



## (U) Water-borne IED Threats and the Strait of Hormuz



**UNCLASSIFIED//FOUO**

JIEDDO J2 Global Information Research Center (GIRC)

Marco D. Tomasi, PhD, BCBA

CENTCOM Analyst

**THIS PRODUCT IS CLASSIFIED  
UNCLASSIFIED//FOR OFFICIAL USE ONLY  
AND IS INTENDED TO PROVIDE SITUATIONAL AWARENESS TO U.S. GOVERNMENT  
PERSONNEL. DISSEMINATION OUTSIDE OFFICIAL CHANNELS IS PROHIBITED.**

Photo: The USS Hue City (CG-66), as it sails through the Strait of Hormuz in 2004.  
Source: Picasa. [http://picasaweb.google.com/lh/photo/kBaEdA\\_Q4Dgpnz7KWZ0sJw](http://picasaweb.google.com/lh/photo/kBaEdA_Q4Dgpnz7KWZ0sJw)

**UNCLASSIFIED//FOUO**

## (U) Water-borne IED Threats and the Strait of Hormuz

### (U) *Key Findings*

- (U) A successful attack using a water-borne improvised explosive device (WBIED) or conventional maritime mine in the Strait of Hormuz could disrupt global trade.
- (U) Iran has repeatedly threatened to choke maritime traffic through the Strait of Hormuz if its developing nuclear program is attacked.
- (U) Al-Qaeda has a history of launching successful WBIED attacks.
- (U) Authorities have previously thwarted Al-Qaeda plots to strike targets in the maritime chokepoints at the Strait of Gibraltar and the Suez Canal.
- (U) The imitation of successful maritime attack tactics pioneered by other groups, such as Liberation Tigers of Tamil Eelam (LTTE), has proven successful for al-Qaeda.

### (U) *Summary*

(U) The Strait of Hormuz is the narrow waterway that allows maritime access into and out of the Persian Gulf from the Gulf of Oman and Arabian Sea. The U.S. Department of Energy (DOE) has identified the Strait of Hormuz as one of six critical chokepoints in the global distribution and trade of oil. The concentration of valuable maritime traffic passing through such a relatively small area makes the Strait of Hormuz a strategic area for the targeting of maritime objectives by groups or nations looking to threaten or disrupt global trade. Iran, located on the north bank of the strait, has made repeated threats to strangle maritime traffic passing through the strait in retaliation for any strike against its nuclear program. In addition, al-Qaeda has reportedly been planning strikes at critical maritime chokepoints over the past decade, including the Strait of Hormuz. Al-Qaeda continues to plan maritime attacks, copying successful tactics from other militant groups such as the LTTE. The Strait of Hormuz would be an ideal target for al-Qaeda's maritime campaign, either through the use of WBIEDs or conventional maritime weapons.

### (U) *Significance of the Strait of Hormuz*

(U) The Strait of Hormuz is a narrow channel of water located between Iran, Oman, and the United Arab Emirates (UAE) that connects the Persian Gulf and Gulf of Oman. While the Strait of Hormuz is 21 miles wide at its narrowest point, the navigable space for large vessels is considerably smaller. International treaties have designated a 1-mile corridor for inbound sea traffic and another 1-mile corridor is designated for outbound traffic, with a 1-mile buffer between them. Depths in the shipping lanes typically range from 50m to 80m.<sup>1</sup> The Strait of Hormuz is the only means by which commercial shipping vessels can access the ports in the Persian Gulf. In 2005 over \$3.25 trillion worth of international trade passed through the Strait of Hormuz.<sup>2</sup>

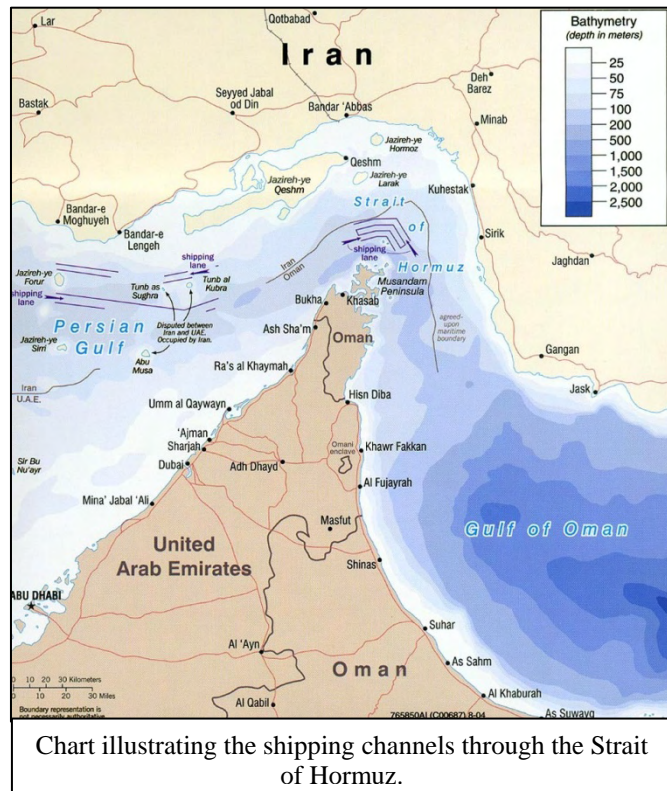
(U) According to the DOE, the Strait of Hormuz is one of six critical chokepoints in the global distribution and trade of oil. Approximately 17 million barrels of oil pass through the strait every day, accounting for 20 percent of the oil traded worldwide.<sup>3</sup> This daily oil tanker traffic through the Strait also accounts for 90 percent of the oil exported from the Gulf region.<sup>4</sup> In addition to the crude oil passing through the strait, over 2 million barrels of other petroleum products are shipped through the strait each day.<sup>5</sup>

#### (U) *Previous Maritime Incidents*

(U) Maritime attacks near the Strait of Hormuz and the Persian Gulf have been repeatedly recorded throughout history. In recent times, conventional sea mining of the waterway by neighboring nations has resulted in numerous incidents of damaged or sunk commercial and military vessels. The mining and missile attacks by Iraq and Iran during the 1980s resulted in the damage and loss of several commercial shipping vessels, as well as damage to the USS Samuel B. Roberts (FFG-58) in 1988.<sup>6</sup> Mining by Iraq also resulted in damage to the USS Tripoli (LPH-10) and USS Princeton (CG-59) in 1991.<sup>7</sup>

(U) The past decade has seen a rise in maritime attacks by militant extremist groups in the region. In 2004 members of a boarding team from the USS Firebolt (PC-10) stopped a local fishing boat near the Al Amaya Oil Terminal off the coast of Iraq as part of a routine inspection. The individuals on the fishing boat detonated hidden explosives in an apparent WBIED suicide attack, killing several members of the boarding team and seriously injuring the others.<sup>8</sup>

(U) In addition to maritime attacks, the strait has also been the site of past maritime accidents. The high volume of large vessels in a relatively narrow space creates a difficult environment for maritime crews to operate within, even under the best of circumstances. In 2007 the USS Newport News (SSN-750) collided with the very large crude carrier (VLCC) Mogamigawa near the southern edge of the Strait of Hormuz. The VLCC Mogamigawa, a Japanese oil tanker, and the U.S. submarine were both attempting to enter the strait when the collision occurred.<sup>9</sup> In another example, the USS Hartford (SSN-768) and USS New Orleans (LPD-18) collided while traveling through the strait in March of 2009.<sup>10</sup> While these incidents are not the result of terrorism or military aggression by foreign powers, they do illustrate the relatively close proximity in which vessels must operate within and around the Strait of Hormuz.



(U) *Al-Qaeda as a Maritime Threat*

(U) To date, al-Qaeda has not demonstrated equivalent focus on their maritime terrorism program as they have demonstrated in their land-based terrorism programs. From 1998 to 2002, al-Qaeda's "Prince of the Sea" was Abd al-Rahim al-Nashiri. A Saudi national, al-Nashiri is a veteran of the Taliban's fight against Afghanistan's Northern Alliance in the late-1990s. Later he became al-Qaeda's Chief of Operations for the Arabian Peninsula, consulting directly with Osama Bin Laden. During his time with al-Qaeda, al-Nashiri masterminded the attempted WBIED attack on the USS The Sullivans (DDG-68) and the successful WBIED attacks on the USS Cole (DDG-67) and MV Limburg. Before his capture in 2002 and subsequent detainment at Guantanamo Bay, Cuba, al-Nashiri's maritime terrorism plans included ramming rigid inflatable boats packed with explosives against ships, detonating WBIEDs in or near shipping ports, crashing planes into maritime targets, and developing specially trained diving teams. The diving teams were to work as underwater demolition teams, either by covertly placing WBIEDs on maritime targets or detonating themselves as suicide operatives.<sup>11</sup>

(U) Reportedly al-Nashiri and al-Qaeda have drawn much of their inspiration for maritime attacks from the success of the LTTE in Sri Lanka. While there is insufficient evidence to support that an official relationship between the LTTE and al-Qaeda exists, there is sufficient evidence of al-Qaeda's imitation of successful LTTE tactics, including the LTTE's development of the suicide vest and the use of female suicide bombers.<sup>12</sup> Between 1990 and 2000 the LTTE executed 10 successful WBIED attacks on Sri Lankan naval vessels. These attacks all involved the use of small boats laden with explosives that detonated near the targets' hulls. The LTTE claims al-Qaeda's attacks on the USS Cole and MV Limburg were modeled after these earlier missions carried out in Southeast Asia.<sup>13</sup> The LTTE also has a history of successfully using submersibles, diving equipment, and high-speed boats as platforms from which to launch conventional asymmetric maritime attacks, as well as methods for delivering WBIEDs.<sup>14</sup> Recent LTTE attacks include the use of boats as human-operated WBIEDs, as well as the use of SCUBA equipment for stealthily approaching vessels. Using the latter method, the LTTE destroyed a Sri Lankan patrol boat when the suicide bomber detonated a WBIED under the hull.<sup>15</sup>

(U) Other examples of maritime terrorism for al-Qaeda to draw from occurred off the coast of Israel. Since 1988, militant groups have launched at least 9 suicide WBIED attacks directed against Israel's shores and naval vessels. Responsibility for the attacks range from the secular ultra-left-wing Popular Front for the Liberation of Palestine (PFLP), to theocratic far-right-wing groups such as Palestinian Islamic Jihad (PIJ) and HAMAS. In all instances, the suicide bombers piloted small boats packed with explosives toward their intended targets.<sup>16</sup>

(U) Al-Qaeda's interest in maritime targets did not end with the capture of al-Nashiri in 2002. In 2005 the Abdullah al-Azzam Brigades, an al-Qaeda affiliated group, claimed responsibility for a rocket attack targeting the USS Kearsarge (LND-3) and the USS Ashland (LSD-48). At the time of the attack the Kearsarge and Ashland were docked in Jordan. The Abdullah al-Azzam Brigades' rockets missed their targets, instead hitting the dock. In response to the unsuccessful strike the Kearsarge and Ashland expeditiously left port.<sup>17</sup> Reports of continued al-Qaeda planning for maritime attacks have also endured beyond al-Nashiri's arrest. Links to suspected al-Qaeda members receiving specialized training, including lessons in SCUBA diving, continue



to surface.<sup>18</sup> In 2003 then-CIA director George Tenet reported to the Senate Intelligence Committee that al-Qaeda was refining its maritime attack capabilities and tactics.<sup>19</sup> Admiral Alan West, commander of the British Royal Navy, echoed this warning a year later when he reported al-Qaeda had plans for attacks against commercial shipping targets.<sup>20</sup> Admiral West went on to specify he had specific intelligence that al-Qaeda is interested in targeting maritime chokepoints.<sup>21</sup> Previous uncovered al-Qaeda plots against maritime chokepoints include the Strait of Gibraltar and, as recently as July 2009, the Suez Canal.<sup>22</sup>

(U) *Iran as a Maritime Threat*

(U) Iran's direct proximity to the Strait of Hormuz allows for strong influence over the waterway. The headquarters and primary port for Iran's navy is at Bandar Abbas, located directly on the Strait of Hormuz. Iran's naval resources reportedly include a variety of small watercraft, several frigates and destroyers, a minesweeper, and 3 Kilo-class submarines with mine-laying capabilities. The use of mines has been Iran's primary naval warfare tactic, as evidenced by the array of sophisticated anti-ship mines in its arsenal.<sup>23</sup> Iran also has anti-ship and anti-aircraft missile installations located on several of the islands overlooking the Strait of Hormuz, as well as along its northern shore.<sup>24</sup>

(U) Iran's naval vessels and aircraft routinely patrol the Strait of Hormuz, frequently bringing its military forces within close proximity to U.S. and Coalition forces. In most cases, all forces coexist without incident. However, in recent years Iran has begun engaging in maritime behaviors intended to harass the U.S. Navy. The tactics involve the swarming of multiple small Iranian watercraft around the much larger U.S. naval vessels as they attempt to pass through the Strait of Hormuz. In January 2008 the swarming behaviors were combined with threatening radio communications. In a segment of the transmissions released to the media, one of the Iranians stated "I am coming at you. You will explode in a couple of minutes," further escalating tensions and nearly provoking a military response. The small boats broke off their engagement before the three U.S. Navy vessels involved opened fire.<sup>25</sup>



Iranian small watercraft engaging in harassing behaviors close to the USS Port Royal (CG-73), USS Hopper (DDG-70), and USS Ingraham (FFG-61), near the western edge of the Strait of Hormuz on 6 January 2008.

(U) Military vessels are not the sole target of these harassing maritime behaviors. Since January 2005, over 20 percent of the anti-shipping incidents reported in and around the Strait of Hormuz

share distinct similarities to those reported by the U.S. Navy. Descriptions by the merchant crews have included details such as blue speedboats, roughly 20 feet in length, multiple persons per boat, possession of automatic weapons by the assailants, and assailants wearing facemasks. In all reported cases, the speedboats broke off their pursuits without injury to the merchant crews or damage to vessels.<sup>26</sup>

(U) Iran has the capability to disrupt maritime traffic in the Persian Gulf and Strait of Hormuz by means of naval activity and mining. In 2006 Iran threatened to choke the world's oil supply by blocking the Strait of Hormuz if its nuclear program was attacked.<sup>27</sup> Iran made threats of a similar nature in 2008 and 2009.<sup>28 29</sup> While military and commercial vessels have reported multiple instances of harassing behaviors by its naval forces, to date Iran has not been linked to any recent maritime attacks in or around the Strait of Hormuz.

(U) *Impact of a Successful Attack*

(U) The Strait of Hormuz is an ideal location for a WBIED attack by a militant group such as al-Qaeda. The strait sees a considerable volume of economically and militarily high-value targets. Commercial and military sea traffic occurs in a relatively small portion of a narrow waterway. Furthermore, the regularity of daily trade through the strait provides an ample supply of prospective high-value economic and military targets.

(U) It is unlikely that isolated instances of WBIED attacks utilizing high-speed boats, such as those carried out in Yemen's Gulf of Aden and off the coast of Yemen, would successfully halt the shipments of oil, natural gas, and other goods through the strait. Even if a rogue nation or a militant group successfully struck the largest of supertankers in the global fleet, which currently measures 333m long and 30.5m high, it would be insufficient to barricade the passageway.<sup>30</sup> However, attacks of this nature could decrease the volume of commercial shipping through the Strait of Hormuz and could increase the costs associated with the shipping of goods through the strait due to the need for added security and insurance coverage.

(U) A more effective method for militants to strangle the flow of maritime traffic through the Strait of Hormuz would involve mining the channel with either WBIEDs or conventional weapons. In 1984 submerged explosives damaged nineteen merchant ships in the Red Sea. Several months later authorities determined that the Libyan navy had deployed mines throughout the waterway. Disguised as a commercial ferry, the mine laying had gone undetected for two weeks. Egypt rallied a multinational force to take part in Operation *Intense Look* to sweep the area of mines, allowing commercial sea traffic through the Red Sea and Suez Canal to safely resume.<sup>31</sup> Using the Libyan strategy as a model, al-Qaeda or Iran could deploy WBIEDs on or below the surface of the Strait of Hormuz without drawing significant attention.

(U) Mining of the strait could potentially block or significantly slow all maritime traffic in the area until effectively cleared. The potential impact of a successful attack, either with a WBIED or conventional maritime mine, could be catastrophic to the global economy. The average supertanker traveling through the Strait of Hormuz carries approximately 1.1 million barrels of oil, worth over \$75 million at current market prices.<sup>32</sup> While the loss of a single tanker may only result in minor, short-term fluctuations in oil prices, multiple tanker losses or delays would have

a more significant impact. The U.S., Western Europe, Japan, and Southeast Asia are heavily dependent on the resources transported through the strait. For example, approximately 75 percent of the oil consumed by Japan passes through the Strait of Hormuz. While multiple pipelines exist as alternate routes through which the Persian Gulf nations can move oil, natural gas, and petroleum products out of the region, their capacity is insufficient to compensate for the loss of supertanker traffic.<sup>33</sup>

(U) In addition to the economic consequences, successful WBIED attacks in the Strait of Hormuz could impact U.S. and Coalition military operations in the region. The headquarters of the U.S. Navy's 5th Fleet and U.S. Naval Forces Central Command (NAVCENT) are located on the Persian Gulf in Bahrain.<sup>34</sup> The basic aim of the 5th Fleet and NAVCENT is to provide secure maritime operating conditions while supporting CENTCOM's mission in the region.<sup>35</sup> The Strait of Hormuz is the only navigable waterway by which most naval vessels can enter and exit the Persian Gulf. Any partial or complete obstruction of the strait would interfere with naval operations in the region.

(U) *Conclusion*

(U) The Strait of Hormuz is a vital artery for commercial and military maritime traffic. The commerce shipped through the strait literally and figuratively fuels the global economy. The concentration of valuable maritime traffic passing through such a relatively small area makes the strait an area of interest for militant groups or rogue nations wishing to threaten or disrupt global trade. Iran has made repeated threats to disrupt trade through the strait if any strike is made against its developing nuclear program. Furthermore, reports of al-Qaeda plans to strike targets in and around critical maritime chokepoints have periodically surfaced over the past decade, and plots to attack the Strait of Gibraltar and Suez Canal have previously been thwarted. Al-Qaeda continues to plan maritime attacks, borrowing proven tactics from other militant groups such as the LTTE. The characteristics of Strait of Hormuz potentially make it an ideal location for staging a new attack in al-Qaeda's maritime campaign, either through the use of a WBIED or conventional maritime weapon.



- <sup>1</sup> S. P. Pous, X. Carton, & P. Lazure, "Hydrology and circulation in the Strait of Hormuz and the Gulf of Oman; results from the GOGP99 Experiment. Part I. Strait of Hormuz," *Journal of Geophysical Research* 109, no. 12 (2004).  
<http://www.ifremer.fr/docelec/doc/2004/publication-389.pdf>
- <sup>2</sup> "Strategic Strait of Hormuz," Iran Daily, August 31, 2006. <http://www.iran-daily.com/1385/2649/html/focus.htm>
- <sup>3</sup> Energy Information Administration, "World Oil Transit Chokepoints," US Department of Energy, [http://www.eia.doe.gov/cabs/World\\_Oil\\_Transit\\_Chokepoints/Background.html](http://www.eia.doe.gov/cabs/World_Oil_Transit_Chokepoints/Background.html).
- <sup>4</sup> "Factbox -The Strait of Hormuz, Iran and the Risk to Oil," Reuters, March 27, 2007.  
<http://www.alertnet.org/thenews/newsdesk/L27344177.htm>
- <sup>5</sup> "Factbox: The Strait of Hormuz, Key Oil Shipping Route," *Reuters*, March 20, 2009.  
<http://www.reuters.com/article/domesticNews/idUSTRE52J3UC20090320>
- <sup>6</sup> "Operation Praying Mantis," GlobalSecurity.org, April 27, 2005. <http://www.globalsecurity.org/military/world/iran/navy.htm>
- <sup>7</sup> Cheng Hua Lim, Christopher Causee, Julio Nilsson, Mark Ellis LT Bobby Rowden, Mike Hellard, Joel Wheatley, Rich Jimenez, Eric Winn, Dan Tyler, & Tim Smith, "Systems Approach to Defeating Maritime Improvised Explosive Devices in U.S. Ports" (Thesis Technical Report, Naval Postgraduate School, 2008).
- <sup>8</sup> James Pelkofski, "Al Qaeda's Maritime Campaign," *Military.com*, December 27, 2005.  
<http://www.military.com/forums/0,15240,83909,00.html>
- <sup>9</sup> Thom Shanker, "U.S. Sub and Japanese Vessel Collide," *The New York Times*, January 9, 2007.  
<http://query.nytimes.com/gst/fullpage.html?res=9F07EFD71530F93AA35752C0A9619C8B63>
- <sup>10</sup> Borzou Daragahi & Julian E. Barnes, "U.S. Navy vessels collide in Strait of Hormuz", *L.A. Times*, March 21, 2009.  
<http://articles.latimes.com/2009/mar/21/world/fg-bahrain-navy21>
- <sup>11</sup> Akiva J. Lorenz, "Al-Qa'ida's Maritime Threat," *International Institute for Counterterrorism*, April 15, 2007.
- <sup>12</sup> Preeti Bhattacharji, "Liberation Tigers of Tamil Eelam (aka Tamil Tigers) (Sri Lanka, separatists)," *Council on Foreign Relations*, May 20, 2009. <http://www.cfr.org/publication/9242>
- <sup>13</sup> Ravinatha P. Aryasinha, "Time to Act: The LTTE, its Front Organizations, and the Challenge to Europe" (paper presented at the EU-US International Seminar on LTTE, The Hague, Netherlands, December 9-10, 2008).  
[http://www.priu.gov.lk/lte\\_report/chapter4.html](http://www.priu.gov.lk/lte_report/chapter4.html)
- <sup>14</sup> Sudha Ramachandran, "The Sea Tigers of Tamil Eelam," *Asia Times*, August 31, 2006.  
[http://www.atimes.com/atimes/South\\_Asia/HH31Df01.html](http://www.atimes.com/atimes/South_Asia/HH31Df01.html)
- <sup>15</sup> Ruth Doherty, "Detect and Defeat Waterborne Improvised Explosive Devices (WBIEDs)," U.S. Department of Homeland Security, May 4, 2009. [http://www.dhs.gov/xlibrary/assets/st\\_detect\\_and\\_defeat\\_waterborne\\_ied\\_cied.pdf](http://www.dhs.gov/xlibrary/assets/st_detect_and_defeat_waterborne_ied_cied.pdf)
- <sup>16</sup> B. P. Hill, "Maritime Terrorism and the Small Boat Threat to the United States: A Proposed Response" (Master's thesis, Naval Postgraduate School, 2009), 31-33.
- <sup>17</sup> "Jordan rockets miss US Navy ship," *BBC World News*, August 19, 2005. [http://news.bbc.co.uk/2/hi/middle\\_east/4165190.stm](http://news.bbc.co.uk/2/hi/middle_east/4165190.stm)
- <sup>18</sup> Marco D. Tomasi, *Terrorism in Egypt and the Suez Canal*, JIEDDO J2 OSAAC (09172009-021).
- <sup>19</sup> George Tenet, "Tenet: Threat from al Qaeda remains", *CNN*, February 11, 2003.  
<http://www.cnn.com/2003/ALLPOLITICS/02/11/transcripts.tenet/>
- <sup>20</sup> "Doubt over airport 'terror plot'," *BBC News*, August 5, 2004. [http://news.bbc.co.uk/2/hi/uk\\_news/3537462.stm](http://news.bbc.co.uk/2/hi/uk_news/3537462.stm)
- <sup>21</sup> Mark Townsend, "Terror fears as deadly cargo heads for UK waters," *The Observer*, September 26, 2004.  
<http://www.guardian.co.uk/uk/2004/sep/26/terrorism.nuclear>
- <sup>22</sup> Marco D. Tomasi, *Terrorism in Egypt and the Suez Canal*, JIEDDO J2 OSAAC (09172009-021).
- <sup>23</sup> "Iranian Navy," GlobalSecurity.org, August 25, 2009. <http://www.globalsecurity.org/military/world/iran/navy.htm>
- <sup>24</sup> Fariborz Saremi, "As the pressure increases, Iran threatens to close strategic Strait of Hormuz," *World Tribune*, September 9, 2009. [http://www.worldtribune.com/worldtribune/WTARC/2009/me\\_iran0714\\_09\\_09.asp](http://www.worldtribune.com/worldtribune/WTARC/2009/me_iran0714_09_09.asp)
- <sup>25</sup> Barbara Star, "Iranian boats 'harass' U.S. Navy, officials say," *CNN*, January 7, 2009.  
<http://www.cnn.com/2008/WORLD/meast/01/07/iran.us.navy/index.html>

- 
- <sup>26</sup> National Geospatial-Intelligence Agency, "Anti-Shipping Activity Messages," September 15, 2009. [http://www.nga.mil/portal/site/maritime/?epi\\_menuItemID=7c1695cead727e6e36890127d32020a0&epi\\_menuID=e106a3b5e50edce1fec24fd73927a759&epi\\_baseMenuID=e106a3b5e50edce1fec24fd73927a759](http://www.nga.mil/portal/site/maritime/?epi_menuItemID=7c1695cead727e6e36890127d32020a0&epi_menuID=e106a3b5e50edce1fec24fd73927a759&epi_baseMenuID=e106a3b5e50edce1fec24fd73927a759)
- <sup>27</sup> Tony Capaccio, "Iran Might Try to Disrupt Hormuz Oil Flow If Attacked by U.S.," *Bloomberg*, May 5, 2006. [http://www.bloomberg.com/apps/news?pid=10000103&sid=a\\_Aw9B.MGCuY&refer=us](http://www.bloomberg.com/apps/news?pid=10000103&sid=a_Aw9B.MGCuY&refer=us)
- <sup>28</sup> Eli Lake, "Iran Threatens Strait of Hormuz," *The New York Sun*, August 5, 2008. <http://www.nysun.com/foreign/iran-threatens-to-shut-strait-of-hormuz/83142/>
- <sup>29</sup> Media Line News Agency, "Report: Iran deploys missiles in Persian Gulf," *The Jerusalem Post*, May 12, 2009. <http://www.jpost.com/servlet/Satellite?cid=1242029504871&pagename=JPost%2FJPArticle%2FShowFull>
- <sup>30</sup> "China delivers world's largest oil tanker," *Xinhua*, October 28, 2008. [http://www.chinadaily.com.cn/bizchina/2008-10/28/content\\_7150135.htm](http://www.chinadaily.com.cn/bizchina/2008-10/28/content_7150135.htm)
- <sup>31</sup> Cheng Hua Lim, Christopher Causee, Julio Nilsson, Mark Ellis LT Bobby Rowden, Mike Hellard, Joel Wheatley, Rich Jimenez, Eric Winn, Dan Tyler, & Tim Smith, "Systems Approach to Defeating Maritime Improvised Explosive Devices in U.S. Ports" (Thesis Technical Report, Naval Postgraduate School, 2008).
- <sup>32</sup> Associated Press, "Natural gas jumps on eve of heating season," MSNBC, September 15, 2008. [http://www.msnbc.msn.com/id/12400801/ns/business-oil\\_and\\_energy/](http://www.msnbc.msn.com/id/12400801/ns/business-oil_and_energy/)
- <sup>33</sup> Energy Information Administration, "Strait of Hormuz," US Department of Energy, [http://www.eia.doe.gov/cabs/World\\_Oil\\_Transit\\_Chokepoints/Hormuz.html](http://www.eia.doe.gov/cabs/World_Oil_Transit_Chokepoints/Hormuz.html).
- <sup>34</sup> Commander, U.S. Naval Forces Central Command Commander, U.S. 5th Fleet Public Affairs Office, "NAVCENT/5th Fleet History," Commander, U.S. Naval Forces Central Command Commander, U.S. 5th Fleet, <http://www.cusnc.navy.mil/command/history.html>.
- <sup>35</sup> Commander, U.S. Naval Forces Central Command Commander, U.S. 5th Fleet Public Affairs Office, "The Mission and Vision of NAVCENT/5th Fleet," Commander, U.S. Naval Forces Central Command Commander, U.S. 5th Fleet, <http://www.cusnc.navy.mil/mission/mission.html>.
- Map: "Strait of Hormuz," Wikipedia, December 20, 2007. [http://upload.wikimedia.org/wikipedia/en/a/ae/Strait\\_of\\_hormuz\\_full.jpg](http://upload.wikimedia.org/wikipedia/en/a/ae/Strait_of_hormuz_full.jpg)
- Photos: U.S. Navy, "Navy News Service - Eye on the Fleet," January 6, 2008. [http://www.navy.mil/list\\_all.asp?id=34207](http://www.navy.mil/list_all.asp?id=34207)