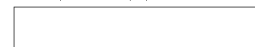




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The Strait of Hormuz: A Vulnerable Lifeline

An Intelligence Assessment

Secret

*GC 79-10085
July 1979*

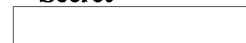
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The Strait of Hormuz: A Vulnerable Lifeline



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An Intelligence Assessment

*Research for this report was completed
on 26 July 1979.*

This paper was prepared by 
 the Office of Geographic and Car-
tographic Research, with contributions from OER,
OPA, OSR, and the Naval Intelligence Support Center. It
was coordinated with the NIO for the Near East and
South Asia.

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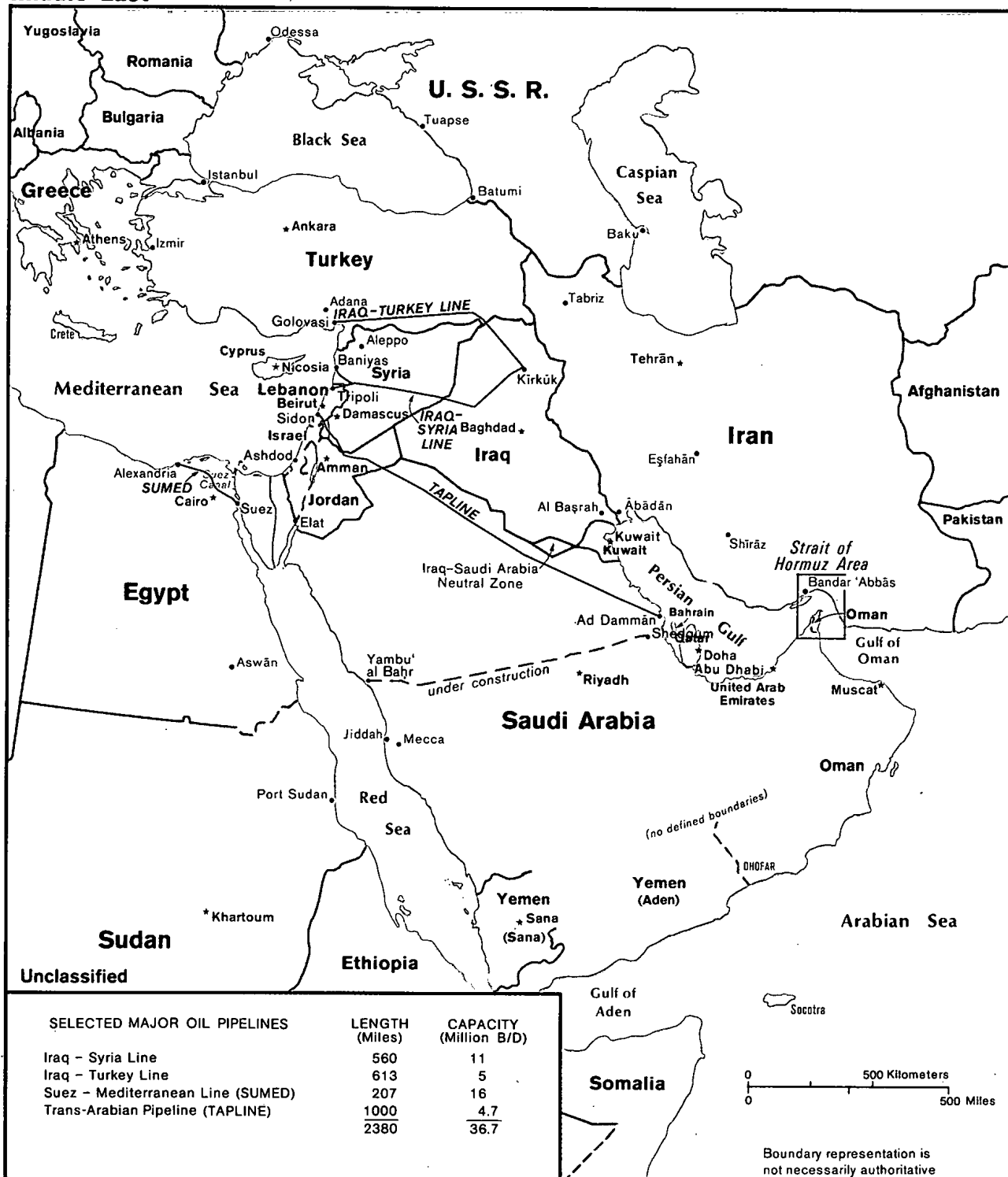
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**The Strait of Hormuz:
A Vulnerable Lifeline**

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Key Judgments

Recent Palestinian threats to attack shipping in the Strait of Hormuz, the strategic waterway that connects the Persian Gulf with the Indian Ocean, have focused international attention on this key chokepoint in the world's oil commerce. About 19 million barrels of crude oil—a third of the world's daily production—funnel through this channel on an average day. Japan and many West European countries are almost totally dependent on this oil, and the United States relies on it for a third of its annual imports.

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Sinking one or more tankers—even supertankers—would not block the Strait, which nearly everywhere is at least 45 meters deep and even at its narrowest point is still 50 kilometers wide. Attendant oil slicks, however, especially if on fire, could impede maritime traffic until the prevailing currents carried them out of the Strait.

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Since the February revolution, Iran's military capabilities have deteriorated to the point where it can no longer assure the security of the Strait of Hormuz. Moreover, the new provisional government of Iran has announced it will no longer play the role of policeman of the Persian Gulf. Oman, the other country bordering the Strait, lacks the capability to patrol even its own waters adequately.

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Considering the inadequate security in the area, there are many options for imaginative, resourceful terrorists contemplating an attack on shipping in the Strait. The main shipping channels lie close to the rugged, barren Omani coast, which offers good concealment to small craft, making it a more likely staging area for a terrorist attack than the more heavily populated and more distant Iranian shore.

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While an attack on shipping in the Strait could, if successful, have a decided—if short term—physical effect, over the longer term the psychological effects on the oil-consuming nations and on the owners of the tankers and the oil would probably be more serious. A mere demonstration that the Strait was unsafe for shipping might do more to interdict the flow of oil than any number of supertankers lying on the bottom.

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Under a threat of interdiction, the Gulf states could be expected to cooperate with the oil-consuming countries in taking whatever steps are necessary to ensure safe passage of shipping through the Strait.

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The Strait of Hormuz: A Vulnerable Lifeline

The vulnerability of oil shipments passing through the Strait of Hormuz—the strategic waterway between Iran and Oman connecting the Persian Gulf with the Indian Ocean—is a subject of increasing concern among major oil-consuming countries. A recent report that Palestinian terrorists plan to attack US ships in the Strait of Hormuz sharpens that concern. Oil tankers carry 19 million barrels of crude oil—fully one-third of the world's daily production—through the Strait daily; nearly all of these shipments are destined for the United States, Western Europe, and Japan.

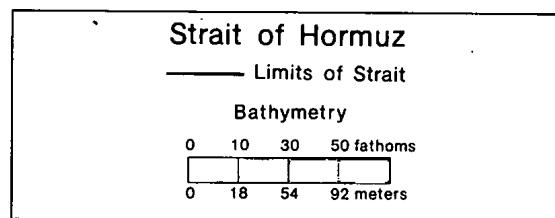
Regional Geography

The Strait

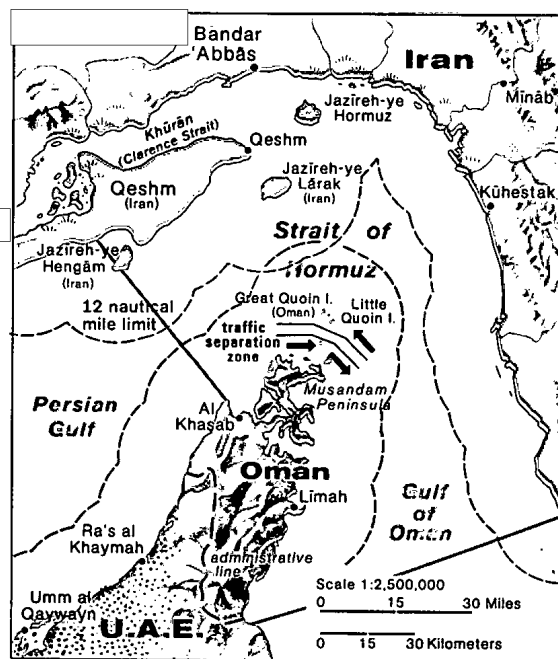
The Strait of Hormuz is about 275 kilometers long and an average of 80 kilometers wide. At its narrowest point, between Ra's Sharitah on Oman's Musandam Peninsula and the Iranian island of Jazireh-ye Larak, the waterway is about 50 kilometers wide. Nearly everywhere the Strait is more than 45 meters deep; off the Omani coast, depths range from 75 to 225 meters. The main inbound and outbound shipping channels traverse this area.

There are several islands in the Strait. The largest are close to the Iranian shore and of little concern to vessels transiting the main shipping channels. The remaining islands lie off the northern coast of the Musandam Peninsula, and, while they are important in the demarcation of the shipping channels, they offer no impediment to vessels. They could, however, provide concealment for seaborne terrorists in the channel area.

From July through September the currents in the Strait of Hormuz generally flow westerly into the Persian Gulf, under the influence of the summer monsoon. These currents average about 1 knot. The tidal currents are much stronger, however—about 4 knots off the Musandam Peninsula, and 2 to 3 knots off the Iranian coast. These tidal currents sometimes pose problems to shipping in the Strait.



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On the other hand, winds in the Strait are rarely hazardous to shipping. The winds are variable except from July to September, when southeasterly winds prevail. Over much of the year winds seldom exceed 17 to 21 knots, but during the winter months stronger winds from the west and north occasionally reach 40 knots. The winds tend to follow the coastline; they are southwesterly west of the Strait, westerly in the Strait, and northwesterly east of the Strait.

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The main shipping channels through the Strait of Hormuz are the shortest practicable route around the rugged Musandam Peninsula of northern Oman. Both the inbound (westbound) and outbound (eastbound) channels provide ample clearance for deep-draft vessels.

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The inbound channel traverses either side of the Quoin Islands. It varies between 31 and 35 kilometers in length, depending on the route chosen, and from 3.2 to almost 10 kilometers in width. Depths range from 75 to 100 meters except in the immediate vicinity of the islands. Several oil companies strongly advise their inbound ships to pass north of the islands, to avoid both the congestion of the shorter southern route and the stronger tidal current there. [redacted]

The outbound channel passes 3.6 kilometers south of Little Quoin Island. It is 25 kilometers long and 3.2 kilometers wide. This is the deeper of the two channels with depths ranging from 85 to 225 meters. There are submarine cables under this channel, but they pose no hazard to navigation. [redacted]

Most shipping passes through these main channels. However, a broad, slightly shallower, alternate passageway (50 kilometers wide and 45 to 80 meters deep) lies between the Quoin Islands and Iran. Vessels calling at the Iranian port of Bandar Abbas use this part of the Strait. [redacted]

As is clear from these dimensions, the sinking of one or even several supertankers would not block the Strait of Hormuz, although attendant oil slicks might hamper shipping for a while. [redacted]

Oman

The rugged coast of northern Oman, with its scraggy Musandam Peninsula and its numerous offshore islands, borders the Strait of Hormuz on the south and could provide concealment for potential terrorists. Northern Oman is mountainous and largely void of vegetation. Elevations generally range between 1,000 and 2,000 meters, but the highest peak, Jabal al Harim, reaches 2,087 meters. The coastline is characterized by high cliffs that drop almost straight into the sea. There are many deep, sheltered coves and embayments, some with small sandy beaches. During the summer the climate is one of the hottest and most humid on earth. [redacted]

Separated from the rest of Oman by the United Arab Emirates, the peninsular region is isolated and desolate; probably no more than 10,000 people live in the area. Most of them are non-Arab fishermen and nomads who speak a language akin to Farsi. Until

recently the Omani Government had very little contact with these backward people, who live near the bare subsistence level. They are alleged to be hostile toward intruders. The largest village in northern Oman is Al Khasab, on the Persian Gulf coast just west of the Strait. There are currently no roads in northern Oman, only a few small, dirt airstrips. [redacted]

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There are several islands off the Musandam coast, most of which are uninhabited and could be used for launching terrorist operations in the nearby channels. The As Salamah wa Banatuha (Quoin Islands), which lie about 14 kilometers off the tip of the peninsula, are of particular importance because of their location amidst the inbound shipping channel. This small archipelago consists of three islands—As Salamah (Great Quoin), Fanaku (Gap), and Didamar (Little Quoin). The last named houses a navigation beacon, as does Bu Rashid Island, across the shipping channel from the Quoin Islands and 5 kilometers from the coast. [redacted]

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Iran

Across the Strait, some 50 kilometers from the Musandam Peninsula and about 35 to 40 kilometers from the main shipping channels, lies the Iranian coast. The shoreline north of the Strait consists largely of mudflats and salt marshes, interspersed with a few sandy beaches. There are no sheltered bays such as those along the northern Omani coast. [redacted]

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This region is much more densely populated than northern Oman. According to the 1976 census Hormozgan Province, which encompasses the coastal stretch along the Strait, had 463,491 inhabitants. Nearly one-fourth of them lived in the coastal city of Bandar Abbas, the largest city in the province, and the site of Iranian air and naval bases. A dredged channel about 10 meters deep leads from the Strait into a major, new, deepwater, general-cargo port. [redacted]

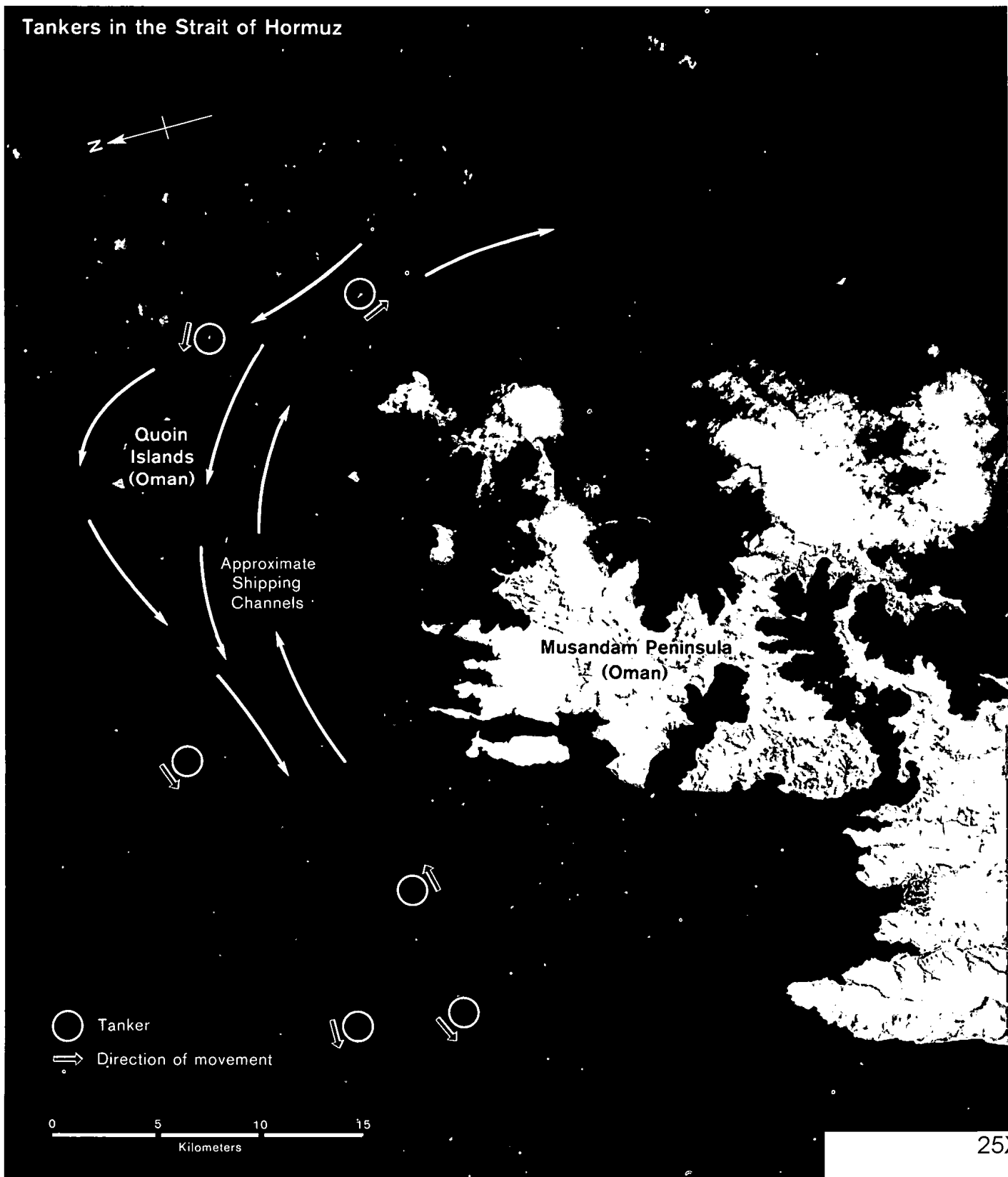
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The coastal area is inhabited mainly by Arabs of Iranian origin, although Persians predominate in and east of Bandar Abbas. There are also small numbers of Africans of Somali, Sudanese, and Ethiopian origin.

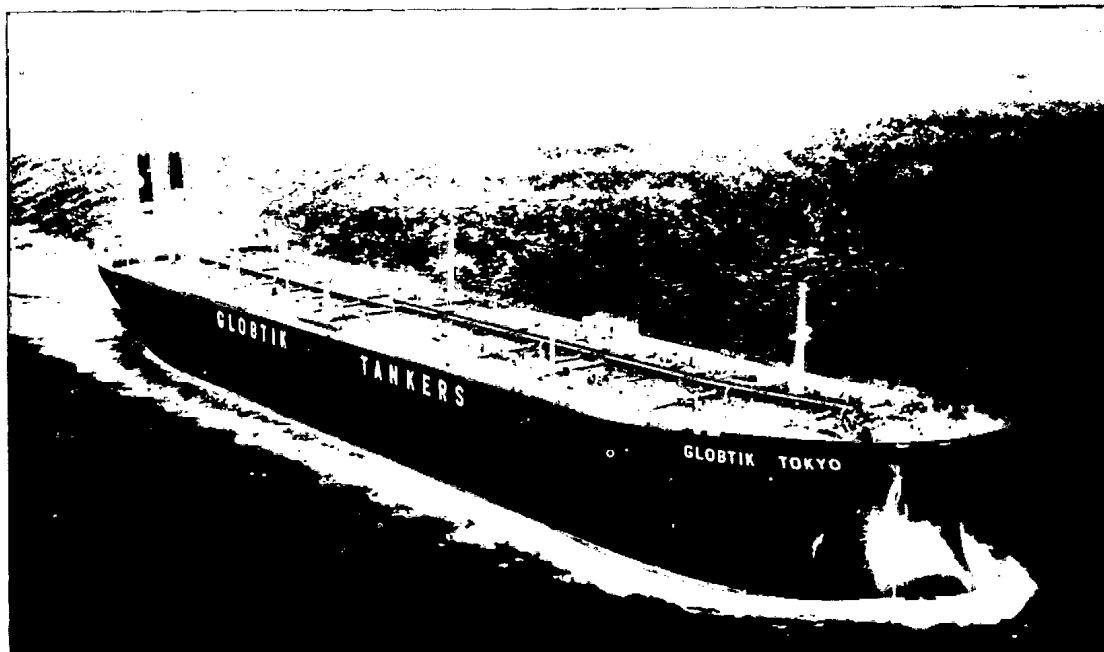
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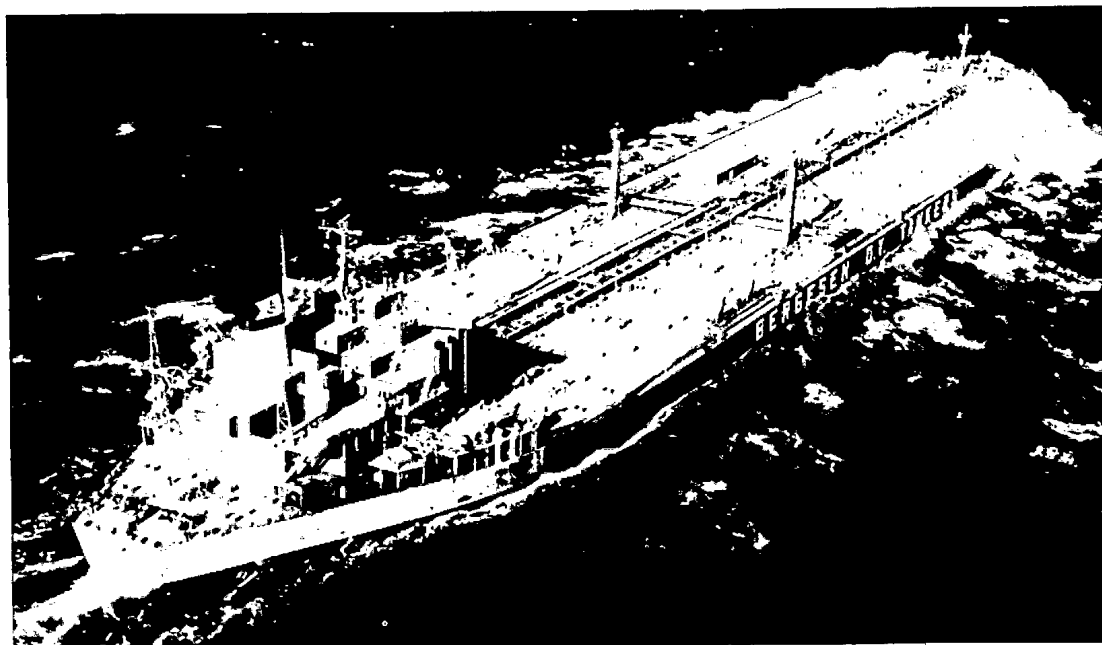


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Globtik Tokyo (480,000 DWT) unloaded. One of the world's largest supertankers, it was built in Japan for the United Kingdom. Length 379 meters, beam 62 meters.

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Norwegian supertanker **Berge Emperor** (414,000 DWT) fully loaded.

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Four large islands are located close to the Iranian shoreline in the Strait of Hormuz—Qeshm, Jazireh-ye Hengam, Jazireh-ye Larak, and Jazireh-ye Hormoz. Unlike the small, rugged Omani islands, all of the Iranian islands are inhabited, mainly by Arabs of Iranian origin. There are navigation beacons on each of the islands, as well as on a floating buoy southeast of Jazireh-ye Hormoz. [redacted]

Economic Significance

The seven countries bordering the Persian Gulf have a combined population of only 58 million, but because of oil they enjoy a combined gross national product of \$200 billion and per capita incomes among the highest in the world. [redacted]

The economic importance of the Strait of Hormuz is twofold: first, one-third of the world's oil supplies exit through this passage; second, most of the raw materials, manufactures, and food critical for economic development of the Persian Gulf states enter through this passage. About 19 million barrels of crude oil a day pass through the Strait of Hormuz in tankers. Another 2.0 to 2.5 million b/d can be exported directly to the Mediterranean via pipelines—the Tapline, Iraq-

Syria Line, and Iraq-Turkey Line. These lines will be supplemented by a trans-Arabian pipeline now under construction between the Red Sea and the eastern oil-producing provinces of Saudi Arabia, which is designed to carry 2 million b/d. [redacted]

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Recent studies by Lloyds of London indicate that on an average day seven loaded supertankers¹ exit the Strait, each with cargos of up to 3 million barrels of oil currently worth \$50 to \$60 million. The largest of the tankers measure some 400 meters in length, 70 meters in beam, are 45 meters high (from keel to superstructure), and draw 30 meters of water. Overall, about 24 tankers arrive or depart daily, as well as about 28 cargo ships. [redacted]

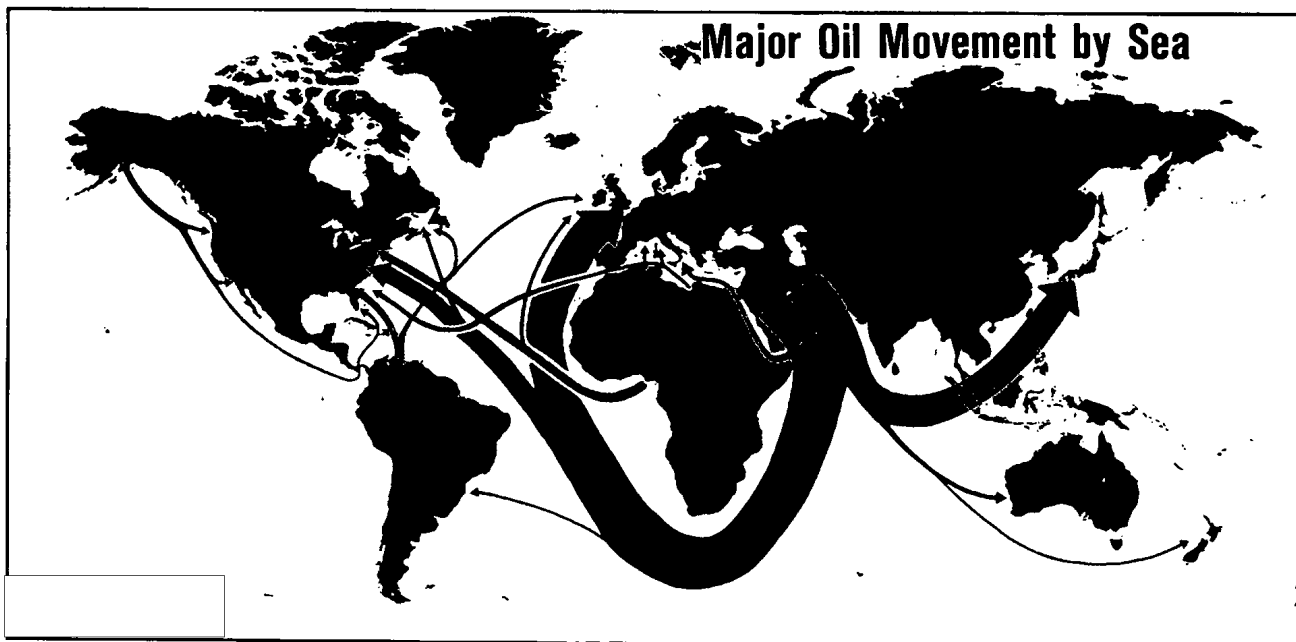
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Nearly all of the oil is destined for the United States, Western Europe, and Japan. While about one-third of US oil imports come from the Persian Gulf, Western Europe and Japan are much more dependent on oil from this region. [redacted]

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Although the movement of oil from the region remains the major concern to the Western world, the surge in

¹ Very large crude carriers (VLCCs) and ultra-large crude carriers (ULCCs).



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imports of consumer and industrial goods from the West in recent years is important to the development plans of the Gulf states, and to the economies of the Western nations and Japan which find lucrative markets there. [redacted]

All of the governments of the Gulf are trying to improve the lot of the citizenry and to prepare for the day when their oil resources are depleted. Providing social services and an industrial infrastructure to countries that 25 years ago were little more than sleepy fishing villages visited occasionally by wandering nomads means starting from scratch in most cases. Since most of the area has a low level of industrial sophistication and little land suitable for agriculture, much of the raw materials and building equipment and much of the food must be imported from outside the area. The capacity of the present overland transportation system is small, imported goods, therefore, have to come in by sea through the Strait of Hormuz. Saudi Arabia with its access to the Red Sea is the only exception. [redacted]

Imports of the Gulf states through the Strait of Hormuz came to \$45 billion in 1977. Western Europe, Japan, and the United States supplied more than 80 percent of these imports, which consisted mainly of high technology, finished manufactures, and weapons. [redacted]

Vulnerability of the Strait

Ever since the Palestinians started talking about sinking supertankers there, the vulnerability of oil shipments passing through the Strait of Hormuz has become a matter of increasing concern not only to the oil-importing nations, but to the producing nations as well. The fact that one, or even several, sunken supertankers would not block the Strait does not rule out the possibility that terrorists might try to sink one anyway, for any attack on an oil tanker—whether successful or not—would have a serious psychological effect on both oil-exporting and oil-importing countries. [redacted]

Preserving the security of the Persian Gulf region, in particular preserving unimpeded maritime traffic

through the Strait of Hormuz, was a responsibility gladly shouldered by the Shah of Iran, who recognized that this role would justify Iran's acquisition of sufficient military power to make it preeminent in the region. The United States, Western Europe, and Japan cooperated, for the Shah's pro-Western orientation ensured the Soviet Union would not gain control over this strategically vital area. [redacted]

The provisional government of postrevolutionary Iran, however, suspicious of both the United States and the Soviet Union, has announced it is relinquishing its role as the policeman of the Persian Gulf and will no longer accept responsibility for the security of the Gulf and the Strait of Hormuz. [redacted]

In any case, Iran's naval capabilities were sharply reduced by the February revolution. Though the Iranian Navy sustained no physical damage—ships, naval yards, and ammunition dumps were left in good condition—a shortage of manpower and lack of maintenance have reportedly left the Navy unable to mount any extensive missions, or even to mount effective patrols. The capabilities of the Iranian Air Force have similarly deteriorated. [redacted]

Although there are some indications the Iranian Government intends to rebuild air and naval capabilities, for the present Iran is unable to provide for the security of the Strait of Hormuz—even if the government wanted it to do so. [redacted]

Across the Strait to the south, Oman is in no better shape. Although Oman's own oil production is not exported through the Strait, Oman's conservative, pro-Western Sultan Qabus acknowledges his country's responsibility to guard the southern portion of the Strait. He claims, however, that Oman lacks the capability to do so. While this claim is made partly to buttress Oman's request for military aid, it is unfortunately correct. In sum, neither Iran nor Oman—nor any other party—is guarding the Strait of Hormuz. [redacted]

Sinking a Supertanker

Without a navy, sinking a supertanker is no mean feat. There are several ways, however, in which a terrorist group might try—and might succeed. [redacted]

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An attack with a small boat is one possibility.² The most likely point of origin for a seaborne terrorist attack on a tanker in the Strait is Oman, for there are many small, isolated coves along Oman's sparsely populated, fjordlike northern coast that would offer concealment for such an operation. Moreover, there are several small, uninhabited islands in the area that could also easily conceal a small craft. [redacted]

Dhow traffic, prevalent in the Strait, might be used for cover; these lateen-rigged sailing ships (often with auxiliary engines) range from 20 to 90 tons in size and carry crews of eight to 30 men. It would be a rare dhow, however, that could keep up with a supertanker. [redacted]

Attackers in a small craft could try to sink a tanker by attaching explosives to it, although this would be difficult while the tanker was under way. Or, if they were willing to die in the attack, they could load their boat with explosives set to go off when it rammed the tanker. On the other hand, they could attempt to board the larger vessel and overpower its crew, then plant explosive devices on board, or try to run the tanker aground or into another vessel. [redacted]

There are unconfirmed reports that Palestinian terrorists have access to minisubmarines, which could fire torpedoes at a tanker from underwater. Perhaps the most disturbing possibility is that the Strait of Hormuz could be mined. A variety of mines—moored or drifting, detonated by sound or contact—has long been available to terrorists from both Communist and illicit Western sources. Homemade mines can also be effective. Some mines can be moored (anchored to the bottom) in waters much deeper than the Strait of Hormuz. With a prevailing current of only 1 knot or so, drifting mines could remain in the vicinity of the Strait for days, and even after drifting into the Persian Gulf or Gulf of Oman would continue to pose a hazard to shipping. [redacted]

² In June 1971 terrorists in a speedboat armed with a rocket launcher attacked and damaged a tanker in the Strait of Bab el Mandeb. [redacted]

Local minesweeping capabilities are very limited. Iran has five minesweepers in an unknown state of readiness. Iraq also has five, which would take at least two days to get to the Strait. South Yemen has one minesweeper, at best three days away. None of the world's major naval powers are known to have any minesweeping units in the area. [redacted]

An attack could also come by air or from the shore rather than by water. Or a tanker might be sabotaged while in port, perhaps by a suborned crewman. Explosives could be planted on board timed to go off when the tanker is in the Strait, or they could be set off by signal from a nearby small craft. If terrorists were unable to gain access to a tanker, they might still be able to put one or more navigation beacons out of service, which could conceivably lead to a collision in the Strait. In other words, the task of disrupting maritime traffic in the Strait of Hormuz is well within the capability of imaginative, resourceful terrorists—especially if their own survival is not a prime consideration. [redacted]

While a sunken supertanker or two would not impede traffic in the Strait of Hormuz, an attendant oil slick might well do so, especially one on fire. The delay would be temporary, however, for the current would probably carry the slick out of the Strait, into the Persian Gulf in the summertime, out to the Gulf of Oman or toward the Iranian coast the rest of the year. [redacted]

More important than any physical results of a terrorist attack on a tanker transiting the Strait would be the consequent reluctance of both the owners of the tankers and the owners of the oil to send their property through the Strait until they were assured it was safe. While such an assurance would be difficult to arrange quickly, the Gulf states could be expected to cooperate with the oil-importing countries in taking whatever action was necessary. [redacted]

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