Iran and Iraq at War* (Colorado: Westview Press, 1988), 134–135.

⁶⁹ Martin S. Navias and E.R. Hooton, *Tanker Wars: The Assault on Merchant Shipping During the Iran-Iraq Crisis, 1980-1988* (New York: I.B. Tauris Publishers, 1996), 78.

⁷⁰ *Ibid.*, 79.

⁷¹ *Ibid.*, 81.

the Strait of Hormuz, they could retaliate against it and thus more attacks off of Kharg Island were initiated by Iraq. In response to these attacks, Iran again began assaults on Iraqi friendly vessels. Iran hit a Liberian tanker, *Primrose*, and a Gibraltar tanker, *British Reform*. This escalation in attacks and counterattacks was a direct result of the Iraqi denial of a truce in the Gulf as Rafsanjani made the statement that “we declare to the United Nations that if the Iraqis do not strike in the Persian Gulf we will not fire even one bullet.”⁷² As oil revenue was a major source of income for both the Iraqis and Iranians, Iran realized this and wanted to ensure that its economy would survive the war and if the fighting in the Gulf would stop, they were confident that this would be possible. But with Iraq’s outright refusal to such a partial peace agreement and with its continuous attacks on Iranian and Iranian friendly vessels around Kharg Island, Iran had no choice but to respond yet again and with more force than it had exerted previously.

Iran continued attacking Iraqi bound vessels in the Gulf and “beginning on 15 August [hit] eight ships, most of which were trading with Kuwait and Saudi Arabia.”⁷³ While Iran did not hit every single target that it fired upon, it attacked the Pakistani tankers, *Johar* and *Endeavor*, the Panamanian tankers, *Cleo I*, *Gaz Fountain*, and *Pacific Protector*, the Liberian tanker, *Med Heron*, the South Korean tanker, *Royal Columbo*, the Indian tankers, *Jag Pari*, and *Kanchenjunga*, the Kuwait tanker, *Tariq*, and the Spanish tanker, *Aragon*. All of these instances give an insight into Iranian actions concerning direct attacks on merchant vessel but as a complete history of vessels that were attacked by Iran is not the primary focus of this thesis, Tables 1 through 4 summarize Iranian actions in this regard and are taken from Martin S. Navias and E.R. Hooton’s book *Tanker Wars: The Assault on Merchant Shipping During the Iran-Iraq Crisis, 1980–1988*.

⁷²Martin S. Navias and E.R. Hooton, *Tanker Wars: The Assault on Merchant Shipping During the Iran-Iraq Crisis, 1980–1988* (New York: I.B. Tauris Publishers, 1996), 81.

⁷³ *Ibid.*, 83.

Table 1. Breakdown of ships attacked by Iran, 1984.
(From Navias and Hooton, 1996)

Quarter	Tanker*	GDC	Support
II	5	-	-
III	7	-	-
IV	3/1	1	2/1

Key: GDC: general dry cargo.

Note: * Includes liquid gas carrier. First figure is number attacked, second figure is number sunk/CTL.

Table 2. Breakdown of ships attacked by Iran, 1985–86.
(From Navias and Hooton, 1996)

Quarter	Tankers*	Bulk carriers	Container ships*	GDC	Support
I.1985	6/-	-	1/-	-	-
II. 1985	2/-	1/-	1/1	-	-
III.1985	3/-	-	-	-	-
IV.1985	1/-	-	1/-	-	-
I.1986	14/1	-	-	-	-
II.1986	11/3	-	-	-	-
III.1986	11/-	-	-	-	-
IV.1986	3/1	2/1	-	-	-

Key: GDC: general dry cargo.

Note: * Tankers include ore/oil carriers and liquid gas carriers; container ships include ro-ro vessels.

Table 3. Breakdown of ships attacked by Iran, 1987.
(From Navias and Hooton, 1996)

Quarter	Tankers*	Bulk carriers	Container ships*	GDC*	Support
I.1987	9/-	1/-	1/-	1/-	1/1
II.1987	12/-	-	1/-	3/-	-
III.1987	15/-	1/-	2/-	2/-	2/2
IV.1987	30/2	3/1	1/-	3/1	-

Note; * Tankers includes liquid gas carriers; container ships include ro-ro vessels; general dry cargo (GDC) includes livestock carriers and refrigerated cargo ships.

Table 4. Breakdown of ships attacked by Iran, 1988.
(From Navias and Hooton, 1996)

Quarter	Tankers*	Bulk carriers	Container ships*	GDC*	Support
I.	22/-	2/1	-	2/1	-
II.	9/-	2/1	-	1/-	3/-
III.	4/-	1/-	-	1/-	-

Note; * Tankers includes liquid gas carriers; container ships include ro-ro vessels; general dry cargo (GDC) includes livestock carriers and refrigerated cargo ship.

While Iran continued attacking Iraqi-friendly merchant vessels in the Persian Gulf, and searching all vessels that transited the Strait of Hormuz from 1984–87, these were not the only actions that Iran took during the war. In 1986, Iran began using land mines in order to combat Iraq in the Persian Gulf. “Iran’s mine inventory consisted of contact and influence mines...[the] most widely used were the contact mines, which were either tethered in minefields or floated into shipping lanes.”⁷⁴ These mines were either inherited from the Shah or given to Iran by the Soviet Union or Asian allies. In order to position the mines, the Iranian Navy had to reconstruct landing ships by installing rails that could deploy the mines and the Pasdaran also used dhows and cranes to lower the mines into the water. One advantage of these mines was that they would disrupt shipping in the Strait and in the Gulf, but Iran did not have to claim responsibility for them. However, “U.S. forces discovered a major increase in Iranian mining activities and even caught one Iranian vessel, *Iran Ajr*, laying mines in areas that Middle East convoys transited.”⁷⁵ Regardless of whether the United States or Iraq knew that Iran was deploying them, the mines were a successful tactic for Iran and they were able to hit multiple targets. Beginning as early as January the Liberian tanker, *Solena*, was hit followed in March by *Maersk Astro*. A few months later, four Kuwaiti tankers, *Marshal Chuykov*, *Primrose*, *Ethnic*, and *Stena Explorer* were all mined off the coast of Kuwait.

⁷⁴ John W. Partin, “Special Operations Forces in Operations Earnest Will/Prime Chance I,” *U.S. Special Operations Command History and Research Office* (1998): 5.

⁷⁵ Christopher C. Joyner, editor, *The Persian Gulf War: Lessons for Strategy, Law, and Diplomacy* (New York: Greenwood Press, 1990), 131.

These attacks proved that there was “no doubt that in May the Iranians began an extensive mining campaign to disrupt trade with Saddam’s allies.”⁷⁶ Based on the fact that Kuwaiti tankers seemed to be the main targets of the Iranian mines, the United States soon interceded. One last action that Iran undertook must be addressed before the United States’ actions can be examined and that is the use of the Silkworm.

“US intelligence had noticed Iran deploying a battery of powerful shore-to-ship missiles near Hormuz...the weapon was thought to be an improved Chinese version of the Soviet Styx anti-ship missile with a range of 25–50 miles, designated as HY-2 and popularly known as Silkworm.”⁷⁷ As this weapon was more powerful than an Exocet, it gave Iran the power not just to damage vessels, as it had been doing with the mines, but rather destroy them. Iran conducted a “three-day naval maneuvers in the Gulf, codenamed Shehadat, Martyrdom...these involved test-firing a shore-to-ship missile and ramming a speedboat loaded with explosives into a dummy naval target.”⁷⁸ Unfortunately for the Iranians, however, this form of deterrence did not stop oil tankers from transiting the Strait nor affect the United States’ decision to escort Kuwaiti tankers.

2. United States Actions

Throughout the entire war, Iran threatened to close the Strait of Hormuz on several occasions as a retaliation mechanism against Saddam Hussein. The United States responded to Iran with counter threats because “the closing of the strait would be serious for [United States’] European allies, Japan and, above all, the Arab-oil-exporting states.”⁷⁹ Thus, the United States vowed to do anything and everything to ensure that the Strait remained open. As the United States had a steady presence around the Gulf during the war, its first real appearance came during Operation Earnest Will.

⁷⁶ Martin S. Navias and E.R. Hooton, *Tanker Wars: The Assault on Merchant Shipping During the Iran-Iraq Crisis, 1980-1988* (New York: I.B. Tauris Publishers, 1996), 143.

⁷⁷ Dilip Hiro, *The Longest War: The Iran-Iraq Military Conflict* (New York: Routledge Chapman & Hall, Inc., 1991), 187.

⁷⁸ Ibid.

⁷⁹ Ernest van den Haag, “The Busyness of American Foreign Policy,” *Foreign Affairs* 64, no.1 (1985): 120.

Operation Earnest Will began when “the government of Kuwait approached the United States about registering 11 of its Kuwait Oil Tanker Company’s oil and gas tankers under the American flag.”⁸⁰ It had appeared that Iran shifted the majority of its focus against tanker traffic toward Kuwait, so the United States decided to step in to protect Iraqi and Kuwaiti interests. The United States sent two cruisers, a destroyer, and four frigates in order to escort Kuwaiti tankers, reflagged as American ships, through the Strait. The first convoy “sailed through the Straits of Hormuz on 22 July and consisted of the *Bridgeton* and the *Gas Prince*.”⁸¹ The three U.S. escort ships, *USS Kidd (DDG 993)*, *USS Crommelin (FFG 37)*, and *USS Fox (CG 33)* along with the two oil tankers successfully made it through the Strait of Hormuz and thought that the Iranian threat was simply a threat with no follow through, but on the third day of the transit, the *Bridgeton* struck a mine. This action made it clear to the United States that “Tehran had made a conscious decision to take on the United States despite the risks.”⁸² In order for the United States to maintain its credibility, the United States now had to increase the number of forces in the Gulf region. Following the hit of the *Bridgeton*, the United States sent mine countermeasure (MCM) assets to the gulf, to include helicopters and ships. The United States also added a surveillance and patrol strategy in the northern Gulf in order to deter mining and attacks on shipping. Between “September 1987 and early July 1988 the commander of JTFME [Joint Task Force Middle East] conducted over 100 convoys and operated between 28 and 33 navy combatant vessel serving as escorts in or near the Gulf,”⁸³ and in April of 1988, a U.S. asset was directly affected.

The Pasdaran continued laying new mines throughout the Strait and the Gulf and in April “the frigate *USS Samuel B. Roberts*, a sister ship of the *USS Stark*, fell foul to

⁸⁰ John W. Partin, “Special Operations Forces in Operation Earnest Will/Prime Chance I,” *U.S. Special Operations Command History and Research Office*, (1998): 6.

⁸¹ Martin S. Navias and E.R. Hooton, *Tanker Wars: The Assault on Merchant Shipping During the Iran-Iraq Crisis, 1980–1988* (New York, I.B. Tauris Publishers, 1996), 143.

⁸² John W. Partin, “Special Operations Forces in Operation Earnest Will/Prime Chance I,” *U.S. Special Operations Command History and Research Office*, (1998): 10.

⁸³ Christopher C. Joyner, editor., *The Persian Gulf War: Lessons for Strategy, Law, and Diplomacy* (New York: Greenwood Press, 1990), 131–132.

one while returning to Bahrain after convoy escort duty.”⁸⁴ While no one was severely injured and the *Samuel B. Roberts* was able to be restored, the United States immediately took action against Iran with Operation Praying Mantis. Pasdaran bases and Iranian aircraft and warships were attacked and destroyed in one of the biggest U.S. naval battles since World War II. With such intense pressure from the United States and the heavy Iranian casualties that resulted, this battle was a crucial move toward peace between Iran and Iraq.

3. Strait of Hormuz

Iran undertook offensive and defensive maneuvers throughout the Iraq-Iran War, both on land and at sea, but one crucial event that may have either brought a swifter end to the war or prolonged it, never occurred. Throughout the war with Iraq, “Iran sought to block the passage of oil tankers to and from the Arab states,”⁸⁵ and it did this by harassing shipping in the Strait of Hormuz. However, as Iran had threatened to do on several occasions throughout the war, it never closed the Strait of Hormuz. The reasons behind Iran’s decision to keep the Strait open were based on economics, politics, and military capabilities.

The Strait of Hormuz is the primary lifeline for all oil shipment throughout the world. “Every 20 minutes or so, it is estimated, an oil tanker passes through the Persian Gulf and the Strait of Hormuz...sixty percent of Europe’s, 90 percent of Japan’s and 20 percent of U.S. oil supplies are from this region and pass through here.”⁸⁶ Many gulf countries depend significantly on their oil revenue, Iraq included. While Iraq was threatening to destroy Iranian oil platforms in order to cripple its economy, Iran threatened to close the Strait in part, to prevent Iraq from receiving its oil revenue. “Iraq is the only member of OPEC whose oil exports cannot reach the outside world without

⁸⁴ Martin S. Navias and E.R. Hooton, *Tanker Wars: The Assault on Merchant Shipping During the Iran-Iraq Crisis, 1980-1988* (New York: I.B. Tauris Publishers, 1996), 170–171.

⁸⁵ Caitlin Talmadge, “Closing Time: Assessing the Iranian Threat to the Strait of Hormuz,” *International Security* 33, no.1 (2008): 87.

⁸⁶ Economic and Political Weekly, “The Other Presence,” *Economic and Political Weekly* 15, no.13 (1980): 620.

crossing foreign territory in the north (Syria, Lebanon and Turkey), or without coming so close to Iranian territory in the south that it cannot be said to enjoy territorial security at all for its principal means of survival.”⁸⁷ While Iraqi-friendly vessels transited through the Strait on a daily basis, Iran would have completely closed off a significant amount of revenue going into Iraq. However, Iraq did have alternate routes to export their oil and “its new oil pipeline through Turkey and Saudi Arabia by-pass[ed] the Persian Gulf.”⁸⁸ Closing Hormuz would not have the desired effect of eliminating Iraq’s oil revenue but it would have negatively impacted Iran. While Iraq was receiving goods, weapons, and aid from Saudi Arabia and Kuwait, Iran had to depend primarily on its own exports for state revenue. With Iran being “totally dependent on the Gulf’s shipping lanes for all its oil exports, as well as for nearly all its imports of food and war materiel,”⁸⁹ closing the Strait would have done more harm to Iran than to Iraq. Iran wanted to make a statement to the world and closing the Strait would have affected the price of oil throughout the world, at least for a period of time, but it would not have crippled the Iraqi economy nor affected United States’ oil imports. Economically speaking, if Iran closed the Strait of Hormuz it would have done more harm than good to their own economy, as it relied solely on the Strait for its imports and exports. Another factor that Iran had to consider before closing the Strait was not only its own military capabilities but those of the United States and other Iraqi allies.

With the Iranian threat of closing the Strait of Hormuz, “the United States announced it would not allow the Gulf to be closed, emphasized the capabilities of the U.S. carrier task force on station just outside the Gulf, began contingency consultations with its allies and regional friends and stepped up diplomatic efforts to restrain escalation.”⁹⁰ While only a small portion of the United States’ oil came from the Persian Gulf, America was going to protect the international community and its announcement was a deterrent for Iran. While Iraq wanted the United States to enter the war, Iran did

⁸⁷ Claudia Wright, “Implications of the Iraq-Iran War,” *Foreign Affairs* 59, no.2 (1980): 277.

⁸⁸ Barry Rubin, “Drowning in the Gulf,” *Foreign Policy* no.69 (1987–1988): 127.

⁸⁹ Michael Sterner, “The Iran-Iraq War,” *Foreign Affairs* 63, no.1 (1994): 133.

⁹⁰ *Ibid.*, 129.

not want to have a confrontation with the United States. Iran was a more capable naval fighting force compared to Iraq and while both sides suffered significant casualties during the war at sea, “there [was] little doubt that any Iranian losses were insufficient to undermine the Iranian superiority.”⁹¹ While the fact that Iranian military capabilities far outweighed those of Iraq’s, the same cannot be said in comparison to the United States’ naval forces. And at the first sign of possible disruption through the Strait of Hormuz, the United States “dispatch[ed] a task force (of three warships with some 2,000 marines) to the Indian Ocean.”⁹² This costly signaling from the United States was a big enough show of force to ensure that Iran did not attempt to close the Strait. Iran was extremely careful concerning their maneuvers around the Gulf and the Strait of Hormuz and only responded in kind to Iraqi attacks rather than taking the offensive. The fact that the United States was ready and willing, along with its allies, to enter into the war in order to protect the shipping and oil interests of the international community instilled enough fear in Iran that it did not close the Strait of Hormuz because it did not want to enter into a simultaneous war with the United States and its allies.

D. POSSIBLE ALTERNATIVES FOR IRAN

The Iraq-Iran War significantly affected both the Iraqi and the Iranian economies and while both sides were dependent upon revenue from their oil exports, Iran never reached its expected projection throughout portions of the war. As Iraq was attacking Iranian oil installations, Iran crafted a plan in order to defend their platforms which included, increasing what had been an intermittent surveillance of shipping for war materiel that might be destined for Iraq, to a full-scale program of intercepting, boarding and searching suspected vessels irrespective of flag or provenance, announc[ing] what was to become a standard refrain intended as a warning to the Gulf states and the oil consumers to restrain Iraq, namely that if Iran’s oil exports were interrupted, everyone else’s would be as well, and it announced plans to diversify its oil export terminals and

⁹¹ Efraim Karsh, *The Iran-Iraq War: A Military Analysis* (London: The International Institute for Strategic Studies, 1987), 41.

⁹² Efraim Karsh, *The Iran-Iraq War: A Military Analysis* (London: The International Institute for Strategic Studies, 1987), 29.

specifically to use Ghanaveh and terminals south of Bushire as well as suggestion that it might build a pipeline with a 500,000 b/d capacity to deliver crude to Lavan Island.⁹³ While one of these three solutions came to fruition, the final and possibly most influential never did.

Throughout the war, Iran did search Iraqi-friendly vessels transiting the Strait in order to attempt to deter them from assisting Iraq in maintaining its oil revenue. And, in the summer of 1985, “Iran again demonstrat[ed] its dominance of the Straits of Hormuz and its ability to bring pressure upon Iraq’s Gulf allies by increasing the detention and searches of Gulf shipping.”⁹⁴ While Iran was able to slow the tankers moving throughout the Strait, no real consequence came from this action and Iraq was still maintaining its oil revenue through this means of transportation. Throughout the later years of the war, Iran continually threatened to close the Strait of Hormuz in order to wreak havoc in the oil market but as has been mentioned previously, it never took such action. Iran’s final resolve concerning its own oil revenue was to construct new terminals further from Iraqi forces as well as to construct a pipeline similar to that of Iraq’s. Because Iran was so dependent on the Strait as its main vehicle for transporting its oil, it could not close the Strait without significantly affecting its own economy. As Iraq’s oil revenue was slightly affected as Iran was harassing its tankers that transited the Strait, it was still able to maintain its oil revenue through pipeline transportations. While Iran wanted to begin to construct its own pipeline in order to become less dependent on the Strait, “it was recognized that this would be expensive and would take at least one year to construct.”⁹⁵ Iran simply did not have the money to construct a new pipeline because the price of oil continued to plummet throughout the early part of 1986. It was spending money on its military forces on land in order to combat Iraqi aggressions and to push Iraq out of its territory and it was not receiving as much money through oil revenues so a new expensive construction project was not feasible during this part of the war. Also, Iran did

⁹³ Shahram Chubin and Charles Tripp, *Iran and Iraq at War* (Colorado: Westview Press, 1988), 135–136.

⁹⁴ Martin S. Navias and E.R. Hooton, *Tanker Wars: The Assault on Merchant Shipping During the Iran-Iraq Crisis, 1980–1988* (New York: I.B. Tauris Publishers, 1996), 109.

⁹⁵ Shahram Chubin and Charles Tripp, *Iran and Iraq at War* (Colorado: Westview Press, 1988), 136.

not construct a pipeline because of “the Iranian leadership’s expectations of a rapid victory.”⁹⁶ The tides had turned for Iran since the initial Iraqi invasion in 1980 and Iran was regaining its territory as well as making significant progress on land and at sea so the Iranian leadership believed that it could withstand the decrease in oil revenue for a short period of time and were willing to forgo the construction of the pipeline as an alternative form of receiving its oil revenue.

This final course of action was Iran’s only option to combat Iraq in the Persian Gulf and the Strait of Hormuz without damaging its own economic interests. But Iran neither could nor did want to begin construction on a pipeline that would transport their oil without having to transit the Strait of Hormuz due to financial concerns, and the fact that it believed the war would end sooner than it had. Harassing Iraqi-friendly shipping in the Strait of Hormuz, as well as threatening to close the Strait, were two actions that ultimately provoked the United States to enter the war on Iraq’s side.

E. CONCLUSION

The Iraq-Iran War was an eight-year battle that produced no real victor. While both countries lost hundreds of thousands of lives, expended countless military assets, and lost portions of their oil revenues, in the end, neither country gained any new territory or became the hegemon in the Persian Gulf. Iran’s most powerful asset throughout the war was the Strait of Hormuz, but this asset also proved to be its Achilles heel as well. While Iran had the ability to close the Strait of Hormuz, at least for a short period of time, it never took such an action, as it had threatened to throughout the war. Closing the Strait would have been an advantage for Iran because it would have wreaked havoc in the oil economy throughout the world, it would have proven that Iran could control the Persian Gulf, and it would have affected Iraq’s economy as well as the economies of Iraqi allies because they would not be able to transport oil through the Strait. Closing Hormuz also would have brought with it multiple disadvantages for Iran, which ultimately persuaded it not to make good on its threat of closing it. Iran would have significantly affected its own economy because it used the Strait as the primary

⁹⁶ Shahram Chubin and Charles Tripp, *Iran and Iraq at War* (Colorado: Westview Press, 1988), 137.

means for transporting its oil and it would have provoked an even greater U.S. involvement in the war, something that Iran was trying to avoid throughout the entire eight-year period. Iran caused commotion during the war by harassing and searching Iraqi-friendly vessels transiting the Strait as well as deploying landmines throughout the Persian Gulf, but they never actually closed the Strait of Hormuz because there simply was too much to lose in doing so. If Iran would have constructed an oil pipeline that transported their oil out of the country while bypassing the Strait, closing the Strait would not have as great an effect on its own economy; however, this still would not solve the issue of United States involvement. And for these reasons, Iran did not find it a viable option to close the Strait of Hormuz during the Iraq-Iran War.

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IV. MILITARY ASSETS AND CAPABILITIES OF IRAN, THE UNITED STATES, AND THE GCC STATES

A. INTRODUCTION

The previous chapters have focused on the economic and strategic importance of the Strait of Hormuz and analyzed a specific period of time, the Iraq-Iran War, in which the Strait was of significant importance throughout the course of the war. This chapter now turns to the military aspects of this dilemma of Iran closing the Strait as a retaliation mechanism against increased sanctions or attack from either Israel or the United States both from the Iranian as well as the American perspective. If Iran decides to close the Strait of Hormuz, there is no question that it would affect not only her but a significant portion of the international community as well. The consequences of closing the Strait would be felt not only by Iran, her economy, and military but it would also reach other nations of the world and their economies and militaries as well. The United States played a significant role concerning the Persian Gulf and the Strait of Hormuz during the Iraq-Iran War, at a significant cost to the nation, but Iran felt the costs of the war as well. The question that arises now is whether Iran is willing to incur the costs of closing the Strait of Hormuz, not just economically, but strategically and militarily. In order to answer this question, this chapter will explore the specifics of the Iranian military as well as those of the United States military in order to determine whether closing the Strait of Hormuz would be a worthwhile endeavor for Iran based upon her own military strength versus the strength of the United States' and GCC states' military assets and capabilities.

B. IRANIAN MILITARY CAPABILITIES AND ACTION

During the long, arduous Iraq-Iran War (1980–1988), Iran incurred momentous losses not only of her people but also of her military equipment. The ground forces of both the regular army as well as the Islamic Revolutionary Guard Corps (IRGC) or Pasdaran suffered a significant loss of life and machinery, Iran's air force suffered overwhelming losses in equipment as well as in confidence as the Iraqi air force's

capabilities and technological advances far outweighed those of Iran's, and while her navy was the largest of any Persian Gulf coast country, its shortcomings were soon realized. With Iranian army, air force, and navy equipment and capabilities significantly diminished, a restructuring and rebuilding were in order and noticeably began in the 1990s. It is not sufficient to look primarily at Iran's naval capability when assessing whether or not it would close the Strait of Hormuz because over the last several years, it has conducted joint exercises with all of its military forces in and around the Strait. Due to this fact the following sections will take an in depth look into Iran's current army, air force, and navy strengths, assets, and capabilities.

1. Army and the Islamic Revolutionary Guard Corp

While the Iranian Army does not operate in the waterways along the coast of Iran, all of Iran's military forces would be affected if it decided to close or block the Strait: thus, these forces cannot be ignored when attempting to establish Iran's capability to close the Strait of Hormuz. The Iranian regular army force consists of 350,000 members, which includes 6 infantry divisions, 4 armor divisions, 6 artillery regiments, 2 commando divisions and 1 special forces brigade among its special forces, and 1 airborne brigade while the IRGC consists of approximately 125,000 members, which includes 2 armor divisions, 5 mechanized divisions, 18 infantry divisions, independent brigades, special forces elements, and paratroop units.⁹⁷ The army is responsible for the more traditional military matters, while the IRGC focuses on the less traditional missions and would be a key element in the execution of the closure of the Strait of Hormuz. The vast majority of the personnel in both the army and IRGC enter the military through conscription and receive only minimal training at the lower levels of these fighting forces. Inadequate training coupled with outdated equipment from the United States and Britain, from the time of the Shah, adds to the fact that Iran will need to continue to build its ground forces

⁹⁷ Jane's Online, "Army, Iran," Jane's Sentinel Security Assessment-The Gulf States, http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/sent/gulfsu/irans110.htm@current&pageSelected=allJanes&keyword=iranian%20army&backPath=http://search.janes.com/Search&Prod_Name=GULFS&#toclink-j1501116429849908.

in order to have a fighting chance against stronger military powers. Despite having these flaws, the Iranian ground forces do have a significant amount of resources at their disposal.

Iran possesses approximately 1,700 tanks, including 100 Zulfiqars, 150 M-47/M-48s, and 100 Chieftain Mark 3/5s, which is a significant increase from its inventory of 1,135 tanks in 2000. It has also been inventoried to have T-54s, T-55s, T-59s, T-62s, and T-72s from North Korea and China as well as 640 armored personnel carriers, and 8,196 artillery pieces of which, 2,010 are towed and over 310 are self-propelled.⁹⁸ While experts only have a semi-precise picture of how many of these assets are fully operational, it cannot be denied that Iran has been stockpiling equipment for its ground forces since the end of the Iraq-Iran War. Table 5 outlines the Iranian ground forces armor, artillery, anti-tank weapons, air defense weapons, infantry weapons, aviation assets, and missiles.

Table 5. Iranian Army Armor, Artillery, Anti-Tank Weapons, Air Defense Weapons, Infantry Weapons, Aviation, and Missiles

Role	In Service
Iranian Army Armor	
Main Battle Tank	1745 (1,2,3)
Light Tank	n/a (4)
Reconnaissance Vehicle	115
Infantry Fighting Vehicle	650 (1)
Armored Personnel Carrier	640 (1,4)
Armored Vehicle	n/a
Iranian Army Artillery	

⁹⁸ The International Institute for Strategic Studies, “20 May 2009-Reuters-How big is Iran’s military?” The International Institute for Strategic Studies and Anthony H. Cordesman, *Iran’s Developing Military Capabilities* (Washington, D.C.: Center for Strategic and International Studies, 2005), 20.

Self-Propelled Gun-Howitzer	n/a
Self-Propelled Howitzer	240
Self-Propelled Gun	52
Gun-Howitzer	120
Howitzer	1005
Field Gun	1015 (5)
Divisional Gun	80
Multiple Rocket Launcher	750
Mortar	2250
Light Mortar	n/a
Iranian Army Anti-Tank Weapons	
Anti-Tank Guided Missile	1520 (6,7)
Anti-Tank Rocket	n/a
Recoilless Rifle	550
Recoilless Gun	n/a
Anti-Tank Rocket	740
Iranian Army Air Defense Weapons	
Man-Portable Surface-to-Air Missile	640
Self-Propelled Surface-to-Air Missile	n/a (8)
Surface-to-Air Missile	120
Self-Propelled Anti-Aircraft Gun (Twin)	80
Self-Propelled Anti-Aircraft Gun	100

(Quad)	
Anti-Aircraft Gun (Twin)	392
Anti-Aircraft Gun	550
Iranian Army Infantry Weapons	
7.62 mm G3	Assault Rifle
7.62 mm AKM type	Assault Rifle
7.62 mm Dragunov	Assault Rifle
5.56 mm <u>M16A1</u>	Assault Rifle
5.56 mm KH-2002	Assault Rifle
0.30 in <u>M1</u>	Assault Rifle
9 mm Uzi	Sub-Machine Gun
9 mm H&K MP5	Sub-Machine Gun
9 mm Beretta <u>M12</u>	Sub-Machine Gun
7.62 mm <u>MG1A1</u>	General-Purpose Machine Gun
7.62 mm PK/PDK	General-Purpose Machine Gun
7.62 mm FN MAG	General-Purpose Machine Gun
0.50 in Browning M2HB	Heavy Machine Gun
12.7 mm DShK	Heavy Machine Gun
40 mm <u>M79</u>	Grenade Launcher
30 mm <u>AGS-17</u>	Automatic Grenade Launcher
Iranian Army Aviation	
Helicopter-Attack	45 (9)
Helicopter-Observation	36

Transport	2
Helicopter-Transport	19
VIP/Light Transport	1
185A <u>Skywagon</u> Utility	6
<u>Mi-8 'Hip'</u> Helicopter-Utility	102 (11)
Iranian Army Missiles	
Toophan (<u>TOW</u>)	Anti-Armor
Toophan 2 (Improved TOW)	Anti-Armor
<p>Notes: Armor-1. Estimated. 2. Some T-69-II tanks may be converted to fit the Pakistani 105 mm gun. 3. Some or all of the M47/M48/M60 US-designed vehicles may have been withdrawn from service to be converted into Zulfiqar tanks. 4. Low rate production. Not confirmed in service. Artillery-Captured FH-77 and G5 towed artillery is being upgraded but has not been returned to inventory. 5. Some of these are likely Russian-made 130 mm M-46s. Anti-Tank Weapons-6. Unconfirmed. 7. The serviceability of US-made systems remains in doubt. Air Defense Weapons-8. Unconfirmed. Iran may have taken delivery of several systems for trial purposes and/or to upgrade its FM-80 network. Aviation-About 10 ex-Iraqi Mi-24 “Hinds” may be in service. 9. Refurbishments began in 1998. Ten upgraded “Toufan” aircraft reportedly delivered in 2010. 10. Being refurbished (and, reportedly, new-built) as IHSRC Shabaviz 75. 11. Ex-Iraqi</p>	

Source: Adapted by Brenna Schnars from Source: Jane’s Online, “Army, Iran,” Jane’s Sentinel Security Assessment-The Gulf States.

2. Air Force

The Iranian air force faced significant challenges during the Iraq-Iran War and similar to the ground forces, the air force has been steadily building up personnel and equipment since the 1990s. The current strength of the air force is approximately 30,000 personnel and it possesses approximately 300 combat aircraft including the MiG-29, F-

14A, F-4, and F-5 along with C-130, Boeing 747 and 707 transport aircraft.⁹⁹ While the Iranian air force uses United States relics, it no longer is supplied parts by the United States and thus must turn to its Asian and Russian neighbors in order to maintain its current equipment or purchase new aircraft as well as work internally to create new aircraft suitable for military operations. Iran has been steadily increasing its production of Unmanned Aerial Vehicles (UAVs) as well as developing surface to air (SAM) missiles based on Russian and Chinese models. However, even with progressing advances in missile and delivery systems, training facilities, like the lower level ground forces, are par at best due to Iran’s inability to conduct realistic training exercises. The vast amount of airspace owned by Iran makes effective and efficient patrolling of the entire area a challenging endeavor for its air force. And in order to attempt to mitigate airspace issues, fourteen tactical air bases throughout Iran are separated into the Western Area Command (WAC), the Southern Area command (SAC), or the Eastern Area Command (EAC). Air bases, each of which are the home base for several fighter, transport, patrol, or special duties squadrons, are located as far north as Tabriz, as far south as Chah Bahar, and as close to the Strait of Hormuz as Bandar Abbas. Table 6 outlines the Iranian air force’s current capabilities.

Table 6. Iranian Air Force Fixed Wing Aircraft, Rotary Wing Aircraft, Missiles

Type	In Service
Iranian Air Force Fixed Wing Aircraft	
<u>F-14A</u> Tomcat	45 (1)
<u>MiG-29</u> 'Fulcrum-A'	48 (2)
Mirage <u>F1EQ</u>	24 (4)
<u>Su-24MK</u> 'Fencer-D'	29 (5)

⁹⁹ Jane’s Online, “World air forces, Iran,” Jane’s World Air Forces, http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/binder/jwaf/jwafa127.htm@current&pageSelected=allJanes&keyword=iranian%20air%20force&backPath=http://search.janes.com/Search&Prod_Name=JWAF& and Anthony H. Cordesman, *Iran’s Developing Military Capabilities* (Washington, D.C.: Center for Strategic and International Studies, 2005), 67–68.

<u>Su-25 'Frogfoot'</u>	13 (6)
<u>F-5B Simorgh</u>	12
<u>F-7M Airguard</u>	30
<u>F-4E Phantom II</u>	50
<u>F-4D Phantom II</u>	5
<u>F-5E Tiger II</u>	31
<u>F-5F Tiger II</u>	18
<u>P-3F Orion</u>	4 (8)
<u>RF-4E Phantom II</u>	4
An-74TK-200 'Coaler-B'	11 (9)
<u>Y-7</u>	2
747	7 (10)
747-2J9F	4 (10)
F27-400M Troopship	10
F27-600 Friendship	n/a (11)
<u>Y-12 (II)</u>	9
<u>Il-76MD 'Candid'</u>	14 (12)
<u>C-130E Hercules</u>	22
<u>C-130H Hercules</u>	n/a (13)
<u>IR.AN-140</u>	3
707-3J9C	12
Falcon 20E	1
<u>Falcon 50</u>	3 (4)

L-1329 Jetstar	1
<u>PC-6/B Turbo Porter</u>	8
TB-21	8
TB-200	4
F33 Bonanza	20
<u>EMB-312 Tucano</u>	15
<u>PC-7 Turbo Trainer</u>	35
<u>Mushshak</u>	22 (9)
<u>Parastu</u>	14 (14)
<u>Tazarve</u>	25 (15)
. Iranian Air Force Rotary Wing Aircraft	
AS-61A-4	2
<u>CH-47C Chinook</u>	2
<u>206B JetRanger</u>	2
212	6
214	20
412	2
<u>Shahed 274</u>	2
Iranian Air Force Missiles	
<u>AIM-9P Sidewinder</u>	Air-to-Air
<u>AA-8 'Aphid'</u>	Air-to-Air
<u>AA-9 'Amos'</u>	Air-to-Air

<u>AA-10</u> 'Alamo'	Air-to-Air
<u>AA-11</u> 'Archer'	Air-to-Air
<u>AIM-7F</u> Sparrow	Air-to-Air
<u>AIM-54</u> Phoenix	Air-to-Air
<u>MIM-23B</u> HAWK (16)	Air-to-Air
R 550 <u>Magic</u>	Air-to-Air
<u>PL-2</u> 'Atoll'	Air-to-Air
<u>PL-5</u>	Air-to-Air
<u>PL-7</u>	Air-to-Air
<u>PL-9</u>	Air-to-Air
(Iran) <u>Sattar-1</u>	<u>Air-to-Surface</u>
(Iran) <u>Sattar-2</u>	<u>Air-to-Surface</u>
<u>AGM-65</u> Maverick	<u>Air-to-Surface</u>
<u>AS-10</u> 'Karen'	<u>Air-to-Surface</u>
<u>AS-11</u> 'Kilter'	<u>Air-to-Surface</u>
<u>AS-12</u> 'Kegler'	<u>Air-to-Surface</u>
<u>AS-14</u> 'Kedge'	<u>Air-to-Surface</u>
<u>AS-16</u> 'Kickback'	<u>Air-to-Surface</u>
<u>YJ-6</u> (CAS-1)	Anti-Ship Attack
C-801C Sardine	Anti-Ship Attack
(Iran) Fajr-e-Darya (CPMIEC <u>C-802K</u>)	Anti-Ship Attack
<u>RIM-66</u> Standard (16)	Anti-Ship Attack

Notes: **Fixed Wing Aircraft**-Iran still possesses large numbers of aircraft and helicopters of United States origin obtained before overthrow of Shah; most are unserviceable and figures quoted refer only to those believed capable of operation at time of writing. Inventory totals given about include those of the Revolutionary Guards Corps. 1. Total strength; only about 35 maintained in operational status at any given time. 2. Total includes 21 impounded Iraqi aircraft' some MiG-29UB "FulcrumB" two-seaters are operated; 35 to be overhauled and upgraded. 3. This figure is the lowest estimate of the number of aircraft in service. 4. Impounded Iraqi aircraft; in case of Mirage, at least six F1BQ two-seaters and 15 F1EQ single-seaters are believed to be operated. 5. Total includes 18 impounded Iraqi aircraft; more allegedly received from requirement for 100 ex-Russian aircraft; armed with Fajr-e-Darya AShMs; 24 to be overhauled and upgraded. 6. Includes examples of the Su-25K, Su-25UBK and Su-25T versions, with at least five Su-25K/UBK being former Iraqi Air Force aircraft. 7. F-5B converted from F-5A; at least 13 reported to have been completed. 8. To be replaced by version of IR.AN-140 Faraz. 9. Pasdaran aircraft according to recent reports. 10. Some converted to tanker. 11. Included in total quoted for F27-400M Troopship. 12. Including 11 ex-Iraqi; confirmed in service. 13. Included in total quoted for C-130E Hercules. 14. Based on Beech Bonanza. 15. Total requirement. **Missiles**-16. Sic

Source: Adapted by Brenna Schnars from Jane's Online, "Iran-Air Force," Jane's World Air Forces.

3. Navy

Since the Iraq-Iran War, the Iranian Navy has witnessed the spoils of upgrade more so than its army and air force counterparts. While all these services conduct joint operation exercises in an around the Strait of Hormuz, if Iran were to close the Strait, its navy would be the primary fighting force during such an endeavor. Currently, the Iranian Navy is composed of 18,000 regular navy personnel, 20,000 IRGC personnel with an additional 5,000 personnel marine branch, 3 submarines, 4 frigates, 2 corvettes, and multiple missile, coastal, and inshore patrol craft, amphibious ships, patrol aircraft, and armed helicopters.¹⁰⁰ The naval administrative headquarters is located in its capital, Tehran, but in order to effectively control its coast, Iran has several naval bases

¹⁰⁰ Jane's Online, "World navies, Iran," Jane's World Navies, http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/binder/jwna/jwna0072.htm@current&pageSelected=allJanes&keyword=iranian%20navy&backPath=http://search.janes.com/Search&Prod_Name=JWNA& and Anthony H. Cordesman, *Iran's Developing Military Capabilities* (Washington, D.C.: Center for Strategic and International Studies, 2005), 52-55.

throughout the country including one located at Kharg Island, at the northern end of the Persian Gulf, one at Chah Bahar, at the entrance to the Gulf of Oman, and one in the center of the Strait of Hormuz at Bandar Abbas. These strategic locations are meant to improve Iran's defense of its coastal waterways and ensure that it can militarily react to any situation in the waterways between the Persian Gulf and the Gulf of Oman. The majority of naval equipment owned by Iran during and immediately following the Iraq-Iran War was purchased by the Shah from the United States and is no longer of the caliber to effectively patrol the Iranian coast thus, Iran again turned to its Asian and Russian neighbors in order to upgrade its military equipment. While China and North Korea have provided Iran with missiles, patrol craft, and midget submarines, Russia has given Iran an extremely effective piece of military equipment in patrolling the Gulf and Strait of Hormuz; the submarine.

The Kilo class submarines now owned by Iran are a modern and effective submarine class. They have the ability to operate in shallow water depths, are equipped with mine detection and avoidance sonar capabilities, are surrounded by anechoic tiles that absorb sonar sound waves—thus reducing noise, have 6 530mm torpedo tubes, and can carry either 18 homing and wired-guided torpedoes or 24 mines. Beginning in 1992, U.S. intelligence sources indicated that Iran planned to buy between two and three of these Kilo class submarines from Russia and, in November of 1992, the first Kilo was transferred to Iran and was subsequently commissioned the *Tareq-901*.¹⁰¹ Following this commissioning, Iran received two more Kilo class submarines from Russia: the *Noor-902* and the *Yunes-903*. The Kilo submarines can fire torpedoes or lay mines with minimal detection, and can do so in shallow water; however, the depth of the water throughout the Strait of Hormuz makes such tasks more difficult than in the deeper parts of either the Persian Gulf or the Gulf of Oman, especially if there is a U.S. naval presence in and around the Strait of Hormuz. If Iran did decide to close the Strait of Hormuz, the likelihood of it deploying mines throughout the Strait and Persian Gulf, as it did during the Iraq-Iran War, is high and while its Kilo class submarines have this capability, Iran

¹⁰¹ Anthony H. Cordesman, *Iran & Iraq: The Threat from the Northern Gulf* (Boulder, CO: Westview Press, 1994), 72.

has alternate methods for mine deployment as well as other military tactics it could employ in and around the Strait, in order to contest shipping traffic.

While Iran has its Kilo class submarines to lay mines in and around its coastal waterways, it also has a wide array of other military equipment that can deploy its mines including small craft, its amphibious ships (LSTs), Boghammers, and helicopters. Iran's navy also "has one to two operational Cape-class (Riazz-class) 239-ton inshore minesweeper...for mine warfare purposes."¹⁰² If Iran were to close the Strait of Hormuz, mine warfare would be a key component to the success of such a mission. As of 1994, Iran has been known to possess multiple moored and drifting contact mines purchased by both the United States and Russia and with their determination to rebuild its navy it is likely that it has also acquired non-magnetic and influence mines as well. U.S. experts estimate that Iran has at least 2000 mines and intelligence has also surfaced concerning a report that Iran has negotiated with China to buy the EM-52 or MN-52 rocket propelled mine.¹⁰³ With such a wide array of mining capabilities, Iran would be able to inflict damage on naval or merchant vessels transiting the Strait and thus is makes it one of the most powerful tools for Iran if it did close the Strait of Hormuz.

Along with its variety of mines, as well as its ability to lay them through several different media, Iran would also rely heavily on missiles in order to close the Strait of Hormuz due to its lack of up to date naval equipment and mediocre air assets. Just as Iran used the Chinese Silkworm during the Iraq-Iran War, if it wanted to close the Strait, it would have to rely on this specific piece of military equipment. As of 1994, "the Naval branch of the IRGC had three to five operational land-based anti-ship missile units with three to six Silkworm launchers each, and a total of 50-60 missiles."¹⁰⁴ Along with its Silkworms, Iran has also obtained other variants of anti-ship and ship-to-ship missiles. Iran is known to have the capability to operate and deploy the Seersucker anti-ship missile, the CS-801 anti-ship missile, the CS-802 anti-ship missile, and the CS-

¹⁰² Anthony H. Cordesman, *Iran's Developing Military Capabilities* (Washington, D.C.: Center for Strategic and International Studies, 2005), 58.

¹⁰³ Ibid.

¹⁰⁴ Anthony H. Cordesman, *Iran & Iraq: The Threat from the Northern Gulf* (Boulder, CO: Westview Press, 1994), 74.

801K anti-ship missile, all of which are deployable from its frigates and have ranges varying from four to 70 nautical miles.¹⁰⁵ Table 7 outlines the specific naval capabilities of Iran.

Table 7. Iranian Navy Submarines, Navy Surface Fleet, IRGC Surface Fleet, Auxiliaries, Aviation

Role	In Service
Iranian Navy Submarines	
Attack	3
Midget	7
Midget (Diesel-Electric Power)	1
Swimmer Delivery Vehicle	8
Semi-Submersible Craft	6
Iranian Navy Surface Fleet	
Frigate	4
Corvette	2
Fast Attack Craft - Missile	14
Fast Attack Craft	1
Patrol Craft	19
Patrol Craft – Large (1)	6
Patrol Craft - Coastal	26
Patrol Craft - Inshore	36
Landing Ship Tank	2

¹⁰⁵ Anthony H. Cordesman, *Iran's Developing Military Capabilities* (Washington, D.C., Center for Strategic and International Studies, 2005), 55–56.

Landing Ship Logistic	10
Landing Craft (2)	1
Hovercraft	7
Iranian IRGC Surface Fleet	
Fast Attack Craft - Missile	10
Patrol Craft - Coastal, Missile	25
Patrol Craft - Coastal	45
Patrol Craft - Inshore	40 (3)
Patrol Craft	30
Landing Ship Tank	5 (4)
Iranian Navy Auxiliaries	
Replenishment Ship	1
Fleet Supply Ship	2
Support Vessel	1
Water Tanker	4
Support Ship	6
Tender	12
Floating Dock	2
Harbour Tug	17
Iranian Naval Aviation	
Helicopter - Maritime / Anti-Submarine	18
Utility	2
Utility / Transport	9

Helicopter - Multirole	6
VIP / Transport	6
<p>Notes: NavySurface Fleet-1. Three patrol craft originally built by the U.S. Coast Guard, Curtis Bay, Maryland in the 1950s were withdrawn for Iranian service in approximately 1995. It is reported that they have been refitted and recommissioned. 2. Described as a commercial craft, but has military applications. IRGC Surface Fleet-3. Manned by IRGC and the Navy. 4. Officially classes as Merchant Ships. Have been used to support IRGC activities. Aviation- Serviceability of much equipment of U.S. origin probably low.</p>	

Source: Adapted by Brenna Schnars from Jane’s Online, “World navies, Iran,” Jane’s World Air Navies.

C. UNITED STATES MILITARY CAPABILITIES AND ACTIONS

While the United States intervened during the Iraq-Iran War when Iran challenged shipping through the Strait of Hormuz and Persian Gulf, so too would the United States intervene if Iran decided to close the Strait. The United States is considered a more capable fighting force as compared to Iran and in order to fully understand this, the following sections will specifically address current U.S. military assets and capabilities. While the U.S. Navy would be the primary fighting force in the beginning of a conflict over the closure of the Strait of Hormuz, the following sections highlight the army, air force, and Marine Corp as well due to the joint nature of current and future U.S. military operations.

1. Army

While the United States Army is concerned with land based operations, if the United States were forced to intervene in the Middle East if Iran attempted to close the Strait of Hormuz, the likelihood of using joint forces, is a likely scenario, thus the strength and capabilities of the U.S. Army need to be outlined. There are currently 662,232 personnel in the army; 553,044 active duty, 77,833 in the active Army National Guard (ARNG), and 31,355 in the active Army Reserves (AR) while the reserve

component is comprised of 358,391 ARNG and 77,833 reservists.¹⁰⁶ All of these forces are divided into Heavy Brigade Combat Teams (HBCT), Infantry Brigade Combat Teams (IBCT), and Stryker Brigade Combat Teams (SBCT), which are further divided into manoeuvre battalions, combined arms battalions, armed reconnaissance (recce) squadrons, armed fires battalions, Brigade Support Battalions (BSB) and Brigade Special Troops Battalions (BSTB), infantry battalions, and Reconnaissance, Surveillance and Target Acquisition (RSTA) squadrons. Aside from its Infantry, the army has 11 aviation brigades, four engineers brigades, six air defense brigades, five artillery brigades, two armored cavalry regiments, and two armored divisions. The army possesses a wide array of equipment from land fighting vehicles and artillery, fixed wing and rotary wing aircraft and UAVs, as well as amphibious assets and air defense systems. While the army is still currently engaged in operations both in Iraq and Afghanistan, the force strength over the next five years, as is outlined in the Quadrennial Defense Review Report (QDR) of 2010, is projected to be comprised of 4 Corps headquarters, 18 Division headquarters, 73 total BCTs (45 active component and 28 Reserve component), consisting of 40 IBCTs, 8 SCBTs, and 25 HBCTs, 21 combat aviation brigades (CAB), and 15 Patriot battalions; 7 Terminal High Altitude Area Defense (THAAD) batteries.¹⁰⁷

Training of U.S. Army soldiers is a much more intense institution as compared to Iran's, and each soldier is taught to become a master in his field of expertise through vigorous training, both in the field and in the classroom. Along with this superior training, the U.S. Army has its forces stationed throughout the continental United States as well as forward deployed around the world in such countries as South Korea, Germany, Italy, and Kuwait. In order to understand the full scope of the U.S. Army's capabilities, Table 8 outlines its current assets.

Table 8. U.S. Army Armor, Artillery, Anti-Tank Weapons, Air Defense Weapons, Infantry Weapons, Aviation, Unmanned Aerial Vehicles, Missiles

¹⁰⁶ International Institute for Strategic Studies (IISS), *The Military Balance, 2010: The annual assessment of global military capabilities and defence economics: Chapter One: North America* (London: IISS, 2010), 19.

¹⁰⁷ "Quadrennial Defense Review Report" (delivered to the United States February 2010), xvi.

Role	In Service
U.S. Army Armor	
Main Battle Tank	6,467 (1)
Armored Personnel Carrier	112
Armored Infantry Fighting Vehicle	6,700
Armored Personnel Carrier	16,270 (2,3)
Medium Armored Vehicle	1,700
Protected Patrol Vehicle	239
Armored HMMWV	500
Ordnance Disposal Rapid Response Vehicle	n/a
U.S. Army Artillery	
Self-Propelled Artillery	975
Towed Artillery	720
Towed Howitzer	350
Multiple Launch Rocket System	1,070
High-Mobility Artillery Rocket System	52
Lightweight Mortar	n/a
Mortar	n/a
U.S. Army Anti-Tank Weapons	
Light Anti-Tank Weapon	n/a
Anti-Tank Guided Weapon	8,600 + 330
Anti-Tank Weapon	n/a
U.S. Army Air Defense Weapons	

Surface-to-Air-Missile	1339
Close In Weapon System	2
U.S. Army Infantry Weapons	
9 mm Berretta 92F (<u>M9</u>)	Pistol
9 mm Berretta (<u>M10</u>)	Pistol
9 mm Colt	Pistol
9 mm H&K MP5	Sub-Machine Gun
5.56 mm H&K 416	Carbine
5.56 mm <u>M16A2</u>	Rifle
5.56 mm <u>M4</u>	Rifle
7.62 mm <u>M14</u>	Rifle
7.62 mm <u>M14</u> Mod 0 (4)	Enhanced Battle Rifle
7.62 mm <u>M24</u>	Sniper Rifle
5.56 mm <u>M249</u> SAW	Light Machine Gun
7.62 mm <u>M240B</u>	Machine Gun
0.50 Browning M2HB`	Machine Gun (5)
40 mm MK79	Support Weapon
40 mm M203	Support Weapon
40 mm Mk19 Mod 3	Support Weapon
SMAW	Support Weapon
MK47	Support Weapon
40 mm M-32 (6)	Grenade Launcher
MK19	Grenade Machine Gun

<u>60 mm M224</u>	Mortar
<u>81 mm M252</u>	Mortar
<u>107 mm M30</u>	Mortar
120 mm M-120/121	Mortar
U.S. Army Aviation	
Helicopter – <u>Utility</u>	1632
Helicopter – Attack	1064
Electronic Intelligence	54 (7)
Helicopter – Special Operations	271 (8)
Helicopter – Observation	264
Transport	2
Helicopter – Transport	437
Transport	152
<u>Utility</u>	47 (9)
Helicopter – Medevac	76
Helicopter – Multirole	41
Helicopter – Signals Intelligence	60
<u>Trainer</u>	11 (7)
Test	3
Helicopter - <u>Trainer</u>	195 (10)
U.S. Army Unmanned Aerial Vehicle	
Hunter (11)	n/a
Intelligence, Surveillance and Reconnaissance	

<u>Raven</u> Intelligence, Surveillance and Reconnaissance	n/a
MQ-1C Gray Eagle Multirole	n/a
MQ-8 Unmanned Helicopter Multirole	8
<u>Shadow</u> Intelligence, Surveillance and Reconnaissance	65
A-160 (12) Multirole	n/a
Pointer (12) n/a	n/a
<u>Dragon Eye</u> (12) Intelligence, Surveillance and Reconnaissance	n/a
U.S. Army Missiles	
<u>FIM-92 Stinger</u>	Air-to-Air
<u>BGM-71 TOW</u>	Anti-Armor
<u>AGM-114 Hellfire</u>	Anti-Armor
<u>AGM-114 Hellfire 2</u>	Anti-Armor

Notes: **Armor**-1. The M1 production is complete; no longer in service with a total of 2,374 units. 2. This is the number of M113s produced for the US. The total number produces is 74,296. 3. The in-service estimate for M113s includes many variants and 4, 650 M577 command posts. **Anti-Tank Weapons**-The 8,600 TOW ATGW includes 1,380 on HMMWV, 520 on M-901 and over 6,00 on M2 Bradley. **Air Defense Weapons**-Two land-based Phalanx Close-In Weapon Systems (CIWS) have been deployed on low-loader trailers and are operational at Camp Anacond near Balad, Iraq. **Infantry Weapons**-4. The M14 Mod 0 with a shorter 18 inch barrel has been issued to Navy Seals. 5. Probably some still in sue but being phased out. 6. Introduced to Regimental Combat Team 5, based in Camp Falluhah, the M-32 six-shot 40mm grenade launcher. **Aviation**-7. Operated with civil registrations and colour schemes; previously designated RC-7B. 8. Includes some MH-6Js. 9. Some remain in service for testing; being retired and replaced with UH-72As. 10. Operated on contract basis with civil registrations. **Unmanned Aerial Vehicles**-11. RQ-5 family of systems including Hunter II. 12. Operated by the U.S. Special Operations Command (USSOCOM).

Source: Adapted by Brenna Schnars from Jane's Online, "Army, United States," Jane's Sentinel Security Assessment- North America.

2. Air Force

While the U.S. Air Force's concentration is not specifically centered around waterways and naval bases, the severity of conflict that could ensue if Iran closed the Strait of Hormuz cannot be fully determined; thus, it is appropriate to highlight the air force's capabilities. The United States Air Force entertains a vision of Global Vigilance, Reach, and Power in order to fulfill its core capabilities of air and space superiority, global attack, rapid global mobility, information superiority, and agile combat support and is comprised of 334,342 personnel along with 238,000 reservists, divided into 10 Aerospace Expeditionary Forces (AEF) with 10,000–15,000 personnel in each.¹⁰⁸ It has the equipment and capability to conduct operations with combat aircraft, multirole fighters, interceptors, ground attack assets, transports, reconnaissance/airborne early warning vehicles, helicopters, tilt-rotors, and unmanned aerial vehicles. Several components make up the U.S. Air Force, including the Air Combat Command (ACC), the

¹⁰⁸ The Military Balance, "Chapter One: North America," The Military Balance 2010, http://pdfserve.informaworld.com.libproxy.nps.edu/910314_793890206_919051864.pdf and Jane's Online, "World air forces, United States," Jane's Word Air Forces, http://search.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/binder/jwaf/jwafa297.htm@current&pageSelected=allJanes&keyword=air%20force%2C%20united%20states&backPat h=http://search.janes.com/Search&Prod_Name=JWAF&

Air Force Global Strike Command (AFGSC), the Air Education and Training Command (AETC), the Air Force Material Command (AFMC), the Air Force Space Command (AFSPC), the Air Force Special Operations Command (AFSOC), and the Air Mobility Command (AMC). Each command is responsible for a specific mission set among the entire air force which range from training, supporting, and directing U.S. land-based missions, to directing and implementing nuclear capable missions, and providing a forward presence throughout the international community.

Along with its extensive mission set, the U.S. Air Force is the most effective fighting air force throughout the world due in part to the strategic location of its bases which are located in several states across the United States as well as overseas in Japan, South Korea, Germany, Italy, Portugal, the United Kingdom and Turkey. The vigorous and continual training process for air force personnel both in the classroom and in the air ensure that U.S. Air Force personnel have the opportunity to acquire a multitude of flying hours throughout their careers, as well as access to the most up-to-date and technological advances of any air force throughout the world. While the U.S. Air Force is undoubtedly the world's most capable and effective air force, the United States wants to continue this trend and fiscal years 2011 through 2015 will bring with them eight ISR wing-equivalents (with up to 380 primary mission aircraft), 30–32 airlift and aerial refueling wing-equivalents (with 33 primary mission aircraft per wing-equivalent), 10–11 theater strike wing-equivalents (with 72 primary mission aircraft per wing-equivalent), five long-range strike (bomber) wings (with up to 96 primary mission aircraft), six air superiority wing-equivalents (with 72 primary mission aircraft per wing-equivalent), three command control wings and five fully-operational air and space operations centers (with a total of 27 primary mission aircraft), and 10 space and cyberspace wings.¹⁰⁹ In order to understand the full scope of U.S. Air Force capabilities, Table 9 outlines its current assets.

¹⁰⁹ “Quadrennial Defense Review Report” (delivered to the United States February 2010), xvii.

Table 9. U.S. Air Force Fixed Wing Aircraft, Rotary Wing Aircraft, Unmanned Aerial Vehicles, Missiles

Role	In Service
U.S. Air Force Fixed Wing Aircraft	
Bomber	161
Fighter – Multirole	2,024 (1)
Fighter - Ground Attack / Strike	355
Airborne Laser Platform	1
Airborne Early Warning and Control	32
Intelligence / Reconnaissance / Surveillance	30
Reconnaissance / Surveillance	58
Electronic Intelligence	22
Command and Control	4
Transport	753 (1,2)
<u>Tanker</u> / Transport	476
VIP / Transport	39
<u>Utility</u>	115 (3)
Special Operations	139
<u>Trainer</u>	981 (3)
Test	2
Motor Glider	40 (3)
Electronic Trials and Research	1
Weather Reconnaissance	11

U.S. Air Force Rotary Wing Aircraft	
Special Operations	70 (4)
Search and Rescue	99
<u>Trainer</u>	27
Unmanned Aerial Vehicles	
Multirole	156
Aerial Target	80 (5)
U.S. Air Force Missiles	
<u>LGM-30G</u> Minuteman III ICBM (6)	Strategic
<u>AGM-86B</u> ALCM (7)	Strategic
<u>AGM-129A</u> ACM (7)	Strategic
<u>AIM-7M/P</u> Sparrow	Air-to-Air
<u>AIM-9L/M</u> Sidewinder	Air-to-Air
<u>AIM-9X</u> Sidewinder	Air-to-Air
AIM-120A/B/C/D AMRAAM	Air-to-Air
AGM-65A/B/D/E/G/H/K Maverick	<u>Air-to-Surface</u>
<u>AGM-86C/D</u> CALCM	<u>Air-to-Surface</u>
AGM-88A/B/C HARM	<u>Air-to-Surface</u>
<u>AGM-130A</u>	<u>Air-to-Surface</u>
<u>AGM-130C</u>	<u>Air-to-Surface</u>
<u>AGM-158A</u> JASSM	<u>Air-to-Surface</u>
<u>AGM-154A</u> JSOW	<u>Air-to-Surface</u>
<u>AGM-142</u> Popeye	<u>Air-to-Surface</u>

AGM-84D Harpoon	Anti-Ship Attack
<p>Notes: Fixed Wing Aircraft-Figures quoted include aircraft assigned to first-line and second-line forces, as well as in-service reserves and those undergoing maintenance; aircraft in long-term storage are not included. 1. Deliveries in progress. 2. Owned by National Science Foundation and operated by USAF ANG on their behalf. 3. Operated in civilian markings. Rotary Wing Aircraft-4. Delivery in progress. One lost in a crash in Afghanistan in April 2010. Unmanned Aerial Vehicles-5. QF-4 Phantom used as full-size aerial target; figure quoted is for total estimated requirement (excluding pre-production aircraft) during programme lifetime; QF-4E and QRF-4C versions currently in use, with QF-4G versions all expended. Missiles-6. Total of 450 missiles presently emplaced in silos. 7. Total procurement; quantity in service reduced, with all AGM-129As due to be retired, leaving about 528 AGM-86Bs in operational inventory.</p>	

Source: Adapted by Brenna Schnars from Jane’s Online, “World air forces, United States,” Jane’s World Air Forces.

3. Navy

As has been mentioned previously, if Iran were to close the Strait of Hormuz, the United States Navy would be the primary fighting force at the onset of the military mission to reopen the Strait. The United States Navy consists of 329,092 active duty and 109,241 reserve personnel of which approximately 45,000 are routinely deployed throughout the world in order to carry out the U.S. Navy’s role as a continuous, adaptable, and active instrument of security policy designed to promote stability and project military power. It comprises two fleet areas, the Atlantic and Pacific, and is further divided into six fleets: the Atlantic, the Pacific, the Caribbean, Central, and South American, the Indian Ocean, Persian Gulf, and Red Sea, the Mediterranean, and the West Pacific.¹¹⁰ The U.S. Navy is equipped with both sea and air assets as well as special forces. U.S. Navy ships, including aircraft carriers, amphibious ships, cruisers, destroyers, and submarines are regularly deployed throughout the world and their

presence is always known by the international community. Mine countermeasure ships are also among the U.S. Navy's arsenal and would be of particular importance if Iran were to close the Strait of Hormuz along with the navy's strategic SSBNs and tactical SSNs and SSGNs. It is also equipped with logistics and support elements, such as oilers, which give it the ability to self-sustain during six month to year-long deployments throughout the international waters of the world. U.S. Naval Aviation personnel are divided into squadrons and are part of one of the navy's 11 air wings; each possesses F/A-18s, SH-60s, EA-6Bs, and E-2Cs along with a multitude of conventional, laser-guided, and GPS guided bombs.

Similar to the United States Army and Air Force, training for Navy personnel is of superior caliber and takes places both in the classroom, in the air, and at sea and encompasses a wide range of military exercises both in and off the coast of the United States as well as in international waters such as the Mediterranean. The U.S. Navy is known for its forward presence throughout the world while it conducts regular deployments but it also has forward operating bases and support activities in Japan, Spain, Greece, Guam, and Italy. The U.S. Navy also consists of special operations forces, organized into eight SEAL teams with two SEAL Delivery Vehicle (SDV) teams along with Special Boat Teams who are trained in superior tactics that can be employed during wartime operations.

The strategic vision for the U.S. Navy throughout fiscal years 2011–2015, as defined in the QDR, is to continue to be the world's leading navy and will include 10–11 aircraft carriers and 10 carrier air wings, 84–88 large surface combatants, including 21–32 ballistic missile defense-capable combatants and Aegis Ashore, 14–28 small surface combatants (+14 mine countermeasure ships), 29–31 amphibious warfare ships, 53–55 attack submarines and 4 guided missile submarines, 126–171 land-based intelligence, surveillance, reconnaissance (ISR) and electronic warfare (EW) aircraft (manned and

¹¹⁰ Jane's Online, "Navy, United States," Jane's Sentinel Security Assessment-North America, http://search.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/sent/namsu/amers130.htm@current&pageSelected=allJanes&keyword=navy%2C%20united%20states&backPath=http://search.janes.com/Search&Prod_Name=NAMS& and The Military Balance, "Chapter One: North America," The Military Balance 2010, http://pdfserve.informaworld.com.libproxy.nps.edu/463926_793890206_919051864.pdf.

unmanned), 3 maritime prepositioning squadrons, 30-33 combat logistics force ships (+1 Mobile Landing Platform (MLP)), 17-25 command and support vessels (including Joint High Speed Vessels, three T-AKE Class dry cargo/ammunition ships, one mobile landing platform), and 51 roll-on/roll-off strategic sealift vessels.¹¹¹ While this is the goal for the future of the U.S. Navy, Table 10 outlines the current inventory of its offensive assets but excludes support elements.

Table 10. U.S. Navy Submarines, Surface Fleet, Amphibious Forces, Mine Warfare Forces, Patrol Forces, Special Mission Ships, Aviation, Missiles

Role	In Service
U.S. Navy Submarines	
Los Angeles-Attack, Nuclear Powered	53
Ohio-Cruise Missile, Nuclear Powered	4 (1)
Ohio-Strategic Missile, Nuclear Powered	14
U.S. Navy Surface Fleet	
Aircraft Carrier	10
Command Ship	2
Cruiser-Guided Missile (Aegis)	22
Destroyer-Guided Missile (Aegis/Flight IIA)	30
Destroyer-Guided Missile (Aegis/Flights I and II)	28
Frigate-Guided Missile	30
Littoral Combat Ship	3
U.S. Navy Amphibious Forces	
Amphibious Assault Ship	10

¹¹¹ "Quadrennial Defense Review Report" (delivered to the United States February 2010), xvi.

Amphibious Transport Dock	11
Landing Ship–Dock	3
Landing Ship–Dock(MPF Type)	9
Landing Craft	10
Landing Craft Air Cushion	80
Landing Craft–Mechanised	35
Landing Craft–Personnel	75
Landing Craft–Utility	67
Logistic Support Vessel	8
Landing Craft–Mechanised	39
Unmanned Surface Vehicle	1
U.S. Navy Mine Warfare Forces	
Mine Countermeasures	14
U.S. Navy Patrol Forces	
Patrol Boat	116
Patrol Craft	886
Patrol Craft–Coastal	8 (2)
Patrol Craft–Fast	20
Patrol Craft–River	20
Rigid Inflatable Boat	80
U.S. Navy Special Mission Ships	
Command Ship	2
Acoustic Survey Ship	1

Cable Repairing Ship	1
Missile Range Instrumentation Ship	2
Test Support Ship	1
Ocean Surveillance Ship	5
Survey Ship	7
U.S. Navy Aviation	
Fighter–Multirole	670 (3,4)
Helicopter–Maritime / Anti-Submarine	206
Maritime / Anti-Submarine	161 (5)
Helicopter–Multirole	115
Reconnaissance / Surveillance	2 (6)
Telemetry	1(7)
Airborne Early Warning and Control	70
Command and Control	16
Transport	79
Assault Transport	32
Electronic Warfare	129 (8)
Search and Rescue	38
Special Operations	27
Trainer	150
Intelligence, Surveillance and Reconnaissance	7
Multirole	5
U.S. Naval Aviation-Missiles	
AIM-9L Sidewinder	Air-to-Air
AIM-9M Sidewinder	Air-to-Air

AIM-9X Sidewinder	Air-to-Air
AIM-120A AMRAAM	Air-to-Air
AIM-120B AMRAAM	Air-to-Air
AIM-120C AMRAAM	Air-to-Air
AGM-65F Maverick	Air-to-Surface
AGM-84E SLAM	Air-to-Surface
AGM-84H SLAM-ER	Air-to-Surface
AGM-88A HARM	Air-to-Surface
AGM-88B HARM	Air-to-Surface
AGM-88C HARM	Air-to-Surface
AGM-88D HARM	Air-to-Surface
AGM-122A Sidarm	Air-to-Surface
AGM-123A Skipper 2	Air-to-Surface
AGM-84A Harpoon	Anti-Ship Attack
AGM-119B Penguin	Anti-Ship Attack
ADM-141 TALD	Decoy

Notes: **Submarines**-1. Four Ohio SSBNs have been converted to SSGN with Tomahawk and the ability to operate SEAL forces. **Mine Warfare Forces**-There are no surface minelayers. Mining is undertaken by carrier-based aircraft, land-based aircraft and submarines. The USN decommissioned all remaining Osprey-class coastal minehunters in February 2008. **Patrol Forces**-2. Five craft are on loan to the Coast Guard. **Aviation**-3. A total of 104 USN and USMC Hornets of unknown variants were grounded in March 2010 due to airframe cracks. 4. A total of 515 F/A-18E/F Super Hornets planned through 2011. 5. Of 161 total aircraft, 39 were grounded in 2007 due to structural fatigue problems. Eleven more reported grounded in 2009. Repairs are likely to take two years. 6. All have been retired from fleet service, but three S-3Bs are being refurbished to remain in a support role providing range surveillance at the Naval Air Warfare Center Weapons Division. 7. Returned to service in 2010 following three year repair programme. 8. There are 57 on order from a total requirement of 90.

Source: Adapted by Brenna Schnars from Jane's Online, "Navy, United States," Jane's Sentinel Security Assessment-North America.

4. Marine Corps

While the United States Navy has sea and air assets, the United States Marine Corps can also be considered a U.S. Navy asset because naval amphibious ships have the ability to transport the marines along with their equipment into hostile or potentially hostile territory. Marines make regular deployments with Navy Expeditionary Strike Groups (ESG) and the ships that carry them are specifically designed with the ability to move closer to the shore in shallower water depths in order to assist the Marines in making their way to the beach. As Marines are part of these regularly scheduled naval deployments, they would be a valuable asset in combating Iran if it closed the Strait of Hormuz.

The United States Marine Corps is composed of 204,261 personnel divided into three Marine Expeditionary Forces (MEF), three Marine Expeditionary Brigades (MEB), and seven Marine Expeditionary Units (MEU) which includes a battalion landing team, an aviation combat element, and a composite logistics battalion which have the ability to fly F/A-18 A/B/C/D, AV-8B, EA-6B, and F-5E fighter aircraft, AH-1W/Z, UH-1N/Y, CH-46E, CH-53D/E rotary-wing aircraft, tanker and transport aircraft, and the MV-22 tilt-rotor aircraft along with employing its ground forces consisting of M1-A1 Abrams

tanks, Light Armored Vehicles (LAV) and Amphibious Assault Vehicles (AAV).¹¹² Similar to the U.S. Navy, the U.S. Marine Corps also has special operations battalions who enhance the Marine Corps' ability to maintain the highest state of readiness whether inside the continental United States or abroad. This is due in part to the demanding training regime that all Marine Corps personnel must complete both in the field, air, and classroom, depending on each member's specialty.

The Marine Corps' rigorous training program coupled with its forward operation presence in Okinawa, Japan and in the coming years in Guam assists in its ability to be an effective fighting force with the ability to respond quickly to conflicts throughout the international community. The Marine Corps conducts training exercises on a regular basis and its most recent one, "Cobra Gold 2010" displayed its capability to effectively and efficiently carry out an amphibious assault. These type of exercises are crucial to the success of the Marine Corps not only from a training perspective but also because exercises such as this, which was conducted in Thailand, are a show of force to the international community of just how capable the United States Marine Corps fighting force is.

Retention among the Marine Corps is also fairing well compared to other U.S. military forces which increases its sustainability and effectiveness. Due to high retention rates and increased responsibility in the future, the QDR of 2010 calls for a total force of three Marine expeditionary forces, four Marine divisions (3 AC and 1 RC), 11 infantry regiments, four artillery regiments, four Marine aircraft wings (6 fixed-wing groups, 7 rotary-wing groups, 4 control groups, 4 support groups), four Marine logistics groups (9 combat logistics regiments), and seven Marine expeditionary unit command elements between fiscal years 2011 and 2015.¹¹³ While these components are the goal over the next five years, Table 11 outlines the current assets of the United States Marine Corps.

¹¹²Jane's Online, "Marine Corps, United States," Jane's Sentinel Security Assessment-North America, http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/sent/namsu/amers140.htm@current&pageSelected=allJanes&keyword=marine%20corps&backPath=http://search.janes.com/Search&Prod_Name=NAMS& and The Military Balance, "Chapter One: North America," The Military Balance 2010, http://pdfserve.informaworld.com/551793_793890206_919051864.pdf.

¹¹³ "Quadrennial Defense Review" (delivered to the United States February 2010), xvii.

Table 11. USMC Armor, Artillery, Anti-Tank Weapons, Air Defense Weapons, Infantry Weapons, Aviation, Missiles

Role	In Service
USMC Armor	
Main Battle Tank	403
Armored Personnel Carrier	589 (1)
Amphibious Assault Vehicle	1,321
USMC Artillery	
High Mobility Artillery Rocket Systems Launchers	38
Towed Howitzer	697
Self-Propelled Mortar	50 (2)
Mortar	536
USMC Anti-Tank Weapons	
Self-Propelled Anti-Tank Weapon System	95 (3)
Heavy Anti-Tank Weapon System	1,083
Medium Anti-Armor Missile System	1,500
Light Anti-Tank Weapon	1,300
Short-Range Assault Weapon - Multiple Purpose	1,038 (4)
USMC Air Defense Weapons	
Man-Portable Surface-to-Air Missile	2,000
Self-Propelled Air Defense System	267 (5,6)
High-Mobility Artillery Rocket System	2

USMC Infantry Weapons	
9 mm M9	Pistol
0.45 MEU (SOC)	Pistol
9 mm MP-5N	Sub-Machine Gun
5.56 mm M16A2	Rifle
7.62 mm M14 (7)	Rifle
7.62 mm Designated Marksman Rifle (DMR)	Sniper Rifle
7.62 mm M40A1	Sniper Rifle
5.56 mm M249 Squad Automatic Weapon (SAW)	Light Machine Gun
7.62 mm M60E3	Light Machine Gun
7.62 mm M240G (8)	General Purpose Machine Gun
0.50 Browning M2	Heavy Machine Gun
40 mm M203	Grenade Launcher
40 mm MK19 Mod 3	Grenade Machine Gun
60 mm M224	Lightweight Company Mortar
12 Gauge Joint Service Combat Shotgun	Shotgun
USMC Aviation	
Fighter – Multirole	145 (9)
Fighter - Ground Attack / Strike	229 (9)
Attack	179
Transport	4
Tanker / Transport	94
Utility	474

Utility Tiltrotor	116 (10)
Trainer	20
Trainer	57
USMC Aviation-Missiles	
AIM-9L Sidewinder	Air-to-Air
AIM-9M Sidewinder	Air-to-Air
AIM-120A AMRAAM	Air-to-Air
AIM-120B AMRAAM	Air-to-Air
AIM-120C AMRAAM	Air-to-Air
AGM-65E Maverick	Air-to-Surface
AGM-65J Maverick	Air-to-Surface
AGM-88 HARM	Air-to-Surface
AGM-122A Sidearm	Air-to-Surface
BGM-71 TOW	Anti-Armor
AGM-114B Hellfire	Anti-Armor
ADM-141 TALD	Decoy

Notes: **Armor**-1. Includes 46 LAV(R) recovery, 94 LAV(L) logistics support and 50 LAV(C) command and control variants, but not the LAV(M) mortar and LAV(AT) variants, which are listed under the artillery and anti-tank inventories respectively. **Artillery**-2. Mortar variant of LAV-25 armed with M252 81 mm mortar instead of 25 mm cannon. **Anti-Tank Weapons**-3. Anti-tank variant of LAV-25 armed with twin TOW launchers instead of 25 mm cannon. 4. This figure includes 120 launchers and 1,038 missiles. **Air Defense Weapons**-5. The Avenger is a High Mobility Multipurpose Wheeled Vehicle (HMMWV) armed with eight Stinger missiles and a 12.7 mm machine gun. 6. The air defense variant of the LAV-25, the LAV(AD) is armed with eight Stinger missiles and a 25mm GAU-12 cannon. **Infantry Weapons**-7. Used primarily for drill and ceremonial purposes. 8. The M240G is the USMC's designation for the FN MAG. **Aviation**-9. A total of 104 USN and USMC Hornets of unknown variants were grounded in March 2010 due to airframe cracks. 10. Total includes about 10 with navy test establishments

Source: Adapted by Brenna Schnars from Jane's Online, "Marine Corps, United States," Jane's Sentinel Security Assessment-North America.

D. GCC STATES

If Iran were to close the Strait of Hormuz it would significantly affect the economies of the majority of GCC states. While all of the GCC states oppose military action against Iran, if Iran closed the Strait of Hormuz, the United States would have no choice but to combat such an action, which could ultimately lead to Iranian attacks on a number of the GCC states. In order to assess the military effectiveness of the GCC states, the following sections will provide information on the military strength and capabilities of Saudi Arabia, Bahrain, Kuwait, Qatar, the UAE, and Oman. Following these summaries, Table 12 will provide the total army, air force, and navy assets of the GCC states combined as the majority of these countries are small compared to Iran thus a combined effort would be in order.

1. Saudi Arabia

Saudi Arabian military forces are composed of 233,500 active duty personnel, of which 75,000 are in the army, 13,500 in the navy, 20,000 in the Saudi air force, 16,000 in air defense, 9,000 in the industrial security force, and 100,000 in the national guard, as

well as an additional paramilitary force of 15,500 personnel.¹¹⁴ Since the downfall of Saddam Hussein, the Saudi military forces have shifted more toward maintaining security within their own borders vice combating outside aggressors. Its military does monitor its borders and still maintains bases close to these areas in order to combat potential neighboring antagonists.

The Saudi Army, also known as the Royal Saudi Land Forces (RSLF) are not the only ground forces within its military and have their own internal conflicts with the Saudi Arabian National Guard (SANG). This fact aside, the RSLF is significant in size; with five infantry brigades, three armor brigades, eight artillery battalions, and one airborne brigade however, the vast amount of territory owned by Saudi Arabia is a challenging endeavor for its army personnel to effectively and efficiently protect. Conscription is not practiced in Saudi Arabia thus its numbers of volunteers is dismal, specifically in the army but its members receive focused long term training especially its officer corps. It has bases in several locations throughout its territory, including Riyadh, Hafr al-Batin, Tabuk, Dhahran, and Jeddah and has participated in joint exercises with other GCC states.

The Royal Saudi Air Force (RSAF) may be the most prestigious military entity of the country and receives a vast amount of funding for training purposes and equipment. The goal of the air force is two-fold: defending the country from foreign aggressors and protecting the countries oil platforms, which it does alongside the Royal Saudi Air Defense Force (RSADF). The Saudi air forces are able to patrol the vast amount of air space owned its country due in part to its multitude of air bases in Riyadh, Tabuk, al-Jawf, Haft al-Batin, Dhahran, al-Kharj, as-Sulayyil, Khamis Mushayt, and Jeddah. It has

¹¹⁴ The Military Balance, "Chapter Five: Middle East and North Africa," The Military Balance 2010, http://pdfserve.informaworld.com/838733_793890206_919052618.pdf.

a significant amount of assets in its arsenal, including combat and transport aircraft and missiles and has participated in joint exercises not only among the GCC states in “Gulf Spears” but the United States as well.¹¹⁵

The Royal Saudi Navy (RSN) is composed of 15,000 personnel but also includes a 3,000 personnel Marine force. Although this component of the Saudi military receives the least amount of funding, Saudi Arabia has been making advancements that would assist in combating Iranian submarines in the Persian Gulf and Strait of Hormuz, protect its oil platforms, and combat aggressors in the Red Sea. Due to its territory being surrounded by both the Persian Gulf and the Red Sea, Saudi Arabia has naval bases on both coast in As-Sharmah, Duba, al-Wajih, Yanbu al-Bahr, Jeddah, Jizan, al-Qanif, Ras Tannurah, al-Jubayl, al-Dammam, ras al-Mishab, and Haqi. Among its arsenal of equipment, the RSN owns seven frigates, four corvettes, and seven mine warfare vessels, however, the majority of Saudi naval assets are extremely old and if it wants to effectively patrol and defend its coastline, significant upgrades are in order.

2. Bahrain

The Bahraini army is composed of 8,500 personnel, divided into three infantry battalions, three armor battalions, and one artillery group, which could solely and effectively defend its national sovereignty, if invaded, for up to 48 hours.¹¹⁶ While many world navies focus on offensive capabilities, Bahrain is more of a defensive army, and all of its personnel are located in the capital, Manama. Although a fairly small force, with mediocre training, with the exception being joint training with GCC states, it is still able to possess a significant amount of equipment including reconnaissance vehicles, armored personnel carriers, infantry fighting vehicles, howitzers, surface to air missiles, and a small array of handheld infantry weapons.

¹¹⁵ Jane’s Online, “World air forces, Saudi Arabia,” Jane’s World Air Forces, http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/binder/jwaf/jwafa233.htm@current&pageSelected=allJanes&keyword=air%20force%2C%20saudi%20arabia&backPath=http://search.janes.com/Search&Prod_Name=JWAF&.

¹¹⁶ Jane’s Online, “World armies, Bahrain,” Jane’s World Armies, http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/binder/jwar/jwara110.htm@current&pageSelected=allJanes&keyword=army%2C%20bahrain&backPath=http://search.janes.com/Search&Prod_Name=JWAR&.

The Royal Bahraini Air Force is composed of 1,500 personnel and possesses both fixed and rotary wing combat aircraft, including the F-16C/D, the F-5E/F, the AH-1E, and the S-70A.¹¹⁷ It has two bases; one in Shaikh Isa and the other located in Riffa, and it is considered an effective defensive force among world air forces, although it only has three fighter squadrons and four helicopter squadrons. Bahrain must rely on its GCC neighbors in order to train its air force personnel and also cooperates with the GCC in training exercises such as “Gulf Spears” mentioned previously.

The Royal Bahraini Navy consists of approximately 700 personnel and maintains a frigate, corvettes, patrol and coastal combatants, and amphibious craft in its arsenal.¹¹⁸ Bahrain lacks mine warfare capabilities but is an effective fighting force against smuggling, for a minimal amount of time, as well as protecting fishery. Its sole naval base is located at Mina Sulman and it relies on the Royal Navy as well as the GCC states for training purposes. Of significant importance to Bahrain is its sole former U.S. Navy frigate, which it has possessed since 1997. Bahrain’s naval force is significantly small compared to other world navies, however, it is a great ally to the United States.

3. Kuwait

The Kuwaiti Army is comprised of 11,000 personnel, divided into 2–3 infantry brigades, three armor brigades, and one artillery brigade.¹¹⁹ The primary mission for the army is to protect and defend its borders and similar to Bahrain, it would only be able to do so effectively for a short period of time before its allies would need to intervene. Its main headquarters is located in Kuwait City but it also has forces in bases to the south, north and west of its capital. It is equipped with battle tanks, reconnaissance vehicles, armored personnel carriers, howitzers, mortars, anti-tank guided missiles, and an arsenal

¹¹⁷ The Military Balance, “Chapter Five: The Middle East and North Africa,” The Military Balance 2010, http://pdfserve.informaworld.com/838733_793890206_919052618.pdf.

¹¹⁸ Ibid.

¹¹⁹ Jane’s Online, “World armies, Kuwait,” Jane’s World Armies, http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/binder/jwar/jwara183.htm@current&pageSelected=allJanes&keyword=army%2C%20kuwait&backPath=http://search.janes.com/Search&Prod_Name=JWAR&.

of handheld infantry weapons and has conducted training exercises with the United States. While Kuwait has the United States as an ally, it is making progress to enhance and update its arsenal of army equipment.

The Kuwaiti Air Force's strength numbers 2,500 personnel and it possess fixed-wing combat aircraft including the F-18, rotary wing combat aircraft, the AH-64d and SA 342L, and transport aircraft, including the L-100-30.¹²⁰ It has been rebuilding its forces since the invasion by Iraq and is a strong fighting force considering its size. Along with its mission of air defense, the army also provides support to its land forces once deployed from one of three bases located in either Ahmed al-Jaber, Ali al-Salem, or from the Kuwait International Airport. Kuwait cooperates not only in training, as it receives support from the United States, but also among its GCC counterparts, as it participated in the GCC joint exercise "Gulf Spears" in November 2009.

The Kuwaiti Navy is composed of 2,700 personnel, of which 500 serve in the Kuwaiti Coast Guard, and it owns mainly missile craft used for coastal defense and customs support.¹²¹ While the navy's main goal is to maintain its independence, it has a joint agreement with Iraq concerning smuggling in the Persian Gulf. Its primary naval base is located in Ras al-Qalaya, while its multiple coast guard bases are in Shuwaikh, Umm al-Hainan, and al-Bida. The training program has significantly increased since the Iraqi invasion mainly due in part to the United States' and United Kingdom's assistance. Training has improved via the help of its allies, however, Kuwait is moving forward in advancing its naval forces through major overhauls of outdated equipment and possible future purchases.

¹²⁰ Jane's Online, "World air forces, Kuwait," Jane's World Air Forces, http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/binder/jwaf/jwafa154.htm@current&pageSelected=allJanes&keyword=army%2C%20kuwait&backPath=http://search.janes.com/Search&Prod_Name=JWAF&.

¹²¹ Jane's Online, "World navies, Kuwait," Jane's World Navies, http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/binder/jwna/jwna0084.htm@current&pageSelected=allJanes&keyword=navy%2C%20kuwait&backPath=http://search.janes.com/Search&Prod_Name=JWNA&.

4. Qatar

Qatar's Army is comprised of 8500 personnel who are divided among four mechanized infantry battalions, one armor battalion, one artillery battalion, one air defense battery, one special forces company, and three Royal Guard infantry regiments.¹²² While Qatar has a relatively smaller population, its army is a very capable force, specifically against terrorist attacks in part due to its training by Western and other Middle East allies. Its primary army post is located in the capital, Doha but its forces regularly patrol Dukhan and Umm Bab. Along with being trained by its allies, the Qatari army has also participated in joint exercises with fellow GCC states as well as the United States.

The Qatar Emiri Air Force's (QEAF) personnel strength measures 2100 and among its arsenal of equipment is the Mirage 2000-3EDA combat aircraft, the SA 342L Gazelle and WS.61 Commando Mk 3 combat helicopters, as well as the C-17A Globemaster III transport vehicle.¹²³ It has two air bases located at al-Udeid and Doha International Airport (IAP) and receives training from its British allies. It also participates in joint exercises, specifically with its GCC counterparts. While the QEAF has a few assets, it has been negotiating with India to sell its combat aircraft and its helicopters are in need of refurbishment.

Qatar's naval force is comprised of 1800 personnel, which includes Marine Police and possess 21 patrol and coastal combatants along with one amphibious craft.¹²⁴ Its capabilities include patrolling its coastal waterway, although only for short periods of time, anti-smuggling, and anti-piracy missions, and its primary goal is to maintain the

¹²² Jane's Online, "Army, Qatar," Jane's Sentinel Security Assessment-The Gulf States, http://search.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/sent/gulfsu/qatrs110.htm@current&pageSelected=allJanes&keyword=army%2C%20qatar&backPath=http://search.janes.com/Search&Prod_Name=GULFS&.

¹²³ Jane's Online, "World air forces, Qatar," Jane's World Air Forces, http://search.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/binder/jwaf/jwafa223.htm@current&pageSelected=allJanes&keyword=air%20force%2C%20qatar&backPath=http://search.janes.com/Search&Prod_Name=JWAF&.

¹²⁴ The Military Balance, "Chapter Five-The Middle East and North Africa," The Military Balance 2010, http://pdfserve.informaworld.com.libproxy.nps.edu/246480_793890206_919052618.pdf.

sovereignty of its country. It operates out of its two naval bases located in Doha and Halul Island and conducts training with other GCC states while being trained at home as well as in France and the UK. While the majority of its naval assets are decades old, it continues to refurbish its antiquated equipment in order to continue to effectively complete its missions.

5. UAE

UAE's army consists of 59,000 personnel, which includes 15,000 Dubai forces, and is divided into three integrated mechanized infantry brigades, two integrated infantry brigades, an integrated Royal Guards brigade, two non-integrated (Dubai) infantry brigades, two armor brigades, an artillery brigade, and a battlefield air defense brigade.¹²⁵ While its mission is to protect its territory, it would only be able to do so for a short period of time and would need its allies to intercept in order to fend off aggressors. It has several bases throughout the country and receives training from the United States and France. The UAE army, while its current stockpile is sufficient, is known to be procuring additional assets from a variety of other countries in order to increase its effectiveness.

The United Arab Emirates Air Force and Air Defense (UAE AF and AD) has a total of 4000 personnel, along with an additional 500 personnel police air wing, and possesses the Mirage 2000-9 and F-16 Desert Falcon combat aircraft along with the C-130H Hercules transport.¹²⁶ Similar to its GCC counterparts, its air force is a capable defending force but only for short period of time thus it relies on heavily on its allies not only for training but also for assistance in conflicts. One significant mission of the UAE AF and AD is the protection of its oil platforms, which it is better able to protect due to its multitude of bases throughout Abu Dhabi, Dubai, and Sharjah. It has taken part in several joint exercises, including "Gulf Spears" alongside other GCC states as well as

¹²⁵ Jane's Online, "World armies, United Arab Emirates," Jane's World Armies, http://search.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/binder/jwar/jwara257.htm@current&pageSelected=allJanes&keyword=army%2C%20uae&backPath=http://search.janes.com/Search&Prod_Name=JWAR&.

¹²⁶ Jane's Online, "World air forces, United Arab Emirates," Jane's World Air Forces, http://search.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/binder/jwaf/jwafa284.htm@current&pageSelected=allJanes&keyword=air%20force%2C%20uae&backPath=http://search.janes.com/Search&Prod_Name=JWAF&.

exercises with US, French, and UK air forces. Over the past five years, the UAE has received significant upgrades to its air equipment and it appears that it is going to continue with this trend in equipment procurement.

The UAE's Navy has approximately 2,500 members and has four principal surface combatants, 14 patrol and coastal combatants, mine warfare and mine countermeasures ships, 28 amphibious craft, and logistic and support elements.¹²⁷ The primary mission of its navy is to defend its territorial coastal areas but in the future, the UAE is looking to become a more offensive and blue water force. It has naval bases in Abu Dhabi, Dubai, Ras al-Khaimah, and Sharjah and conducts training exercises mainly in its own coastal territory with assistance from the UK, France, and the Netherlands. The UAE is striving to become a more effective and offensive naval force and along with this desire, it will have to purchase or manufacture more equipment, such as submarines, in order to do so.

6. Oman

The Royal Army of Oman (RAO) consists of 31,400 personnel, which includes 6400 Royal Household troops divided among eight infantry battalions, two armor regiments, three artillery regiments, and an air defense regiment.¹²⁸ Its primary mission is to protect Oman's sovereignty and it is able to complete this for a short period of time without ally intervention. It has several army posts throughout the country in Muscat, Khasab, Muaskar al-Murtafa, Musandam, Seeb, and Salalah, in which the majority of training is held for its personnel. Some of its members receive training in and from the United States and the UK, and their forces also complete training exercises with other GCC countries.

¹²⁷ The Military Balance, "Chapter Five-The Middle East and North Africa," The Military Balance 2010, http://pdfserve.informaworld.com.libproxy.nps.edu/246480_793890206_919052618.pdf.

¹²⁸ Jane's Online, "World armies, Oman," Jane's World Armies, http://search.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/binder/jwar/jwara215.htm@current&pageSelected=allJanes&keyword=army%2C%20oman&backPath=http://search.janes.com/Search&Prod_Name=JWAR&.

The Royal Air Force of Oman (RAFO) is composed of 5,000 personnel and maintains a multitude of aircraft including the F-16 combat aircraft and the C-130H transport.¹²⁹ Its mission is to provide air defense for Omani territory and it also assists the army in close air support. Its bases are located in Muscat, al-Masirah, al-Musana'a, Khasab, Seeb, Salalah, and Thumrait. The RAFO has a relatively intense training program for its student both in the air and in the classroom, which translates to effective training exercises with other GCC states, India, and the UK.

The Royal Navy of Oman (RNO) has two corvettes, four fast attack craft, eight patrol craft, and six landing craft that its 4,200 personnel operate.¹³⁰ As with several of the GCC states, Oman also lacks significant mine warfare capabilities but it is successful in patrolling its shores and coastal defense. With its bases in Musandam, Salalah, and Wudam, it is able to deploy for short periods of time in order to patrol its territorial seas and assist in search and rescue when needed. The RNO relies heavily on its allies for training, specifically the UK. With its small force size, Oman would only be able to defend itself for a brief period of time before it would need ally assistance to deter aggressors.

¹²⁹ The Military Balance, "Chapter Five-The Middle East and North Africa," The Military Balance 2010, http://pdfserve.informaworld.com.libproxy.nps.edu/246480_793890206_919052618.pdf and Jane's Online, "World air forces, Oman," Jane's World Air Forces, http://search.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/binder/jwaf/jwafa200.htm@current&pageSelected=allJanes&keyword=air%20force%2C%20oman&backPath=http://search.janes.com/Search&Prod_Name=JWAF&.

¹³⁰ Jane's Online, "Navy, Oman," Jane's Sentinel Security Assessment-The Gulf States, http://search.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/sent/gulfsu/omans130.htm@current&pageSelected=allJanes&keyword=navy%2C%20oman&backPath=http://search.janes.com/Search&Prod_Name=GULFS&.

Table 12. GCC States Army, Air Force, and Navy Assets

Role	In Service
ARMY	
Armor	
Main Battle Tank	1262 (1,2,3)
Reconnaissance Vehicle	374 (4,5)
Armored Personnel Carrier	1269 (6,7)
Armored Infantry Fighting Vehicle	1194
Light Armored Vehicle	20
NBC Reconnaissance Vehicle	27
Armored Command Post Vehicle	40
Infantry Combat Vehicle	73
Armored Combat Vehicle	136
Light Tank	76
Mine-protected Armored Personnel Carrier	48
Armored Personnel Carrier (Amphibious)	24
High Mobility Tactical Vehicle	500
Armored Recovery Vehicle	4
Artillery	
Self-Propelled Howitzer	439 (8)
Howitzer (Towed)	142
Multiple Rocket Launcher	135
Mortar	442 (9)
Self-Propelled Mortar	220
Tactical Missile System	30
Towed Gun / Howitzer	10
Multiple Rocket System	12
Self-Propelled Gun	64
Gun/Field Gun	148
Self-Propelled Gun-Howitzer	102
Howitzer	30
Anti-Tank Weapons	
Anti-Tank Guided Missile/Weapon	2732 (10,11)
Light Anti-Tank Weapon	250
Recoilless Rifle	848
Anti-Tank Rocket	100
Self-Propelled TOW Vehicle	8
Anti-Tank Vehicle	66
Rocket Propelled Grenade	100

Air Defense Weapons	
Man-Portable Surface-to-Air Missile	1226
AMX-30 Self-Propelled Acquisition Unit	36
AMX-30 Self-Propelled Firing Unit	73
Shelter-Mounted Acquisition Unit	10
Shelter-Mounted Firing Unit	19
Self-Propelled Anti-Aircraft Gun/(Twin)	95
Low-to-Medium Altitude Surface-to-Air Missile	6
Low-Level Surface-to-Air Missile	10 (12)
Anti-Aircraft Gun (Twin)	16
Anti-Aircraft Gun	34 (13)
Surface-to-Air Missile	12
Radar Guided Anti-Aircraft Gun (Twin)	30
Surface-to-Air Missile Twin Launchers (14)	40
Light Anti-Aircraft Gun (Towed)	50
Light Anti-Aircraft Gun (Self-Propelled)	42
Light Anti-Aircraft Gun	20
Self-Propelled Anti-Aircraft Gun	9
Infantry Weapons	Role
Pistol	Assault Rifle
Sub-Machine Gun	Sniper Rifle
Light Machine Gun	Heavy Machine Gun
General-Purpose Machine Gun	Grenade Launcher
Mortar	General-Purpose Machine Gun
Aviation	In Service
Helicopter–Attack	54
Helicopter–Transport	12
Helicopter–VIP Transport	1
Helicopter–Medevac	8
Helicopter–Observation	13
AIR FORCE	
Fixed Wing	
Fighter–Multirole	303 (15,16)
Fighter–Interceptor / Air Defense	82
Fighter–Ground Attack / Strike	69
Airborne Early Warning and Control	5
Reconnaissance / Surveillance	11
Electronic Intelligence	2

Transport	75 (17)
VIP / Transport	3
<u>Tanker</u> / Transport	14 (18)
Utility	23
<u>Trainer</u>	268 (19,20)
Fighter–Air Defense / Attack	8
<u>Trainer</u> / Light Attack	20
Maritime Patrol	4 (21)
Communications	2
Light Attack	11
Rotary Wing	
<u>Utility</u>	121 (22, 23)
Maritime / Anti-Submarine	13
Attack	75 (24, 25)
VIP / Transport	2
<u>Trainer</u>	8
Transport	9
VIP Transport / <u>Utility</u>	4 (26)
Unmanned Aerial Vehicles	
Tactical Intelligence, Surveillance and Reconnaissance	40 (27)
Missiles	Role
Air-to-Air	Anti-Ship Attack
<u>Air-to-Surface</u>	Anti-Armor
Surface-to-Air	Anti-Ship
NAVY	
Surface Fleet	
Frigate	8 (28)
Corvette	10
Minesweeper	4
Minehunter–Coastal	2
Patrol Ship/Craft/Patrol Craft Coastal	106
Fast Attack Craft–Missile	29
Fast Attack Craft–Gun	4
Fast Landing Craft	2
Landing Craft–Tank	4
Landing Craft– <u>Utility</u>	6
Landing Craft	20
Landing Ship–Logistics	1

Submarines	
Swimmer Delivery Vehicle	10
Auxiliaries	
Transport Craft/Ship	10
Replenishment Ship	2
Tug-Coastal	13
Hydrofoil	1
VIP Transport	3
Rescue Vessel	2
Diving Tender	1
Supply Ship	2
Landing Craft Utility	7
Transport Craft-Personnel	1
Landing Supply Craft	1
Support Ship	2
Logistic Support Craft	1
Landing Craft-Tank	1
Patrol Craft	4
Utility Vessel	12
Training Ship-Sail	1
Naval Aviation	
Helicopter-Maritime / Anti-Submarine	27 (29)
Helicopter-Search and Rescue	6
Helicopter	12
Utility	2
Reconnaissance / Surveillance	4
Naval Aviation Missiles	
Anti-Ship Attack	
Marine Police Fleet	
Fast Intercept Craft	4
Patrol Craft-Coastal	10
Coast Guard	
Patrol Boat	92
Patrol Craft-Coastal	36

Notes: **Armor**-1. Approximately half of the M-84As are in storage. 2. Of these, 34 are in reserve. 3. Includes 46 armored recovery vehicles and two training vehicles. 4. 8 in reserve. 5. Includes six Stormer command post vehicles transferred from the UK in 1999. 6. The Fahd APCs are in storage. 7. 31 Reported to be used for Internal Security in Oman. **Artillery**-8. 18 in storage. 9. Some self-propelled. **Anti-Tank Weapons**- 10. Includes 224 launchers mounted on Italian Oto Melara VCC-1 armored vehicles in Saudi Arabia. 11. 24 Mounted on VAB APCs in Qatar. **Air Defense Weapons**-12. This figure represents 3 acquisition units. 13. 12 in reserve. 14. For Igla-1 missiles mounted on Nissan Patrol vehicles. **Fixed Wing**- 15. Delivery in progress of 10 in Saudi Arabia. First 24 to come from UK production, with remainder to be assembled in Saudi Arabia. 16. Seven F-16E and seven F-16F retained in U.S. for training with the Arizona Air National Guard at Tucson. 17. Including three 'Seavans' engaged on maritime surveillance tasks; at least three other Skyvans in storage. 18. Quantity in service not known in the UAE; total of 12 obtained from Libya, of which at least nine are being upgraded to CH-47C+ standard by AgustaWestland in Italy from 2006. Some are understood to have been operated for training before being subjected to upgrading. 19. Several grounded because of insufficient spares stocks in Kuwait. 20. 3 Possibly withdrawn from use in the UAE. 21. 4 in the UAE obtained second-hand from civilian market; two presently being fitted out with mission equipment. **Rotary Wing**- 22. Total of 15 surviving SA 330 and IAR-330L helicopters were upgraded by IAR Brasov in Romania, 10 of which were transferred to Lebanon in 2009. 23. Approximately half of Oman's 15 presently held in storage at Al Musana'a awaiting sale. 24. Four have been transferred to Kuwaiti police. 25. Four Kuwaiti helicopters remain in USA for training duties. 26. Unconfirmed. **UAV**-27. Each system comprises two UAVs for a total of 80 air vehicles. **Surface Fleet**-28. Saudi Arabia's *Makkah* was seriously damaged in a grounding incident in December 2004 and may not be repaired. **Naval Aviation**-29. Two of the UAE's AS 535 are used for VIP transport.

Source: Adapted by Brenna Schnars from Jane's Online, Jane's World Armies, Air Forces, and Navies and Jane's Sentinel Security Assessment-The Gulf States

V. ASSESSEMENT OF THE CONSEQUENCES OF THE IRANIAN NUCLEAR PROGRAM AND THE CLOSING OF THE STRAIT OF HORMUZ

A. IRAN'S CONTINUING NUCLEAR PROGRAM AND THE UNITED STATES AND INTERNATIONAL RESPONSE

Beginning from the time of the Shah, Iran has continued to build upon its nuclear technologies. While the United States, prior to the Islamic Revolution, had good relations with Iran and did not adamantly oppose nuclear ambitions inside Iran, Ayatollah Khomeini swiftly changed the U.S. and international perspective. Lack of accurate reporting in nuclear advancements and the refusal of direct talks between Iran and the superpowers continues to make Iran's nuclear program an unsettling one for the international community. In April of 2010, President Obama warned Iran of increased sanctions if cooperation continued to remain at a standstill and his words came to fruition two months later. On June 24, 2010, "The U.S. Senate voted 99-0...to pass a measure imposing new sanctions on Iran...a bill [that] would penalize financial institutions doing business with Iran's Islamic Revolutionary Guard Corp and any businesses involved with refined petroleum in the country."¹³¹ These U.S. sanctions came less than three weeks after the new round of UN Security Council sanctions imposed on Iran on June 9, 2010, which targeted Iran's powerful Revolutionary Guard, ballistic missiles, and nuclear-related investments.¹³² These new rounds of sanctions imposed by the UN and specifically the United States directly correlates with international and U.S. ambitions to curb Iran's continuing nuclear program. While there are supporters and skeptics both in the United States and throughout the international community about how Iran will react in the near and far coming days, the United States believes that these sanctions will show

¹³¹ United Press International, "Daily Briefing: Senate Passes Iran Sanctions Bill," United Press International, http://www.upi.com/Top_News/International/2010/06/24/Senate-passes-Iran-sanctions-bill/UPI-69421277422194/.

¹³² Edith Lederer, "UN Security Council ratifies Iran sanctions," *Business Day (South Africa)*, June 10, 2010, <http://www.lexisnexis.com.libproxy.nps.edu/hottopics/Inacademic/>.

Iran that the international community, led in part by the United States, is not backing down from inflicting pressure upon Iran to halt its nuclear program.

Israel is one of the greatest U.S. allies in the Middle East, and it too has increasing concerns about the Iranian nuclear program. Although Israel's military capabilities have not been analyzed throughout this thesis, it must be noted here, that "multiple reports suggest that Israeli leaders are contemplating a preventive military strike to remove the threat of an Iranian nuclear capability."¹³³ Israel has always had concern about Iranian nuclear ambitions and with Iran's continuing advances in nuclear technology, Israel has become less at ease but has yet to act on its own, without U.S. support. While Israel believes that a pre-emptive strike would be in its best interest, "if Israel has decided to strike against what Israelis see as an existential threat, it would presumably wait until the U.S. Congress' return from vacation on Sept. 10."¹³⁴ Throughout history, Israel has, for the most part, waited for U.S. support before acting, and in the case of Iran, the situation would be no different. "For its part, an Israeli military move would apparently require a green—or at least a yellow—light from the American administration, and this has yet to be given."¹³⁵ While the United States has enforced its own mechanisms of deterrence in order to combat Iranian nuclear ambitions, a pre-emptive attack in 2010 may not be the best solution from the U.S. perspective, as analysts and intelligence experts believe that it will be at least another year until Iran would be nuclear weapon capable.

Despite no clear solution, besides continued sanctions, to deter Iran from continuing with its nuclear ambitions, one fact remains clear: the United States does not support an Iranian nuclear program and this includes the people of America. One poll in early 2010 found that 71 percent of Republicans, 66 percent of Independents, and 51 percent of Democrats would support a U.S. bombing campaign against Iranian nuclear

¹³³ Whitney Raas and Austin Long, "Osirak Redux? Assessing Israeli Capabilities to Destroy Iranian Nuclear Facilities," *International Security* 31, no. 4 (2007): 8.

¹³⁴ United Press International, "Analysis: Commentary: Guns of August?" United Press International, http://www.upi.com/Top_News/Analysis/2010/08/17/Commentary-Guns-of-August/UPI-76331282056061/.

¹³⁵ Ephraim Kam, "The Iranian Challenge," in *Strategic Survey for Israel 2010*, ed. Shlomo Brom and Anat Kurz (Tel Aviv: Institute for National Security Studies, 2010), 151.

installations.¹³⁶ While this seems to be a drastic measure in order to combat Iran's unclear nuclear program, it may be the only solution to curb Iran's nuclear ambitions, according to some experts. Others, however, believe that attacking Iran will only close off any open lanes of communication between Iran and the international community, specifically the United States. The "doves" also anticipate problems with increasing the already strict sanctions against Iran and point out that only those that directly affect the Iranian elite will have any significant impact; any sanctions that would ultimately target the civilian population of Iran would only hurt innocent bystanders and would not be supported by the international community. While this seems to be blatantly obvious, the international community and the United States must decide whether targeting the military and economic firms in Iran will be enough to curb Iran's nuclear ambitions. With these facts in mind, Iran is guaranteed to continue to face resistance concerning its nuclear program not only from the United States but internationally.. Whether this resistance is continued in the form of stronger and more stringent sanctions, or whether the international community as a whole or just the United States and Israel decide to move on the offensive and initiate some form of attack against Iranian nuclear sites, is yet to be seen.

Two votes in these most recent rounds of sanctions against Iran bring the Russian and Chinese relationships with Iran to the forefront, as both countries voted in favor of the increased sanctions. Both Russia and China have strong economic ties with Iran and both supported Iran to some extent at the inception of its nuclear program. Russian and Chinese officials both claim that these sanctions are only aimed at nuclear proliferation but will protect the economic interest of all three countries and they will not affect the normal life of the Iranian people nor deter their normal trade activity.¹³⁷ While these may appear to be logical claims from the Russian and Chinese perspective, Iran make take their voting in favor of the increased sanctions as a sign that their partnerships may be crumbling. Turkey and Brazil, both of which have significant interest in Iranian fuel,

¹³⁶ The Economist, "Barricades and the bomb; Iran," *The Economist*, February 13, 2010, <http://www.lexisnexis.com.libproxy.nps.edu/hottopics/lnacademic/>.

¹³⁷ Edith Lederer, "UN Security Council ratifies Iran sanctions," *Business Day (South Africa)*, June 10, 2010, <http://www.lexisnexis.com.libproxy.nps.edu/hottopics/lnacademic/>.

voted against the increased sanctions against Iran, remaining strong Iranian allies who do not want to further disrupt Iranian ambitions which could ultimately place their trading partnership in danger. While these two countries appear to be supportive of Iran's nuclear ambitions, due to their lack of support concerning the increased sanctions, Iran may view the Russian and Chinese votes of "yes" to mean that Russia and China are siding more with the United States. With the five permanent members of the UN Security Council all on the same page, at least at this point, concerning Iran's nuclear program, Iran needs to consider this alliance before taking any action concerning retaliatory mechanisms against the increased sanctions.

The majority of the international community, specifically the United States and Israel, do not support Iranian nuclear ambitions, which is evident from the most recent round of sanctions placed upon Iran. Russian and Chinese support of curbing Iranian nuclear ambitions only adds further to the realization that the majority of the international community does not believe that Iran is pursuing its nuclear program for peaceful purposes only. While Iran may believe that it is being unfairly scrutinized by the United States and Israel, the fact that the majority of the international community agrees, may hinder Iran from initiating a retaliatory mechanism such as closing the Strait of Hormuz. If Iran essentially would be standing on its own in a fight against both UN and U.S. sanctions, Iran will have to think long and hard about the strategic outcomes of its actions before reacting.

B. ECONOMIC CONSEQUENCES

Aside from the fact that the majority of the international community does not support Iran in its continuing nuclear advancements, which may force Iran to vacillate before deciding to ever close the Strait of Hormuz, a closure of the Strait would have a significant effect on the Iranian economy, which may also be a hindrance to such an action. As has been explained in Chapter II, the Strait of Hormuz is the one of the most important chokepoints in the world as "oil flows through the Strait of Hormuz account for

roughly 40% of all world traded oil.”¹³⁸ While other Middle Eastern countries profit from exports that transit this chokepoint, the Iranian economy thrives from the revenue of its exports that transit the Strait.

Iranian oil exports account for almost half of Iran’s government revenue,¹³⁹ the majority of which much transit the Strait of Hormuz. With Iran’s continual dependence on revenue from its crude oil and crude oil derivative exports and with the Strait being its primary vehicle of delivery, a closure of the Strait would directly and significantly wreak havoc on the Iranian economy. While Iran has been and continues to look for and introduce new tactics that will support continuous and lofty state revenue, “its chronic economic mismanagement has made it extremely dependent on a few refineries.”¹⁴⁰ Economically speaking, if Iran would close the Strait of Hormuz it would negatively affect its own economy. Its own oil and LNG exports would not be able to pass through the Strait of Hormuz, either due to mines, which Iran would most likely deploy throughout the waters of the Strait and Persian Gulf, as was seen in the Iraq-Iran War, or from international military action taken against Iran itself as well as its oil terminals. Either way, the Iranian economy would suffer from such an endeavor and Iran must analyze its economic situation and the loss of revenue that would ensue from a closure of the Strait. Along with losing revenue, Iran also must take into account its imports. One of significant importance is gasoline, which Iran imports from China, Russia, and India, via the Strait of Hormuz. If the Strait were closed, Iran’s trading partners would not be able to export their natural resources to Iran nor would they be inclined to send their cargo ships through mined waters. Without this precious commodity, everyday Iranian life would be drastically altered for the worse as Iranian refining capabilities are minimal at best. A closure of the Strait of Hormuz would, without question, negatively affect the Iranian economy, both concerning Iran’s imports and exports, but the real question is

¹³⁸ Anthony H. Cordesman, “Iran, Oil, and the Strait of Hormuz,” *Center for Strategic and International Studies: Arleigh A. Burke Chair in Strategy*, March 26, 2007, 2.

¹³⁹ U.S. Energy Information Administration, “Iran: Oil,” U.S. Energy Information Administration Independent Statistics and Analysis, <http://www.eia.doe.gov/emeu/cabs/Iran/Oil.html>.

¹⁴⁰ Anthony H. Cordesman, “Iran, Oil, and the Strait of Hormuz,” *Center for Strategic and International Studies: Arleigh A. Burke Chair in Strategy*, March 26, 2007, 6.

whether Iran would be willing to incur such a great cost in order to send a message to the international community by closing the Strait.

One of the main purposes for an Iranian closure of the Strait of Hormuz would be to wreak havoc in the international oil market. While such an action would hurt the economies of oil importing trading partners of the Gulf countries, it would also significantly impair the economies of the majority of the GCC states. Among the GCC countries,

The oil share in the economy increased from 30.8 percent of GDP in 2002 to 40 percent in 2006...oil revenues constituted 86 percent of total government revenue in 2006 in comparison to the 2002 figure of 77.4 percent...over the same period, oil contributions to exports also increased from 61 to 67 percent.¹⁴¹

These statistics highlight just how dependent the GCC states, as a whole, have been on their oil exports in the past with no real change predicted for the near future. As Iran is attempting to diversify its sources of revenue, so too are the GCC states, however, their progress, similar to Iran's, is slow in coming. While Saudi Arabia and Oman may have the least worry concerning a closure of the Strait, as they both have alternate means, either land pipelines, or different waterways, to export their natural resources, Bahrain, Kuwait, Qatar, and the UAE, almost strictly rely on the Strait of Hormuz to export their oil. An Iranian closure of the Strait would cripple the economies of the majority of the GCC states, but as they have a partnership for collective security, a closure would affect them all. While Iran's intention of a closure may not be to harm its Middle East neighbors, the fact remains that without free and fair passage through the Strait of Hormuz, the economies of the GCC countries, as a whole, would suffer significantly. While the GCC prefer peaceful solutions to problems in their area of the world, specifically concerning Iran, if Iran was the catalyst to a closure of the Strait of Hormuz, the GCC states may have to rethink their stance on being "opposed to any tension in the region, and ...not want[ing] to see new wars that would bring [them] back to the past

¹⁴¹ Ibrahim Saif, "The Oil Boom in the GCC Countries, 2002–2008: Old Challenges, Changing Dynamics," *Carnegie Endowment for International Peace* (2009): 3, http://www.carnegieendowment.org/files/cmec15_saif_final.pdf.

cycle of violence.”¹⁴² Along with analyzing the extent to which its own economy would be affected if the Strait were closed, Iran must also take into account how such a closure would affect the economies of its Middle Eastern neighbors and the potential reactions from the six countries as well as those of their international allies.

C. MILITARY CONSEQUENCES

If Iran were to close the Strait of Hormuz, its military would take on an increased and sustained role throughout the area and into the Persian Gulf. While Iran has experienced significant upgrades to its military equipment since the end of the Iraq-Iran War, its total force is, almost without question, less significant than that of the United States’ military. Iran’s total military force consists of approximately 418,000 members, divided between the army, IRGC, navy, and air force, compared to the United States’ military strength of over one million members, divided between the army, air force, navy, Marine Corps, and Special Forces. On sheer numbers alone, Iranian forces are miniscule in comparison to the United States’. And the fact that the U.S. military training programs are the best in the world, while Iran’s can be considered only average, does not bode well for an Iranian military victory over U.S. military forces in any conflict. Numbers and training, while significantly important, are not the only components that determine the outcome of any conflict. Technological advances in military equipment and their deployment are key components to effectively becoming victorious in any conflict and unfortunately for Iran, the United States has them beat on this front as well.

In order for Iran to effectively conduct a closure of the Strait of Hormuz, Iranian naval forces would be relied upon heavily. Attacks on vessels transiting the Strait and the deployment of mines would be Iran’s most effective weapons in attempting to close the Strait, as was seen during the Iran-Iran War. One positive aspect for Iran is that it “possesses a larger stockpile of missiles and mines ten times as powerful as those used in the tanker wars of the 1980s, the last period of sustained naval conflict in the gulf.”¹⁴³

¹⁴² Salman Aldossary, “Bahrain Will Not Allow Use of Military Base to Attack Iran-Bahraini FM,” *Asharq Alawsat*, August 8, 2010, <http://www.asharq-e.com/news.asp?section=1&id=22053>.

¹⁴³ Caitliln Talmadge, “Closing Time: Assessing the Iranian Threat to the Strait of Hormuz,” *International Security* 33, no. 1 (2008): 85.

With these increased weapons, the 229 ships that were attacked by Iran during between 1984 and 1998 will be minuscule compared to vessels that Iran would be able to attack once the United States retaliated after an Iranian closure of the Strait. Iran possesses vehicles to deploy such missiles in its coastal combatant vessels and Boghammers, which are also stocked with recoilless rifles and rocket launchers and with its proximity to the narrowest point within the Strait of Hormuz, Iran would be able to deploy its 165 kilogram warheads with active and inertial guidance from land sites as well.

Among Iran's other naval assets which would be required if Iran closed the Strait of Hormuz are its three Kilo class submarines. These submarines would be a crucial element to the success of a closure because they would be able to harass and interdict any shipping transiting the Strait or the Persian Gulf. Aside from its Exocets, Iran over the past several years, has been testing new missile systems, one in particular being the Kowsar. Iran claimed to be testing this missile, "with a very large warhead and extremely high speed to attack "big ships and submarines" that it claimed could evade radar and antimissile missiles."¹⁴⁴ If such advancements in new Iranian weapons systems are true, this would only increase Iran's willingness to want to close the Strait, as Iran would have more effective fighting tools. While Iran's waterborne craft and missiles would play a significant role in a closure of the Strait, as they would be able to harass any shipping attempting to transit this narrow waterway, its most valuable asset may end up being mines.

These mines may bring Iran the most success in a closure of the Strait because they would cause the international community, particularly the United States to remove them before the Strait would be safe to transit. As has been noted in the previous chapter, U.S. experts predict that Iran has in its arsenal, at least 2000 mines and is negotiating with China to purchase rocket propelled mines.¹⁴⁵ With new advances in mines, along with Iran's current overwhelming supply of moored and drifting contact mines, Iran would pose a serious threat to shipping in the Strait of Hormuz, which only legitimizes its

¹⁴⁴ Anthony H. Cordesman, "Iran, Oil, and the Strait of Hormuz," *Center for Strategic and International Studies Arleigh A. Burke Chair in Strategy*, Marcy 26, 2007, 5.

claim, that if challenged, Iran may resort to closing the Strait as a show of force mechanism to the international community. The fact that Iran continues to conduct exercises in the Strait of Hormuz and the Persian Gulf also shows the capabilities of its forces to effectively impose a closure of the Strait, at least for a period of time. Its advancements in military technology over the past three decades coupled with its show of force in the region does make the Iranian threat of a closure of the Strait of Hormuz a credible one. However, the aim of this thesis is not to prove whether or not Iran would be capable of closing the Strait but rather whether it would be willing to do so based on the costs associated with implementing a closure. And, militarily speaking, this may not be the best option for Iran.

Iran knows that without a shadow of a doubt, if it decided to close the Strait of Hormuz, the U.S. military would react immediately. And while Iran may be able to close the Strait for a short period of time, its military would suffer immensely. United States military forces are far superior to those of Iran's and, if Iran was not receiving revenue from its oil exports because the Strait would not permit safe shipping, the likelihood of Iran being able to sustain its military significantly diminishes. Combating Iranian mines throughout the Strait may be the most challenging and timely endeavor for the United States, but it is far from being an impossible mission. U.S. MCM ships, although decreasing in number, are of superior quality and the members of the crew are highly trained. Along with support from other U.S. Navy and Air Force factions, this would ensure that the United States could effectively clear the Strait of Iranian mines while at the same time protecting U.S. assets deployed in the Strait and Persian Gulf. Iran has already experienced close to a total loss of all military capabilities and it has taken it several decades to recover. If Iran closed the Strait of Hormuz, the United States would inflict more damage than the Iraqis did throughout the 1980s during the Iraq-Iran War. The cost associated with maintaining its military, just not monetarily but also concerning its members, may be far too great a feat for Iran to accept. While U.S. military forces are on a more stringent and fast passed deployment cycle as compared to a few decades ago,

¹⁴⁵ Anthony H. Cordesman, *Iran's Developing Military Capabilities* (Washington, D.C.: Center for Strategic and International Studies, 2005), 58.

the fact remains that U.S. military force numbers far exceed those of the Iranian military. While several U.S. ESGs, MEUs, and AEFs would be able to rotate through deployment cycles in order to combat an Iranian closure of the Strait, Iranian forces would be on station throughout the entire conflict, with little to no rest. Such a high-paced operational tempo eventually would wear upon the Iranian forces and ultimately they would become less effective. Any conflict brings with it personnel and equipment casualties; however, the costs associated with an Iranian closure of the Strait would be of a significant level, particularly for Iran. Before Iran decides to close the Strait of Hormuz, it needs to ask itself whether thousands of possible personnel casualties along with severe degradation to its military equipment are worth it.

D. STRATEGIC CONSEQUENCES

At this point in this research, it is apparent that an Iranian closure of the Strait of Hormuz would negatively affect the Iranian economy as well as its military; and, strategically speaking, the same negative consequence would result. An overwhelming amount of oil transits the Strait in order to be delivered to a majority of the international community and an “Iranian closure of the Strait of Hormuz tops the list of global-energy security nightmares.”¹⁴⁶ The international community, as a whole, relies on the oil that comes from the countries of the Persian Gulf. If the safe and unimpeded transit of the waterway through which the majority of this precious commodity is transported is challenged, the international community would experience a severe supply shock. There is no question that the international community would react to a closure of the Strait of Hormuz and, if Iran was the catalyst for such an action, the international favorable perception of Iran would significantly diminish. The majority of the international community already has its reservations about Iran, specifically concerning its nuclear program; an outright closure of the Strait, which would cripple the economies of many countries around the globe, would only solidify the already less-than-desirable international view of Iran.

¹⁴⁶ Ed Blanche, “Oil’s troubled waters,” *Middle East* (2008): 42.

While a United States or Israeli attack on Iran may not be supported by the international community, the fact remains that countries throughout the world depend on the oil that transits the Strait of Hormuz from its Middle Eastern trading partners. While Iran's closure of the Strait would be to shock the world, while simultaneously wreaking havoc in the oil market, it still may not be a justified response in the eyes of the international community. Neither the United States nor Israel depends primarily on Middle Eastern oil to sustain their energy needs. The United States depends significantly on Canada and Mexico, while Israel relies on a myriad of trading partners, with multiple trading partners lying outside the Middle East. Even though Israel has relied on countries inside the Middle East for its oil imports, the Strait of Hormuz was not the vehicle for delivery. Currently, with "one in every four liters of Israeli oil imports com[ing] from Kazakhstan,"¹⁴⁷ a closure of the Strait would not affect Israel's supply on this end either. Despite the fact that the United States and Israel do not receive the majority of their oil from countries surrounding the Persian Gulf, the cost of their oil imports would still increase if Iran closed the Strait of Hormuz; however, they would still receive their oil in order to sustain their energy sectors, whereas other countries throughout the world, specifically those in Asia, would not. Paying a higher price for oil vice not being able to import any is the lesser of two evils, and—with the United States and Israel getting the better end of the deal—an Iranian closure of the Strait may increase the already strained Iranian and international community relations.

Iran must consider the response from the GCC states before deciding to close the Strait of Hormuz as well. As has been mentioned previously in this chapter, the GCC states prefer to have peaceful relations with Iran but if Iran cut off the majority of the GCC states' revenue from oil exports this would not assist in maintaining amenable relations between the countries surrounding the Persian Gulf. With already questionable Iranian relations with the UAE over island occupation, any move by Iran that would ultimately harm the GCC states as a whole, will not be overlooked. While a definitive consensus among the GCC states concerning offensive maneuvers in and around the

¹⁴⁷ Ksenia Svetlova and Sharon Wrobel, "Kazakhstan seeks to increase oil exports to Israel," *The Jerusalem Post*, November 18, 2009, <http://www.lexisnexis.com.libproxy.nps.edu/hottopics/lnacademic/>.

Persian Gulf are seemingly “off the table” concerning Iran, the Bahraini foreign minister has said “that his country will not just look on in the case it comes under any attack.”¹⁴⁸ With the U.S. naval base in its territory, Bahrain must consider the fact that if the United States, Israel, and Iran do enter into a conflict, Iran may decide to target U.S. forces in Manama. The GCC states have strong relations with the United States and, while they want to reconcile any disagreements with Iran peacefully, there is no question that if a conflict breaks out in the Persian Gulf, the GCC states will have no other choice but to be immersed in it. If, along with closing the Strait, Iran begins to target GCC states, the GCC will undoubtedly side with U.S. forces in order to protect their collective security. If it is Iran’s goal to become the hegemon in the region, then such offensive actions toward its Middle East neighbors may be an acceptable means to an end for Iran, but Iran must not forget that U.S. forces will join with GCC forces if possible in order to ensure that such a transition never comes to fruition for the Iranian government. With Iran’s already aggressive, stubborn, and hegemonic tendencies in the region compared to the GCC’s methods of talks, compromise, and peaceful negotiations, the time may come when these GCC tactics become completely ineffective. Aside from GCC military strength, with or without U.S. support, Iran must take into account what its relationship with its closest neighbors will become if it targets them either economically or militarily.

E. CONCLUSION

If Iran decided to close the Strait of Hormuz as a retaliatory mechanism (in reaction to either greater U.S. and UN sanctions or a pre-emptive attack aimed at its nuclear program by the United States or Israel), it would face severe economic, military, and strategic consequences. With the majority of Iran’s state revenue coming from its oil exports, its ever-developing armed forces, and its already strained relationship with the majority of the international community, closing the Strait may bring about more negative than positive consequences for Iran. Iran has yet to develop programs to diversify its means of gaining revenue. With oil as its primary means of such revenue,

¹⁴⁸ Salman Aldossary, “Bahrain Will Not Allow Use of Military Base to Attack Iran-Bahraini FM,” *Asharq Alawsat*, August 22, 2010, <http://www.asharq-e.com/news.asp?section=1&id=22053>.

closing the Strait would ensure that Iran would not receive the money it needs to sustain its economy from its oil trading partners. On the military front, Iran has advanced its technologies and equipment over the last several decades but, compared to U.S. military forces, Iran still does not have the advantage. While closing the Strait may be possible for Iran for a short period of time, the U.S. military would prevail in a conflict with Iran in order to re-open the Strait at a great cost to the Iranian armed forces. With international mistrust concerning the Iranian nuclear program already at the height of world concerns, an Iranian closure of the Strait would only enrage the majority of the international community, as their economies would severely suffer without its oil imports from the Persian Gulf. While an Iranian closure of the Strait of Hormuz would send a strong signal to the entire world of the Iranian commitment to protect its own interests, as well as to show its strength as an international power with respect to controlling oil exports from the Persian Gulf, the question becomes, at what cost? Iran would harm its own economy by not receiving oil revenue, it would ultimately fail in a military conflict with the United States, either with or without GCC support, and it would continue to lose any trust that the majority of the international community has in it. Based on these negative economic, military, and strategic consequences for Iran, closing the Strait of Hormuz does not appear to be a logical or worthwhile endeavor to undertake, as Iran would ultimately do more harm to itself than to the rest of the world.

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