The United States Navy and Israeli Navy

Background, current issues, scenarios, and prospects

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Cover photo shows Chief of Naval Operations Adm. Gary Roughead saluting Israel Naval Forces sailors after meeting with Vice Adm. Eli Marum, commander in chief of the Israel navy during a visit to Tel Aviv, Israel (photo courtesey of the United States Navy).

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Executive summary

This paper examines the past, present, and future of the relationship between the United States Navy (USN) and its Israeli counterpart. Understanding the USN-Israeli Navy (IN) relationship requires an appreciation of the historical context in which it has unfolded. The first part of the paper begins with the 1967 Six Day War and traces the development of the IN into the twenty-first century. Throughout this narrative, key topics in USN-IN relations are explored. These include the impact of Israel's sinking of the USS *Liberty* during the 1967 conflict; the 1973 Yom Kippur War, which marked the beginning of closer USN-IN relations, as well as a strengthening of broader U.S.-Israeli ties; and the United States' role in Israel's naval modernization program during the early 1980s.

The second section of the paper assesses the current state of the USN-IN relationship and identifies developments in the security environment that could have significant consequences for relations between the two services. These include American and Israeli tensions with Iran; ongoing Israeli friction with Turkey; uncertainty about the future of Egyptian-Israeli relations in the post-Mubarak era; and Israel's growing cooperation with India.

Israel's increasing isolation in the region, the rupture of relations with Turkey, and the changes brought about by the Arab Spring all signal a much more challenging eastern Mediterranean environment for the IN Given developments in Egypt, the IN can no longer be certain of its freedom of movement into and out of the Red Sea. Israel's relationship with India is an important bright spot for the IN, given that it might quietly draw on Indian logistical support, particularly during periods of increased tension with Iran.

Given these emerging challenges, Israel may turn to the United States for additional security assistance. At the operational level, Israel may ask the USN to intervene during a crisis in the eastern Mediterranean involving the Egyptian or Turkish navies, especially if Israel is simultaneously engaged in hostilities with a post-Assad Syria or Hezbollah.

For the USN, a key role will be to encourage the IN to pursue a course of caution and moderation. Many of Israel's neighbors in the region see the country as an American proxy, so aggressive Israeli actions, such as an independent military operation against

Iran, could have dangerous consequences for the United States. This is a tall order for the USN, whose ability to persuade the IN to act with restraint is likely to be limited. But for the sake of both navies and the nations they defend, it is essential for the USN to at least attempt to sway their Israeli counterparts.

Introduction

Over the last six decades, the Israeli Navy (IN) has evolved from a tiny unit consisting of a few hundred personnel to a high-technology force that comprises both a surface and a sub-surface fleet. Since its establishment in 1948, at the outset of Israel's independence, the Navy has undergone a number of transformations. Since the June 1967 Six Day War, these transformations have taken place with the significant assistance of the United States in general and of the United States Navy (USN) in particular. It is worth noting that aside from the U.S. Navy, the Israeli Navy has the most real world combat experience since the end of World War II.

At the request of the Chief of Naval Operations, this study examines the past, current, and future states of USN-IN cooperation. It attempts to identify potential areas of friction, in both the near and medium terms, in light of current developments in the Middle East. Accordingly, it focuses on long-standing American and Israeli tensions with Iran, ongoing Israeli friction with Turkey, and uncertainties about the future of Israeli-Egyptian relations in light of the collapse of the Mubarak regime. Lastly, it examines the implications that Israel's ever-growing cooperation with India will have for the Mid-East naval balance.

The strategic and operational context of the U.S.-Israeli naval relationship

A point of departure for USN-IN relations: The 1967 Six Day War and the *Liberty* incident

The best place to begin the discussion of the U.S. Navy and IN relationship is when it was at its nadir. In June 1967, at the outbreak of the Six Day War, the Egyptian Navy was Israel's most powerful naval adversary, with more than four times as many

warships as the IN, with the added advantage of support from the Soviet Union, its ally, which at the time had some 70 ships of its own deployed to the region.[1]

In contrast to the Israeli air force (IAF) and the Israeli land forces (ILF), the IN did not perform especially well during the 1967 war. Combined naval and commando attacks on Syrian and Egyptian ports accomplished little. In fact, six Israeli frogmen were captured in Alexandria. Communications problems were endemic, which included serious problems maintaining communications with U.S. Sixth Fleet units operating in the area.

From the perspective of navy-to-navy relations, the most serious Israeli communications failure was the sinking of the USS *Liberty* (AGTR-5), a technical research ship on an intelligence mission in the eastern Mediterranean. On the morning of June 8, the fourth day of the war, the *Liberty* was about 13 nm off the coast of the Sinai Peninsula, operating between el-Arish and Port Said in an area that Egypt had declared off-limits to neutral shipping. Washington recognized that the *Liberty* was operating in a dangerous area and the Joint Staff directed *Liberty* to withdraw up to 100 nm from the coast. But because U.S. communications were backlogged, the messages arrived too late to prevent the incident that was about to unfold.

At 0555, an IN reconnaissance aircraft spotted the *Liberty*. IN headquarters identified the ship and marked it as a neutral flag, as did a later report. The neutral marker was removed at 1100 during a change of shift; the Israelis claimed that they assumed the *Liberty* had sailed away. At 1124 there was an explosion at El-Arish that the Israelis, lacking reconnaissance, assumed was caused by Egyptian shells aimed at their coastline. Prime Minister Yitzhak Rabin, who had been warned of a possible Egyptian amphibious landing near Gaza, thereupon repeated an order that he had already given once before to sink any unidentified ships in the war zone. Reportedly, Rabin also advised caution for fear of attacking Soviet ships in the area.

The IN was asked to intervene as IAF aircraft were unavailable, but it did not respond for 30 minutes, until prodded into action by the Israeli Defense Force (IDF) General Staff. The IN dispatched three torpedo boats, with orders to sink any ship steaming at 30 or more knots, the assumption being that such ships were elements of the Egyptian Navy's fleet. The *Liberty*, which the IN estimated was steaming at 30 knots, came into view, heading for Egypt. The IN did not identify it as a U.S. ship and called in an IAF strike. IAF Mirages made three strafing runs at the *Liberty* before they were replaced by Mysteres, carrying napalm. IDF headquarters initially put the Mysteres on hold,

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[1] Michael B. Oren, *Six Days of War: June 1967 and the Making of the Modern Middle East* (New York: Ballantine, 2003), p. 264.

because the *Liberty* had not returned fire and there was a need to determine that the unidentified ship was not Israeli. Finally, the order was given to sink it. The napalm attack was halted only when a pilot noticed that the ship's markings were in Latin rather than Arabic script.

The *Liberty* was already severely damaged, with nine dead and dozens wounded, but the IN fired five torpedoes in response to fire from one of the *Liberty*'s machine guns. One torpedo hit the ship, and 25 more sailors were killed. The torpedo boats then closed in, firing at the hull to sink it. The firing continued even after the torpedo squadron's commodore identified the *Liberty*'s markings; he was unable to contact the crew by megaphone and the firing continued for another half hour. When the incident was over, the *Liberty* had 34 dead and 171 wounded sailors.[2]

Aftermath of the *Liberty* incident: Impact on USN-IN relations and lessons learned

The attack on the *Liberty* remains controversial to this day. In May 1968 Israel paid the families of the 34 men killed in the attack a total of $3.24 million. The following March, Israel paid an additional $3.57 million to compensate the men who were wounded in the attack. Finally, in December 1980, the United States accepted a $6 million payment from Israel in lieu of its demand for $7.644 million to compensate for the damage to the *Liberty*.

Both Israel and the United States undertook a number of inquiries. A U.S. Navy Court of Inquiry, with then-Rear Admiral Isaac Kidd presiding, as well as a CIA Intelligence Memorandum, concluded that the attack was a case of mistaken identity. On the other hand, a number of senior Johnson Administration officials and advisors, most notably Secretary of State Dean Rusk and Clark Clifford, who was named Secretary of Defense in 1968, were not satisfied by Israeli explanations. A report by Clifford stated explicitly that the Israelis were guilty of gross negligence.

The matter was officially closed in an exchange of notes in December 1987. Nevertheless, claims continued to surface that the Johnson Administration and Israel had covered up the fact that it was a deliberate Israeli attack on an American ship. Those making the claims often differed as to the motives they ascribed to Israel for launching the attack. Whatever the motives, tapes declassified by the National Security Agency in the past 10 years seemed to vindicate the Israeli version, while crew

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[2] The *Liberty* incident is extracted from Oren, *Six Days of War*, pp. 262-269. Of note, the book's author, Oren, is now Israel's ambassador to the United States.

interviews implicated the Israelis. The controversy is unlikely to end until all NSA tapes are declassified.

Possibly because the Naval Court of Inquiry had cleared the Israeli Navy of culpability, the *Liberty* incident did not set back official IN-USN relations, but in truth IN-USN relations did not become more intimate until nearly a decade later. The attack highlighted the crucial importance of maintaining communications between the IN and the USN, in order to coordinate activities in perennially turbulent region. There has, of course, been tremendous progress in this regard in the past 40 years, as the two navies have coordinated their activities in the eastern Mediterranean. Nevertheless, with the IN expanding its area of operations, there is once again the potential for miscommunications in regions to which the IN has not previously deployed, or at best has deployed intermittently.

The sinking of the *Eilat* and the refashioning of the IN

Only a few months after the end of the Six Day War, on October 20, 1967, two Egyptian *Komar* missile boats located in Port Said harbor fired four SS-N-2 Styx missiles at the Israeli destroyer *Eilat*, which was on a routine patrol 14.5 nm off the Egyptian coast. Three of the four missiles hit the ship, sinking it and killing 47 sailors and wounding 41 more.[3]

The sinking of the *Eilat* was hailed in Egypt, where October 20 became known as "Navy Day," and throughout the Arab world. For the Israelis, "the *Eilat* disaster was the worst the Navy had ever experienced."[4] Even prior to the sinking of the *Eilat*, however, the Israelis had concluded that they could no longer rely on relatively slow moving destroyers operating in the constricted waters of the eastern Mediterranean.

The incident vindicated a 1962 decision made by the IN and approved by then Deputy Defense Minister Shimon Peres to transform its surface forces into a fleet of small boats carrying surface-to-surface missiles. The concept mimicked that of the small

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[3] The Eilat was a World War II vintage British Z-class destroyer, built in 1944 and sold to Israel 11 years later. The ship had seen action in the 1956 war, participating in some raids and in the capture of the former British Hunt-class Egyptian destroyer Ibrahim el-Awal. It had again seen action in the immediate aftermath of the June 1967 war, joining two Israeli torpedo boats in the sinking of two Egyptian torpedo boats off the coast of Rumani on the night of July 11-12. Like the Liberty, the torpedo boats were sunk in international waters. The IN top command denied having issued orders to the fleet to sink any Egyptian ship that it encountered; yet, it appears that the commander of the Eilat was congratulated when word of the sinking reached headquarters.

[4] Rabinovich, Abraham, *The Boats of Cherbourg* (New York: Henry Holt, 1988), p. 11.

Soviet missile boats, but carried it one step further because it affected the entire IN surface force.

The new Israeli missile boat program was launched in 1965 with a modification of a German design of the Jaguar missile boat, and with funding from the Federal Republic of Germany.[5] Calling the boat the *Sa'ar*, the Israelis went one better than the original design by packing their 210-ton standard displacement boats with electronic warfare gear in addition to surface-to-surface missiles. The Israelis did not actually build these boats; for both political and technical reasons, they were constructed in Cherbourg, France. The initial missile boat program called for a squadron of 12 ships. The first *Sa'ar* boat (various upgrades and hull modifications were named *Sa'ar* 2, 3, 4, 4.5, and a larger corvette program was later named *Sa'ar* 5) was delivered to the IN two months after the sinking of the *Eilat*. Five more boats were delivered in 1968. The remaining boats had to be secreted out of Cherbourg the following year, when Charles de Gaulle included the boats in the arms embargo he imposed on Israel in the aftermath of the June 1967 Six Day War.[6]

The *Eilat* incident had another major impact on Israeli naval development: it spurred the Israelis to accelerate development of electronic countermeasures against Soviet-made surface-to-surface missiles. They recognized that "if electronic support measures (ESM) could provide…the enemy's radar wavelength and pulse rate, then similar emissions could drown out [the enemy radar's] emissions with brute electronic force or to divert it into pursuit of electronic ghosts." The IN's plan to provide its new patrol boats with an electronic warfare (EW) capability was further validated by the May 1970 sinking of a small fishing boat by an Egyptian Styx missile. "The Egyptians…demonstrated that the Styx could home [in on] not only on a twenty-five-hundred-ton destroyer but also on a seventy-ton wooden boat."[7] Clearly, small missile boats of the kind the IN sought to acquire were as vulnerable to Egyptian missiles as the *Eilat* had been.

The Israelis had to develop ESM on their own; no such systems were available for acquisition from other countries. Nor were chaff and other electronic countermeasures (ECM) available. None of the European NATO states had electronic equipment of the kind the IN sought, and the United States, which had begun to develop an anti-Styx capability in the early 1960s, was not sharing its systems with allies

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[5] Ibid., pp. 40-41.

[6] See ibid., pp. 77-173, for an extended, detailed discussion of how the Israelis obtained the French-built missile boats in spite of the embargo.

[7] Ibid., pp. 184.

and friendly states. Without a production base of its own, the IN turned to an Italian firm to produce the ECM systems to its specifications.[8]

With Israel's shoreline having quintupled after the Six Day War with the capture of the Sinai Peninsula, the IN became the beneficiary of more funding. The IN required more warships, and because of the higher sea states in the Red Sea, these ships had to have a greater displacement than the small *Sa'ar* 3 boats.[9] In 1968 Defense Minister Moshe Dayan approved the procurement of six *Reshef* boats, also called *Sa'ar* 4. The *Sa'ar* 4 had a displacement of 415 tons, nearly twice that of the *Sa'ar* 3. At 19 knots, it had a range of 4,800 nm, over three times the *Sa'ar* 3's range, and at 30 knots, it had a range of 2,200 nm, over four times the *Sa'ar* 3's range. These boats, which were to be built at the Haifa shipyard, also packed more firepower than the *Sa'ar* 3, and carried ECM capabilities developed in Israel. Finally, unlike the *Sa'ar* 3, the *Sa'ar* 4 had an at-sea refueling capability.

At the same time that it renovated its surface fleet, the IN also began to overhaul its small submarine force. In January 1968, a fully manned T-class submarine, the *Dakar*, disappeared while transiting to Israel after sea trials in Scotland (the remains of the boat were not recovered until 1999). This led the IN to opt for acquiring smaller, less-detectable submarines, the *Gal* class. These boats, based on a German Type-206 design, were also built in the United Kingdom; however, the first of the class was not commissioned until 1976, long after the Yom Kippur War.

Finally, the Israelis also undertook to improve their naval commando force—their special forces. The naval commandos, called S-13, or Flotilla 13, developed new combat techniques and exercises, and improved the stock of their existing weapons. They also began to employ an air force electronic guidance system and began to work more closely with the land force commandos both in training and operationally.[10] During the 1969-72 War of Attrition with Egypt,[11] the IN commandos undertook a number of special operations, including support for reconnaissance patrols, demolition operations against both land and naval targets, and raids of increasingly larger units against Egyptian outposts. The most notable of these were a raid on the

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[8] Ibid., pp. 185-86.

[9] Inbar Efraim, "The Israeli Navy," *Naval War College Review* 43, Winter 1990, p 106.

[10] Almog, Ze'ev (Rear Admiral), *Flotilla 13: Israeli Naval Commandos in the Red Sea, 1967-1973* (Annapolis, MD: Naval Institute Press, 2010), pp. 7-10. Almog commanded the IN from 1979-85.

[11] Egypt initiated the war of attrition in March 1969 with the bombardment of Israeli positions along the Suez Canal. See Herzog, Chaim (Major General), *The War of Atonement: October 1973* (Boston and Toronto: Little Brown, 1975), pp. 7ff.

Adibiya coast fort, a raid on the Green Island fort, and the sinking of two Egyptian torpedo boats.[12] During the War of Attrition, not only did the variety and magnitude of S-13's operations increase, so did the quality of the strikes and the authority granted to the commandos.[13]

Even as it approved the *Sa'ar* 4 and other naval programs, the government rejected an IN request for a fleet of landing craft to be stationed at Sharm-el-Sheikh. This decision, which prevented Israel from fielding a significant amphibious assault capability, was to prove costly in the October 1973 Yom Kippur War. On the other hand, in conjunction with the upgrading of the naval commandos, the government did approve one program that would have far-reaching significance—the acquisition of "a special type of patrol boat for operation against Palestinian terrorist activities."[14] This boat, the *Dabur* class, would become increasingly important as the Palestinians mounted sea-based raids throughout the 1980s and into the 1990s.

It was at this time that the IN's decisions regarding the future of its fleet became the subject of quiet discussions with its American counterpart. Like the IN, but on a vastly larger scale, the USN. had begun to pour money into its ESM and ECM programs after the sinking of the *Eilat.* In the early 1970s, a number of naval officers, including James Roche, who later would become secretary of the Air Force, began to participate in the IN's ongoing evaluation of its training and tactics—in particular, for the new missile boat force.

According to Major General Chaim Herzog, the development of the IN during the War of Attrition reflected the fact that

> the Six Day War [had] found the Israeli Navy with the right ideas but without the ability to supply them….The Israeli Navy had in many senses been the 'Cinderella' of the IDF, a result of a basic assumption that any war which took place between Israel and the Arab countries had of necessity to be a short one with a decision being achieved only by means of ground operations enjoying air superiority. No one [had] ever assumed that Israel would have to think in terms of a long naval war, including the convoying of a large merchant fleet.[15]

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[12] Ibid., pp. 12-28.

[13] Ibid., p. 29.

[14] Ibid., p. 263.

[15] Ibid., pp. 261-62.

On the other hand, the Egyptians, with Soviet assistance, had developed a balanced navy out of fear of the Western navies deployed in the Mediterranean, which Egypt's President Nasser believed were committed to "guaranteeing Israel's naval defence."[16]

Of course, in reality, no government, including that of the United States, had made such a commitment.

It is noteworthy how the difference in threat perception between the two neighboring navies led to different operational requirements, tactics, and force mixes. The Israelis recognized that it made little sense for them to mirror-image the Egyptians: they knew that the Egyptians, because of Soviet support, were better equipped. The Israelis also appear to have recognized that the Egyptian fleet was responding to different motivators. Moreover, because the IN was reinventing itself, "in many ways it was the single element in the IDF that prepared for the next war, without being influenced by the previous one,"[17] except insofar as it saw the lessons of 1967 as providing cautionary guidance for the future. This forward-looking approach has remained a hallmark of the IN ever since, and has influenced its development in recent years.

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[16] Ibid., p. 262.

[17] Ibid., p. 262.

The geostrategic logic of the U.S.-Israel relationship

The Cold War

To understand the maritime dimension of the 1973 Yom Kippur War it is necessary to look back to September 1970 during the onset of the Jordanian-Palestinian crisis. At that time, Admiral Thomas Moorer, Chairman of the Joint Chiefs, argued that in the case of conflict in the Middle East, Greek or Turkish bases would be unavailable to the United States. This turned out to be an accurate prediction three years later during the Yom Kippur War. As a result, the situation was "pretty grim" regarding basing facilities (especially air) in the eastern Mediterranean. The Soviets had America "in the same position that we had the Soviets in at the time of the Cuban missile crisis."[18] Later, Moorer asserted that "in their present state of readiness, U.S. forces would have very little staying power in the Middle East, and in view of that fact, and of the difficulty and damaging effect of reinforcing from southeast Asia [i.e., the Vietnam War] … the United States should make every effort not to become involved in large scale military action."[19] Only U.S. Navy forces could be expected to respond to operational demands in the eastern Mediterranean.[20] Yet, as Admiral Zumwalt later recalled, "The American forces may have been sufficient for the occasion, but they were far from formidable."[21] In fact, Zumwalt had given President Nixon a briefing that indicated that in the event of a confrontation between U.S. and Soviet naval forces in the Mediterranean, the U.S. forces would be "at a distinct disadvantage."

Zumwalt was not exaggerating. The Soviet Fifth Squadron, known as Eskadra, was established in 1967 "in response to an upsurge in U.S. and NATO maritime activity in

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[18] Zumwalt Elmo R., Jr. Admiral, USN (ret.), *On Watch: A Memoir* (Arlington, VA: Admiral Zumwalt & Associates, 1976), p. 293.

[19] Ibid., p. 294.

[20] Ibid., p. 445.

[21] Ibid., p. 300.

the region after the June 1967 Six Day War."[22] The squadron was composed of six task forces operating in three zones—the western, the central, and the eastern Mediterranean. The eastern zone was the most important, as the Soviets were given access to Port Said in Egypt. The Soviets were able to demonstrate this newly deployed naval capability in 1969, during the coup in Libya from which Moamar Gadhafi emerged as that country's strongman. The Soviets conducted sea-based exercises with an expanded force of 70 warships, including 27 surface combatants.

At the onset of the October 1973 War, the U.S. Navy was directed to maintain a "low key, even-handed approach toward the hostilities" during the opening days of the war.[23] This posture was more than a matter of not taking sides. The Sixth Fleet, "both the symbol and the substance of the United States' military presence in the Mediterranean Basin,"[24] no longer dominated the eastern Mediterranean to the degree that it once had. Admiral Zumwalt, later recalled, "American strength in the eastern Mediterranean relative to that of the Soviets was diminishing fast."[25] Moreover, "the Mediterranean Basin often reflect[ed] the state of relations between the two superpowers and the United States and the Soviet Union seem[ed] to have chosen the Mediterranean as an arena for [the] contest."[26] Indeed, there was so much concern about that balance that the Joint Chiefs of Staff wanted to use U.S. assistance to Israel as a *quid pro quo* for Israeli concessions to the Arabs. The logic was that if Soviet strength was growing, so too was that of its Arab clients—Egypt and Syria—and a deal reached sooner rather than later would be in the interest of both America and Israel.[27]

When the Egyptians crossed the Suez Canal to launch the war, as Moorer had predicted three years earlier, not only were allied bases, apart from Lajes in the Azores, unavailable to the United States, but Turkey actually gave the Arabs overflight rights.

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[22] G.G. Kostev, *Voenno-Morskoi Flot strany 1945-1995: Vzlety I padeniya* [The country's navy 1945-1995: Take-offs and falls], cited in Lyle J. Goldstein and Yuri M. Zhukov, "A Tale of Two Fleets: A Russian Perspective on the 1973 Naval Standoff in the Mediterranean," *Naval War College Review* LVII (Spring 2004), p. 38.

[23] Report of VADM Daniel Murphy, USN, Commander Sixth Fleet. Quoted in. Zumwalt, *On Watch*, p. 435.

[24] Lewis, Jesse W., Jr., *The Strategic Balance in the Mediterranean* (Washington, DC: American Enterprise Institute, 1976), p. 33.

[25] Zumwalt, *On Watch*, p. 279.

[26] Lewis, *Strategic Balance*, p. 17.

[27] Zumwalt, *On Watch*, p. 279.

On October 4, 1973, the eve of the outbreak of the war, the Fifth Eskadra "consisted of fifty-two ships, including eleven submarines (at least two of them equipped with nuclear tipped cruise missiles)," as well as eight guided missile cruisers and destroyers.[28] After conducting evacuation operations from both Egypt and Syria, the squadron remained in the eastern Mediterranean, where it had been reinforced on October 5 by six additional ships, including a guided missile destroyer and four submarines. When the Egyptians began their attack across the Suez Canal and the Syrians on the Golan Heights on October 6, the Fifth Squadron outnumbered the Sixth Fleet by 10 ships (58, to Sixth Fleet's 48).

By October 9, the Soviets began to resupply both Syria and Egypt by air and sea, while 21 Soviet surface combatants positioned themselves in the vicinity of Sixth Fleet ships in order to help protect the transports and demonstrate that they could "outgun" the U.S. surface combatants. Notably, many Soviet combatants were equipped with surface-to-surface cruise missiles while the U.S. had yet to introduce that capability to its surface warships. The Soviets also created a special escort force of 10 destroyers. These Soviet operations signaled that any attempts to interfere with their resupply efforts would be met with force.

On October 10, the size of the squadron was augmented by a Baltic Sea Fleet gun cruiser and two SAM equipped destroyers. Four days later, the squadron's mission was expanded to include authorization to fire on Israeli ships that interfered with the airlift and sealift. The Israelis had sunk a Soviet merchant ship on October 11, and several of the top Soviet leaders—but not Secretary Brezhnev or Prime Minister Kosygin—wanted to retaliate. In this case, the Soviets publicly went no further than to issue a harsh press statement and a letter of protest to President Nixon.[29]

For their part, the Israelis expressed regret for the sinking of the merchant ship, much as they had for the attack on the *Liberty* in the Six Day War; the Israeli apology was not accepted. While the Soviets elected to restrain their public response, Brezhnev ordered General Viktor Kulikov, the Chief of the General Staff, to take "necessary steps" to prevent any repetition of Israeli attacks on Soviet targets. It appears that in

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[28] Yevgenii V. Semenev, *Protivostoyaniye 5-y Eskadry VMF SSSR I 6-go Flota SShA period khlodnoi Voiny: Zapiski sivdetelya I activnogo uchastnika sobytii* [Standoff of the Fifth Eskadra of the U.S.SR Navy and the Sixth Fleet of the USA. during the period of the Cold War: Notes of a witness and active participant in the proceedings], cited in Goldstein and Zhukov, "A Tale of Two Fleets, p. 44. The discussion of Soviet and American operations from October 4 through the initiation of the U.S. airlift to Israel has been adapted from ibid., pp. 44-50.

[29] Israelyan, Victor, *Inside the Kremlin During the Yom Kippur War,* with a foreword by Alvin Z. Rubinstein (University Park, PA: Pennsylvania State University Press, 1995), p. 68.

response to this order, some military units, notably airborne units, heightened their readiness, while Soviet-controlled and -operated SAM units were deployed to Syria.[30]

When the American resupply of Israel began on October 13, the Sixth Fleet was ordered to support the airlift with navigation, surveillance, air defense, and search and rescue. As a result, the carrier groups that had been operating south of Crete became even more vulnerable to Soviet anti-ship missiles as they released many of their escorts for the airlift support mission. By the next day, the Fifth Eskadra had grown to 69 ships, while the aircraft carrier *John F. Kennedy*, initially meant to deploy to the eastern Mediterranean, instead was ordered to operate west of Gibraltar to support the airlift. The Soviets were now positioned to support a troop landing, though they did not have the logistical support to sustain it. Soviet naval forces also fired upon Israeli aircraft.

In what has been termed "the most severe maritime crisis of the Cold War,"[31] the most serious threat to the U.S. Navy took place just as the Yom Kippur War was nearing its close. The massive American airlift had enabled the Israelis to turn the tide against both Syrian and Egyptian forces. Not only had the Israelis pushed the Syrians off the Golan Heights, they were threatening Damascus as well. In addition, they had crossed the Suez Canal, encircled the Egyptian Third Army, and reached Suez City. Early on the morning of October 25, Soviet General Secretary Leonid Brezhnev threatened unilateral intervention: if the United States would not join the Soviets to patrol the ceasefire lines—as Egypt had requested—it would act on its own and send forces into the fray to man the ceasefire lines. When the message was sent, the Soviet squadron totaled 88 ships, of which 47 were combatants. The force was capable of firing 40 or more SSMs in an opening salvo. The Soviets also sent an eight-ship surface group to Port Said, including a tank-landing ship and two medium landing ships. Finally, the Soviets put 50,000 combat troops and 100,000 support troops on alert, while MiG-25 aircraft flew both reconnaissance and air combat missions against the Israelis.[32] The United States responded by standing up its worldwide strategic forces to Defense Condition Three (DefCon 3). In response, the Soviets backed away from their plans to intervene with their own land forces.

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[30] Ibid., pp. 70-71, 191.

[31] Ibid., p. 27.

[32] Ibid., pp. 50-51. The Soviets may also have contemplated an attack on Israel's Dimona nuclear facility, as they had during the 1967 war. See Isabella Ginor and Gideon Remez, *Foxbats Over Dimona: The Soviets' Nuclear Gamble in the Six-Day War* (New Haven and London: Yale University Press, 2007), p. 217.

The Soviets did continue to reinforce the Fifth Squadron, apparently in response to the "buildup of American ships … and the Sixth fleet's movements eastward."[33] USN forces—which numbered 60 ships, including 3 aircraft carriers and 2 amphibious assault ships—remained increasingly vulnerable to a Soviet strike: each of the carrier groups faced the possibility of a strike by 13 SSMs.[34] Much as Moorer had surmised, U.S. forces had indeed been targeted for "instant attack."[35]

The crisis began to dissipate on October 30, as USN forces began to move westward. The following day, the Soviet squadron reached its maximum force level with 96 ships, which, altogether, were capable of firing 88 SSMs in a first salvo. It began to disperse on November 3. Although an all-out battle had been averted, the lessons of the crisis were not lost on the United States. As Admiral Moorer colorfully put it, had the two fleets engaged in hostilities and the Soviets fired first, "we would [have lost] our ass in the eastern Mediterranean."[36]

The IN in the Yom Kippur War: Gaining combat skills and effectiveness

At the onset of the October 1973 Yom Kippur War, two of the IN's six *Sa'ar* 4 boats had already been commissioned. Although scheduled for deployment to the Red Sea, they were in the Mediterranean when Egypt and Syria launched their attack on October 6. Recalling the IN's middling performance during the 1967 War, the IN leadership decided to maintain a proactive, offensive stance against the Egyptian and Syrian fleets in the new round of hostilities.

The IN fought two major sea battles—one with the Syrians, followed by another with the Egyptians—during the period October 6–9, 1973. The operation against the Syrian Navy marked the first extensive use of electronic warfare at sea. On the first night of the Yom Kippur War, October 6–7, the IN set out to destroy Syria's naval capabilities. It pursued a Syrian squadron of five ships, including three *Komar*- and *Osa*-class boats, which could fire the SS-N-23 Styx missile, the same type that had sunk the *Eilat*. The Israelis, recognizing that the 20-km range of their Gabriel SSMs was only half that of the Styx, steamed five *Sa'ar* 3 boats at full speed toward the Syrian naval base at Latakia. After sinking a torpedo boat and a minesweeper, the Israelis closed

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[33] Israelyan, *Inside the Kremlin*, p. 191.

[34] Goldstein and Zhukov, "A Tale of Two Fleets," p. 54.

[35] Israelyan, *Inside the Kremlin*, p. 192.

[36] Zumwalt, *On Watch*, p. 446. There was also the possibility of inadvertent escalation, a scenario that was addressed by the U.S.-Soviet understanding regarding incidents at sea.

with the three Syrian missile boats, employing chaff and jammers to spoof the Styx missiles that were fired at them. The *Sa'ar*s steamed at full speed and once the Syrian boats were within range of the Gabriels, the *Sa'ar*s sank the *Osa* and one of the two *Komar*s. The second *Komar* was caught in shallow waters and was then sunk by IN 76mm cannons. The *Sa'ar* boats then raced home unscathed.[37] As a result of the encounter with the *Sa'ar*s, the remainder of the Syrian fleet did not emerge from port for the rest of the war.

Two nights later, a force of six missile boats approached Egypt's Mediterranean coast to shell military installations and coastal defenses near Damiette. At midnight of October 9, four Egyptian missile boats engaged the IN forces. Once again, the *Sa'ar* boats found their Gabriel missiles outranged by the Styx; accordingly, they employed the same tactics that had proved so successful against the Syrians. Seeing the Israelis steaming ahead at full speed, the Egyptians turned and headed for the coast. Once the Israelis were within range, however, they were able to sink three of the Egyptian boats. Only the fourth was able to steam out of range of the Israelis' missiles.

By winning the battles with the Syrian and Egyptian gunboats, the Israelis gained command of the eastern Mediterranean. The IN harassed the coasts and naval forces of both countries, with the result that the fleets of both remained bottled up in port. Consequently, the Egyptians were unable to impose a blockade of sea lanes to Israel, and these remained open throughout the war. In fact, both the Egyptians and Syrians were reduced to firing missiles from their safe havens in their Mediterranean ports, while relying on protection from coastal artillery and armored formations along the coast.

Operating from Sharm el-Sheikh and the Sinai coast, the Israelis successfully blockaded the Gulf of Suez, paralyzing all Egyptian military activity there. The Egyptians had planned to employ small boats to ferry forces across the Gulf of Suez in support of their advancing units in the Sinai. But on the night of October 6, the Israelis attacked the Egyptian boats that were based in anchorages in the Bay of Mersa Talamat, thereby disrupting the planned operation. Two nights later the IN sank another Egyptian patrol boat at Ras al-Sadat, despite support that the boat received from shore-based 130mm guns. Five nights later IN patrol boats sank 19 Egyptian armed fishing boats at Ras Ghareb. By then, apart from the successful Egyptian mining of the Strait of Jubal (which prevented oil being shipped from Abu Rudeis to Eilat),[38] the IN had complete control of the Gulf of Suez.

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[37] http://www.zahal.org/groups/battle-of-latakia.

[38] Inbar, "The Israeli Navy," p. 108.

The Egyptians were able to impose a blockade at Bab el Mandeb, thereby closing the Red Sea to the Israelis, and preventing transits to Israel from East Africa and Asia.[39] The Israelis were able to mount a successful attack on the Hurgada Anchorage at the entrance of the Gulf of Suez to the Red Sea. The commandos sank a missile boat and, more importantly, the defenders evacuated the anchorage. The Israeli blockade of the Gulf of Suez "affected the Egyptian economy to a greater degree than was generally appreciated," as Egypt was unable to ship 80 percent of its oil production, since it normally did so via the Gulf of Suez.[40]

The Egyptian Red Sea blockade had little impact on Israel's ability to conduct its operations throughout the war as Mediterranean access was far more important to the Israelis.[41] At the outset of the war, the Egyptians had deployed a submarine force east of Crete, but "for most of the war it prowled about the sea without causing any damage,"[42] other than to sink two Greek freighters. Because the Egyptians were unable to blockade Israeli ports, seaborne supplies to the IDF could arrive without interruption and merchant ships could move freely to all destinations.

Developing closer relations: 1973 to 1986

Israel had been receiving financial assistance from the United States since 1949, and military assistance loans since 1959. Even before the Yom Kippur War, Nixon and Henry Kissinger had believed that "Israel was the only militarily important American Mideast ally confronting the Soviet-backed regimes in Egypt and Syria."[43]

But it was the Yom Kippur War that triggered the most fundamental shift in the U.S.' military relations with Israel, through the process of military sales. Following the war, U.S. relations with Israel were increasingly viewed through the lens of the Cold War competition with the Soviet Union in the Middle East. Beginning in July 1973, the Nixon Administration requested what was termed "security supporting assistance" for

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[39] Ibid. p. 108.

[40] Herzog, *War of Atonement*, p. 268.

[41] Herzog, Chaim, *The Arab-Israeli Wars: War and Peace in the Middle East from the War of Independence through Lebanon* (New York:Vintage, 1984)*,* pp. 311-14.

[42] Herzog, *War of Atonement*, pp. 263-64.

[43] Sharp, Jeremy M., *U.S. Foreign Aid to Israel* (Washington DC: Congressional Research Service, September 16, 2010, p. 25 available at http://www.fas.org/sgp/crs/mideast/RL33222.pdf,

and Feuerwerger, Marvin C., *Congress and Israel: Foreign Aid Decision Making in the House of Representatives, 1969-1976* (Westport, CT and London: Greenwood, 1979), p. 25.

Israel, economic assistance to ease budgetary pressures caused by high levels of defense spending. During the 1973 War, the administration requested a further $2.2 billion in emergency security assistance "to prevent the reemergence of a substantial imbalance resulting from a large scale resupply of Egypt and Syria by the Soviet Union."[44] Thus, in 1974 Israel also began to receive military grants; that year the United States provided $1.5 billion in such grants, and more than tripled its military credits, from $307.5 million in 1973 to $982.7 million the following year.[45]

Furthermore, Congress generally added funds to the administration's requests. It increased economic assistance by $50 million in 1972 and 1973, and by $61.5 million in 1974. Congress also provided the Department of Defense with $133 million to relieve Israel of debts incurred for resupply during the 1973 War, and eased the credit terms on loans to Israel.[46]

The influx of American funds, whether in terms of military grants, economic assistance, debt forgiveness or soft credit terms (which eased Israel's debt service burden), enabled Israel to restructure its budgets in order to finance the expansion of its domestic defense industrial base. Israel was also able to complete major purchases from sources outside the United States. Strictly speaking, American assistance funds had to be spent on American systems. But money is "fungible." The provision of funds for spending on American systems freed up other, internal Israeli shekels for domestic procurement that, in the absence of security assistance monies, would likely have been allocated to the purchase of American hardware. American policy makers were well aware of this fact.

In the wake of De Gaulle's embargo, Israel undertook the building of indigenous major weapons systems. The best known of these systems were the Kfir lightweight fighter[47] and the Merkava tank. But the budget flexibility that Israel possessed also supported the ongoing funding and completion of the *Sa'ar* program as well as the three British-built *Gal* submarines in 1976-77. The Israelis also upgraded both the Gabriel missile—increasing its range from 20 to 36 km—and their electronic warfare capabilities. Finally, in 1977 they established a naval air reconnaissance unit centered on a modified version of the 1124 Westwind business jet.

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[44] Cited in Feuerwerger, *Congress and Israel*, p. 25.

[45] Sharp, *U.S. Foreign Aid to Israel*, p. 25.

[46] Feuerwerger, *Congress and Israel*, pp. 30-32.

[47] See Arens, Moshe, *Broken Covenant: American Foreign Policy and the Crisis Between the U.S. and Israel* (New York: Simon and Schuster, 1995), p. 11.

In addition to benefitting from the influx of American dollars to the Israeli defense budget and industry, the IN was also the direct beneficiary of American support. In particular, beginning in 1978, the United States began the sale (with American financing) of the Harpoon SSM to Israel. With a range that was nearly three times that of the Gabriel, the Harpoon added significantly to the *Sa'ar*'s firepower. Israel also continued to purchase *Dabur* small patrol craft (35 ton displacement) from the United States as well as from its own manufacturers. These boats were the backbone of Israel's maritime anti-terrorist force, which, until the PLO's departure from Lebanon in 1983, had to contend with Palestinian raids from launching points in Lebanon.

The aftermath of Camp David: Peace between Israel and Egypt

Thanks to the 1978 Camp David Accords, and the peace treaty between Egypt and Israel the following year, Israel, for the first time in its brief history, no longer viewed Egypt as an enemy. For the IN, that meant that its focus could shift away from the only truly powerful Arab fleet in the eastern Mediterranean. It began to focus more on maintaining its dominance vis-à-vis Lebanon and the small Syrian fleet, protecting against sea-based attacks by Palestinian terrorists launched from "mother ships," and developing a capability to strike at more distant foes, notably Libya. Israel also was able to concentrate more forces in the Red Sea, and could benefit from transits of the Suez Canal for the first time.

Security assistance to Israel reached record levels after the Camp David Accords were signed. In 1979, U.S. military assistance grants to Israel more than doubled from the previous year, to a record $1.3 billion. Loans increased more than fivefold, to $2.7 billion. After 1980, total assistance to Israel never fell below the $2 billion mark. Over time, as loans phased out, grant levels increased; similarly, when economic assistance began to decline, it was more than offset by security assistance.

The influx of funding enabled the IDF, including the IN, not only to further upgrade and expand its programs, but also to begin to realize its strategic ambitions. It is arguable that, due to the "fungibility" of budget funds noted above, the first tangible IN product of the massive increase in American assistance was the *Sa'ar* 4.5 class ship, introduced in 1980. Built in the Haifa shipyard, these ships had most of the characteristics of the *Sa'ar* 4, while increasing displacement by some 35 tons. Critically, however, the *Sa'ar* 4.5 had a helipad and helicopter support capability, further extending the IN's open sea reach and enabling it both to attack terrorist "mother ships" and to board terrorist ships on the open seas.

The "first" Lebanon War: 1982

In the year prior to the 1982 "first" Lebanon War, the IN increasingly entered Lebanese territorial waters. The Chief of Staff of the United Nations Truce Supervision Organization (UNTSO) reported to the UN Secretary-General and the Security Council (S/14789, S/15194) that from August 1981 through May 1982, there were 652 violations of Lebanese territorial waters.

The war commenced when the Israelis crossed the Lebanese border on June 6, 1982, and stated that they intended to push the Palestine Liberation Organization (PLO) back 40 kilometers from that border. The IN did not play a leading role in the war, which was primarily a land- and air-power affair. Nevertheless, the support that the IN did provide was critical to Israeli success. From H-hour onward, the IN blockaded the Lebanese coast and shelled the ports of Sidon and Tyre as well as coastal roads in order to prevent the transfer of PLO reinforcements and supplies either from Beirut or from an outside country. IN *Sa'ar*s and other gunboats also provided naval firepower support for the IDF as it pushed northward into Lebanon.[48]

The IN also supported the amphibious landing of a mixed force, called Division 96, which included a paratroop brigade, at the mouth of the Awali estuary north of Sidon, between Sidon and Damour. The landing force, which included tanks, artillery, and paratroops, actually deployed before a landing site had been selected.[49] In the event, IN commandos had previously landed at the Awali site and were therefore familiar with the surrounding terrain. Division 96 was initially meant to cut off the retreat of PLO forces; as Israel's two most distinguished national security journalists later wrote, "establishing the landing zone north of Sidon was of major political significance, for it extended the operation beyond the forty-kilometer limit."[50] In fact, once the amphibious force linked up with land-based elements of the IDF, it continued driving northward toward Beirut.[51]

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[48]Schiff, Ze'ev and Ehud Ya'ari, *Israel's Lebanon War,* ed. and trans. Ina Friedman (New York: Simon and Schuster, 1984), p. 133.

[49] Ibid., p. 111.See also Almog, Ze'ev, "Israeli Naval Power: An Essential Factor in the Operational Battlefield," *Military and Strategic Affairs* 3 (May 2011), p. 38.

[50] Schiff and Ya'ari, *Israel's Lebanon War*, p. 133.

[51] Ibid., p. 137ff., 182 ff.

Post-Lebanon issues

In the aftermath of the conflict, IN leadership believed that its operations had vindicated the employment of missile boats and submarines, which were optimized for operations in closed seas such as the Mediterranean, and which called for quality over quantity. The view that "navies of the conventional type will become the exclusive province of the major powers, whose forces are required to operate in oceans,"[52] began to be called into question during the early 1980s, however, as the IN concluded that it needed to extend the size and range of its missile boats, and, especially, its submarines. At the time, the primary motivation for the extended range of both surface and submarine systems was to enable operations to be conducted against Libya, which was attempting to develop a nuclear capability. In particular, Israel valued submarines because they could transport commandos, who could conduct operations on the Libyan shore. The IN's share of the Israeli budget had not changed significantly during the early 1980s; only commanding about 5 percent of the total IDF budget. Nevertheless, that situation did not prevent the IN from planning a new, and much larger, patrol boat—actually, a small corvette—which it dubbed the *Sa'ar* 5. With over a 1,000-ton standard displacement, the *Sa'ar* 5 was envisaged to be more than twice the size of its predecessor. It would carry a larger helicopter, more sophisticated radars and other ESM and ECM, and more armament, including eight Harpoons.

Even more importantly, the IN sought to upgrade its submarine fleet. By the mid 1980s the small *Gal* submarines were developing structural cracks, and, with the memory of the *Dakar* tragedy still fresh, the IN was determined to replace all three *Gal* boats.[53]

The *Sa'ar* 5 plan met with considerable opposition within the Israel defense leadership. Both the surface ships and the submarines involved considerable costs beyond what appeared to be the IN's likely share of defense budgets for the foreseeable future, and there was concern that very few *Sa'ar* 5s could actually be built. Opponents of the plan also argued that it was, in effect, reversing what had been the IN's successful force posture and strategy since the late 1960s. Finally, *Sa'ar* 5

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[52] Herzog, *War of Atonement*, p. 269.

[53] INS *Dakar* was the former modified British T-class submarine HMS *Totem* (P352) of the Royal Navy. In 1965, she was purchased by Israel as part of a group of three T-class submarines. She was commissioned into the Israeli Navy in November 1967 and underwent sea and diving trials in Scotland. *Dakar* departed for Israel on 9 January 1968, but disappeared en route with all 69 crew members. It was found 32 years later in the Mediterranean close to Egypt shores and its remains brought to Israel and put on display in the Israeli Navy Museum in Haifa.

opponents argued that the IN did not require a greater helicopter capability since it operated close to the shore.[54] In fact, the latter assumption lay at the heart of the *Sa'ar* 5 plan, which was to enable the IN to play a major offensive role throughout the Mediterranean—for example, against targets in Libya. Objections to the submarine plan likewise hinged on issues of cost, as well as questions regarding the need for an extended-range boat.

Despite opposition to the program, the Ministry of Defense formally approved the naval modernization program in 1982. Nevertheless, the future force mix of the IN remained a major and controversial issue until the mid 1980s, notably in the Pentagon, where both the U.S. Navy and the Joint Staff were strongly opposed to the submarine effort. The IN plan presupposed that the conventionally powered submarines would be built in the United States, something that seemed unreasonable to the U.S. military leadership given the USN's shift to an exclusively nuclear powered submarine production capability.

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[54] Inbar, "The Israeli Navy," p. 110.

A first hand look at the evolution of U.S.-Israeli defense relations

In October 1985, during a meeting with Defense Minister Rabin regarding the future of the Israeli Lavi fighter program, Dov Zakheim, who led the U.S. effort to terminate the program, raised the issue of Israeli naval modernization. He suggested that a joint U.S.-Israeli effort to evaluate the costs of the IN's proposed submarine and surface ships acquisitions "might enable both countries to avoid the mess that the Lavi program had created."[55] Zakheim was not certain that Rabin would agree: since the IN could not get a budgetary commitment for its program, in part because the Lavi was expected to soak up so much of the IDF's future budgets, Rabin's acquiescence might serve as an indicator of his views about continuing the Lavi effort. In the event, Rabin supported the study, though without committing himself to its findings. That decision buoyed the IN Commander, Avraham ben Shoshan, who hoped that OSD involvement would temper the military's opposition to the submarine program. A February 1985 Joint Staff study visit to Israel had questioned the IN's claim that the *Gal* boats had structural problems, and had concluded that the IN did not need to replace the *Gal* boats for another decade. Moreover, the study questioned the need for a much larger submarine, as well as for its proposed extended range. Privately, USN officials speculated that the large submarines were intended to carry special forces units for landings in Libya. The same capability could of course be deployed against Iran, if Israel were to operate in the Arabian Sea. But at the time, few DoD officials thought of Iran as posing a serious threat to Israel (indeed, in 1986 Israeli arms sales to Iran became public during the Iran-Contra scandal).

In the face of Joint Staff opposition, and with no chance that the U.S. Navy would countenance diesel submarine construction in the U.S., the Israelis had only two options for building the boats—if they could find the funds to build them. They could either build the boats in Europe (namely, Germany or the Netherlands), or in the Haifa shipyard, a suggestion put forward by Secretary of the Navy John Lehman

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[55] Zakheim, Dov S., Flight of the Lavi: Inside a U.S.-Israeli Crisis (Washington and London: Brassey's, 1996), p. 71. The discussion of the U.S. role in IN modernization derives from Flight of the Lavi and the author's additional unpublished recollections.

during a joint press conference with Rabin in April 1985. Notably, Lehman also suggested that the *Sa'ar* boats be built in the United States.

Lehman did not indicate how the submarines would be funded, however. He had not actually spoken with Secretary of Defense Weinberger's authorization, nor did he have the support of the uniformed Navy. The funding problem clearly remained, and the case for a cost study therefore proved attractive to Rabin.

A key question affecting the nature of the naval study was where to construct the submarines and surface boats. The Israelis themselves doubted whether they could build the submarines in the Haifa yard. Since the construction of diesel subs in the U.S. was a non-starter, construction in Europe became the default option, and the cost study assumed that to be the case.

Construction of the *Sa'ar* boats was a different matter. The Haifa yard had built the *Sa'ar* 4.5 and the Israelis would have preferred to build the much larger *Sa'ar* corvette there as well—using American offshore funding. But Zakheim, supported by Lehman and Assistant Secretary of Defense Richard Armitage, insisted that the boats be built in the United States, where a number of shipyards were desperate for work. The IN reluctantly agreed, and the study postulated construction in an American yard.

There remained a difference of opinion between the Americans and Israelis as to which program should be undertaken first. The Americans, even those who, like Zakheim, felt that the Israelis could not wait a decade to replace the *Gal* boats, still wanted the *Sa'ar* program to be initiated first. The Israelis asserted that the submarine program was their more pressing need. In retrospect, the IN's sense of urgency may have been due precisely to the unconventional missions for which these conventionally powered submarines would be capable—special forces operations.

Rabin was still worried about Iraq, which "the Israeli intelligence community followed closely," as well as missile development in other Arab states. He was of the opinion that Israel required "'a long arm,' which meant extending Israel's reach to thousands of kilometers…In accordance with past military doctrine, he and the IDF preferred developing offensive capabilities for dealing with this threat."[56]

The joint U.S.-Israeli naval modernization report was completed on October 31, 1986. The report's unclassified executive summary asserted that the IN's program for four corvettes and three *Dolphin* submarines was extremely ambitious both in terms of the capabilities it sought and the costs it would incur. Nevertheless , the report validated

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[56] Inbar, Efraim, Rabin and Israel's National Security (Washington, DC: Johns Hopkins university Press, 1999), p. 76.

the requirement for both the corvettes and the *Gal* replacements—getting the U.S. Navy to sign on to this conclusion was a major step forward for the IN—but reiterated that the *Sa'ar* 5 boats represented a more urgent need, since they were replacing the IN's fleet of aging *Sa'ar* 3s.

The report stated that should Israel undertake the naval modernization program, it should make every effort to maximize U.S. content and minimize European content. It recommended that the two programs be combined into a single package, led by an American prime contractor, who would build the corvettes while subcontracting both the first submarine and the hull sections of the second and third to a German shipbuilder.

Finally, the report noted that the IN and the U.S. cost estimates had come within ten percent of each other—the IN figure was $1.25 billion, while the DoD amount was $100 million higher. The difference represented a sufficiently small margin of error, given the uncertainties associated with the actual timetable for construction, that in effect, both sides were in agreement on program cost. The real issues over cost arose with respect to cash flow for operating and maintaining the systems during their service life, and, more generally, financing for the program.

The cash flow issue led to the report's concluding that the *Dolphin* program be delayed by two years after construction began on the *Sa'ar* boats. The IN leadership, still favoring the earlier initiation of the submarine program, or, failing that, its simultaneous start with corvette construction, was disappointed but not surprised. In the end, the IN welcomed the study.

The Ministry of Defense (MoD) civilian staff, on the other hand, fearing that the naval program could draw away funds from the Lavi, insisted that neither the submarine nor the corvette programs could be undertaken without additional American Foreign Military Financing (FMF) funds. The United States was not prepared to accommodate the Israelis on this score; to have done so would have encouraged them to believe that they could extract even more money to finance the Lavi. Zakheim did win Weinberger's approval for allocating Offshore Procurement funds toward the Israeli purchase of the submarines in Germany; indeed, during the course of the Joint Study, and with the full knowledge of DoD and the Navy, the Israelis had been negotiating with the German yards HDW and Thyssen. The American proposal, however, and several other ideas put forward by the U.S. team and adopted in the report, did not satisfy the MoD staff.

In August 1987, under tremendous pressure from Washington, and with Rabin's support, the Israeli cabinet voted to kill the Lavi program. The decision should have freed up resources for IN modernization to proceed, but the MoD staff continued to harbor concerns about the program. The *Sa'ar* 5's extended range was meant to offer

a conventional deterrent[57] against countries such as Libya. Yet the program was still called into question through early 1988. Rabin ordered a special outside study of the IN's requirements, and asked that Zakheim—who had already left the DoD— to testify before the study commission, headed by former IDF Chief of Staff (Army) General Mordechai (Motta) Gur. General Gur recommended that the program go ahead, and supported it during his two year tenure as Minister Without Portfolio (1988-90) and then as Deputy Defense Minister from 1992-94. The IN then contracted with Ingalls (later Northrop Grumman) for three corvettes—rather than the proposed four—which were delivered in 1993-94.

The *Dolphin* program fared less well than the *Sa'ar*. Rabin personally supported the program despite being uncertain as to where its funding would come from. In fact, Rabin considered the submarines more important than the corvettes.[58] Rabin's hand-picked chief of staff, Dan Shomron, did not share Rabin's views about the submarines nor did MoD Director General David Ivri. Rabin overruled them both and moved ahead with the submarine program.[59]

In the aftermath of the 1991 Gulf War, the German government, seeking work for its shipyards, agreed to fund the construction of the first two *Dolphin*s. With "free" money available for the program, there was no reason for the IDF's civilian or military leadership to oppose it. Once the two submarines were approved, approval for the purchase of a third submarine, which was needed to enable the IN to maintain one boat on permanent station, was granted in 1994. The first boat was delivered to the fleet in 1999; the other two boats were commissioned the following year.[60]

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[57] Ibid., p. 142.

[58] Ibid., p. 77.

[59] Ibid. p. 77

[60] At 1,900 tons, the Dolphin, a modified German Type 209 design, had more than three times the displacement of the Gal submarine when submerged. Its range likewise exceeded that of the Gal—the Gal was essentially a coastal submarine, while the Dolphin had an open-ocean capability. The Dolphin carried sophisticated sensors, ECM, and other types of electronic equipment that were built in Israel and integrated into the combat suite. Finally, the Dolphin's tubes were able to accommodate not only torpedoes but also submarine-launched Harpoons, and, it was later asserted, land attack cruise missiles.

IN developments after the Cold War's end

Development of a submarine-based land-attack capability

By the beginning of the 1990s, Israel's strategic situation had evolved considerably. The Soviet Union, which had been the major sponsor of Israel's most hard-line Arab enemies, had collapsed in 1990. The American-led coalition had defeated Saddam Hussein in the 1991 Gulf War. In addition, the enduring peace treaty with Egypt and his own long-standing personal relations with King Hussein of Jordan led Prime Minister Rabin to conclude that Israel was in a more secure position vis-à-vis its immediate neighbors.

In contrast to his relative optimism regarding Israel's strategic situation with respect to its immediate neighbors, Rabin became increasingly concerned about the long-range missile threat to Israel. Saddam Hussein had attacked Israel with Scuds during the 1991 war, and while none had done any serious damage, Rabin—like the IDF—was surprised when, after the war, evidence was uncovered showing Iraq's progress in developing long-range weapons. He was fully aware that the next time Israel was the victim of such an attack, the outcome might be far more devastating. At the same time, Rabin came to focus increasingly on Iran, not only because the coalition was keeping Saddam under its thumb with two no-fly zones, but also because Iran both embodied a potential nuclear threat and was a source of Islamic extremism. According to Israeli scholar Efraim Inbar, "Therefore, Iran became the major enemy of Rabin's second government."[61]

Senior Israeli leaders began to warn publicly about the pace of the Iranian program. Their views were summed up by the June 1992 prediction of IDF Intelligence Chief Major General Uri Saguy that "by the end of the decade…it will be possible for Iran to develop an independent nuclear capability."[62] Israel's increasingly strident warnings during this period may have been intended at least partly to alert the United States, which was still focused on Iraq in the aftermath of the 1991 war, to the emerging Iranian threat. Nevertheless, the submarine program, which Rabin had always favored over the corvettes, took on even greater significance in his last years as prime minister in light of these concerns.

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[61] Inbar, *Rabin*, p. 138.

[62] Cited in Edwin S. Cochran, "Israel's Nuclear History," *Israel Affairs* VI (Spring/Summer 2000), p. 149.

Among those outside the military establishment who advocated for increased funding for the IN was Yuval Steinitz, a former leftist who then joined the Likud party. He became a member of the Israeli *Knesset* (parliament) in 1999, at around the same time as the first two of the *Dolphin* submarines were being commissioned. In articles, speeches, and interviews, Steinitz, who had not supported the Oslo Accords, emphasized that Israel remained strategically vulnerable and that the IN's submarines were critical components of its deterrent posture. His views took on increasing importance once he became chairman of the *Knesset's* Foreign Affairs and Defense Committee in 2003, and transformed that committee into an influential player in Israel's national security debates.

Although Iran had not developed a nuclear capability by 2000, as the Israelis had predicted, their concerns about the Islamic Republic continued to intensify. Indeed, prior to the initiation of Operation Iraqi Freedom, Prime Minister Ariel Sharon conveyed to the Bush administration the view that Iran, not Iraq, was the major source of instability in the Middle East. Israel did not play an active or even a supporting role in the war against Iraq, and continued to focus its modernization efforts on deterring an Iranian attack. The termination of Libya's nuclear program further sharpened Israel's focus on Iran, by lessening the threat from one of its traditional adversaries. The IN tested a *Dolphin*-launched land attack cruise missile in the Indian Ocean in 2000, making it clear that its strategic posture was aimed at deterring Iran.

The 2006 "second" Lebanon War and the attack on INS *Hanit*

The IN played a supporting role in the July-August 2006 war with Hezbollah. IN warships fired some 2,500 rounds at Lebanese targets—primarily targeting infrastructure (the IDF fired nearly 180,000 rounds during the war).[63] At the outset of the war, on July 13, the IN contributed to the imposition of a blockade on Lebanon, which prevented ships and aircraft from entering or leaving the country's ports. Israel maintained the blockade in the aftermath of the war, stating that it would be lifted only when international forces were made available to ensure that no weapons reached Hezbollah by air or sea.[64]

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[63] Harel, Amos et al., *34 Days: Israel, Hezbollah and the War in Lebanon (*New York: Palgrave Macmillan, 2009) (on Amazon Kindle: Locations 4500-4505).

[64] Edward Cody, "Lebanese Premier Seeks U.S. Help in Lifting Blockade: Israeli Restrictions Impede Commerce," Washington Post (August 24, 2006), http://www.washingtonpost.com/wp-dyn/content/article/2006/08/23/AR2006082301671.html.

At about 20:00 on the following evening (July 14), in response to the bombing of Hezbollah leader Hassan Nasrallah's headquarters in Beirut, Hezbollah, possibly assisted by Iranian Revolutionary Guards,[65] disabled a *Sa'ar* 5 corvette, the *Hanit,* which was patrolling relatively slowly about 8.5 nm off the coast of Beirut. Hezbollah fired two land-based Chinese-built C-802 radar-guided anti-ship cruise missiles, which have approximately a 100-kilometer range and a radar seeker system that had been upgraded by Iran. The missiles apparently were mobile truck-based systems that had been concealed in a civilian neighborhood.[66] One missile overflew the ship, hitting a Cambodian-flagged Egyptian freighter 60 km off the coast. The second missile flew a sea-skimming profile, and hit the ship's crane on the stern, near the ship's helicopter pad.[67] *Hanit* is a stealthy design, with a low radar cross section, and the crane was its only non-stealthy area.[68] Four Israeli sailors were killed in what was the worst attack on an Israeli warship since the sinking of the *Eilat.*

The missile hit caused the helipad to cave in, and the explosion reached the corvette's fuel storage, starting an onboard fire. The crew fought the fire for nearly four hours. They succeeded in keeping the ship afloat, containing the fire and permitting *Hanit* to reach the base at Ashdod for repairs under its own power—a testament to the damage control effectiveness of ship's company. The ashore crews repaired the corvette in time for it to return to action just three weeks after the attack.[69]

The attack on the *Hanit* has had an impact not only in Israel but in the United States as well, especially the planning considerations of forward deployed naval forces who operate in the littoral of countries where both government and non-government entities are likely to be equipped with Chinese built ASCMs. This attack highlighted, once again, that smart weapons in the hands of relatively untrained operators are a serious threat, especially if one is unprepared. Israeli officers admitted that they were unaware that Hezbollah possessed such a system. In addition, *Hanit*'s automatic missile defense system was turned off at the time of the attack. A number of reasons were given for the ship's poor readiness posture. One explanation was that no such

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[65] Harel et al., *34 Days* (Kindle Locations 1994-2000).

[66] "Hezbollah Threatens Unrestricted Naval Warfare Against Israel," *Information Dissemination* (June 4, 2010).

[67] David Eshel, "INS Hanit Suffers Iranian Missile Attack," Defense Update (July 16, 2006),

http://defense-update.com/2006/07/ins-hanit-suffers-iranian-missile.html.

[68] "Hezbollah Threatens."

[69] Yaakov Katz, "Navy ship redeploys following attack," Jerusalem Post (August 6, 2006).

http://www.jpost.com/Israel/Article.aspx?id=30757.

attack had been anticipated. Another was that the ship's officers had been concerned that the Israeli Air Force, which was patrolling the area, might mistakenly be engaged when the system was in automatic. Nonetheless, the bottom line is that the ship was not prepared for a cruise missile attack.

Hamas taking power in Gaza: The blockade of Gaza and Operation "Cast Lead"

The IN had a long-standing mission of protecting the sea lines of communication to Israel, as well as preventing terrorists from penetrating its coastline. It confronted an entirely different military challenge, however, in the aftermath of Israel's unilateral withdrawal from Gaza in August 2005. In January 2006, Hamas won the legislative elections in Gaza and renounced prior agreements between the Palestinian Authority and Israel. In response, Israel, the United States, and the European Union imposed sanctions against the Gaza Strip. Tension between Hamas and the Palestinian Authority simmered throughout 2006, and flared into violence in December of that year. A unity government brokered by Saudi Arabia in March 2007 collapsed the following June, when Hamas and the Palestinian Authority fought a brief civil war from June 7 to 15. Hamas emerged the victor, and took full control of Gaza. In response, Israel imposed a naval blockade of Gaza beginning at 3 nm offshore. Israel also instituted a blockade of air and land routes to the territory.

Egypt cooperated to a great extent with the Israelis, closing the border crossings, though it did not always take action to stop smuggling into Gaza. The Egyptian Navy likewise imposed a blockade of Gaza—though there was little coordination with the IN, much to the frustration of the latter's commanders.

Israel's uneasiness over the Hamas victory in 2007 increased as Hamas and other radical terrorist groups began launching a steady stream of rockets and mortars against southern Israeli towns: 2,550 were fired in 2007.[70] Despite the blockade and sanctions, Hamas succeeded in smuggling rockets, mortars and other weapons from Iran and elsewhere. Most of the smuggling took place either across the boundary between Gaza and Egypt, or from the sea—most often, according to private conversations with IN officers, in the sector that was covered by the Egyptian Navy.

Hamas and the IDF exchanged low-level fires throughout much of the first half of 2008. Then, in June, Hamas announced a ceasefire. The ceasefire did not lead to any

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[70] Cordesman, Anthony, *The Gaza War: A Strategic Analysis* (Washington, DC: Center for Strategic and International Studies, 2009), p. 13, http://csis.org/files/media/csis/pubs/090202_gaza_war.pdf.

accommodation between the two sides,[71] and did not prevent Hamas—or other groups, notably the Palestinian Islamic Jihad—from continuing to fire into Israel.[72] In response to the ongoing attacks on its civilians, Israel launched Operation Cast Lead at the end of December 2008.

While the IDF land forces and the Israeli Air Force dominated the operation, the IN played an important support role, as it had in previous wars. It secured the Gaza coast, and, from December 28, the second day of the war, through January 3, when land forces joined the battle, the IN together with the IAF, hit Hamas ships, training camps, weapons manufacturing facilities, rocket-launching posts, stations held by the Hamas naval units, Hamas government offices, including that of Prime Minister Ismail Haniyeh, and other targets. It employed the Typhoon remotely controlled weapons system, as well as surface-to-surface missiles.

Once the land forces joined the campaign, the IN supported attacks on land targets with its UAVs. It may also have used a naval version of the Spike electro-optically guided anti-armor missiles, to support paratroop operations. As it had in the previous phase of the war, the IN fired at Hamas targets that included the organization's intelligence headquarters in Gaza City, rocket-launching areas, and marine forces' outposts, as well as individual terrorists. These attacks were launched specifically in support of, and in coordination with, Israeli land operations.[73] In addition, Shayetet 13 naval commandos attacked targets on land and may have also attacked an Iranian ship docked in Sudan that was meant to deliver arms to Hamas. The scope and sophistication of the latter operation demonstrated how far the naval commandos had come from their modest beginnings during the War of Independence.

Shoot first and answer questions later: IN maritime interdiction operations

On December 29, 2008, Israeli patrol boats intercepted a Free Gaza Movement relief ship, the *Dignity*, that was seeking to run the blockade. The ship carried medical supplies, volunteer doctors, and activists, including former U.S. Representative Cynthia McKinney. The Israeli patrol boat collided with the *Dignity* after it refused to obey orders to turn back. Those on the *Dignity* claim that their vessel had been deliberately rammed by the Israeli patrol boat, but Israel denied the claim. Whether or not the Israelis actually rammed the *Dignity*, this incident fits into a long-standing

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[71] Ibid., p. 8.

[72] Ibid. p. 8.

[73] Ibid., p. 42.

IN pattern of taking aggressive action and then explaining it afterwards. This was the case with the *Liberty*, with the attack on a Soviet ship during the 1973 war, and with the seizing of a ship carrying arms off the coast of Cyprus in April 2009. In this case, the Israelis asserted that the ship was carrying arms from Iran to Lebanon that were intended for Hezbollah. It therefore asserted the right to board the ship in international waters. The seizure was in some respects similar to a 2002 action against the *Karine A*, a ship bearing arms for terrorists in Gaza, but the 2009 seizure took place farther from Israeli shores.

The pattern was repeated again with the Israeli commando attack on the *Mavi Marmara*, a Turkish ship that was part of another flotilla attempting to run the blockade of Gaza—the ninth such flotilla organized by the Free Gaza Movement. The flotilla ignored warnings by a *Sa'ar* 5 corvette and two missile boats, which began to escort them some 80 miles off the coast of Lebanon. A number of the ships were disabled, reportedly as a result of Israeli sabotage, but the *Mavi Marmara* and five other ships pressed on. Israeli commandos boarded all five ships in a pre-dawn operation. While there were scuffles on the other ships, only the personnel aboard the *Mavi Marmara* put up violent resistance, resulting in the death of eight Turkish citizens and a Turkish-American. All the boardings took place in international waters, and, as in the past, the Israelis justified their action as one intended against a state with which it was at war. Also as in the past, the Israelis' explanation for their controversial action became the subject of a major debate among analysts, international lawyers, and advocates for both sides of the dispute.

In Israel, the *Mavi Marmara* incident was seen as a failure of Israeli intelligence, which did not identify the nature of the opposition that the IN commandos were to confront. It was also viewed as a product of faulty operational planning that led to the commandos' inability to quell the physical resistance of the protesters before the resultant injuries and deaths, as well as injuries to the commandos themselves. Despite the experience of maintaining blockades since the 1955 Sinai Campaign, it was clear that the IN was not fully prepared to deal with violent resistance on the part of peace activists onboard ships seeking to break the blockade of Gaza. Today, the IN claims that it has refined its maritime interception operations (MIO) in order to avoid future incidents like that involving the *Mavi Marmara*.

New IN mission: Protecting Israel's natural gas fields

In January 2009, Israel announced the discovery of a major natural gas field 50 miles off its coast. The Tamar gas field is now projected to produce 8.4 trillion cubic feet. Production is scheduled to begin in 2013. Shortly after the discovery, Lebanon

announced that the field might be part of its continental shelf, but Israel denied the validity of the Lebanese claim.[74]

Nearly two years later, in December 2010, the Israeli government confirmed another major gas find, 80 miles off the coast of Haifa. This gas field, called Leviathan, has "at least 16 trillion cubic feet of gas," making it the world's largest find over the past decade. It is expected that the field will begin to produce gas by 2017. Depending on international economic conditions—there is currently a glut of gas on the world market—Israel could become a net exporter of gas.[75]

The prospect of offshore gas production creates a new mission for the IN. In addition to guarding its coastline, and negating attempts by Hezbollah (or, for that matter, Hamas) to smuggle illicit items by sea, the IN will now have to ensure the safety of the gas production facilities at some distance from its shores. These facilities are likely to be vulnerable to terrorist attacks. Moreover, the Lebanese claims to part of the Tamar gas field which, as noted, Israel rejects, as well as potential claims by other littoral states, including Syria, adds urgency to Israel's desire to protect these facilities. As a result, Israel may have an increased requirement for surface patrol vessels, more likely smaller gunboats than *Sa'ar* 5 corvettes. In addition, the IN will have to develop both tactics and the requisite training to undertake what will be an entirely new mission, that of maritime infrastructure protection.

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[74] "Haifa Gas Discovery Bumped to 5 Trillion Cubic Feet," Oil in Israel (February 10, 2009), available at http://www.oilinisrael.net/tag/tamar-1.

[75] Ethan Bronner, "Gas Field Confirmed Off Coast of Israel," New York Times (December 30, 2010), available at http://www.nytimes.com/2010/12/31/world/middleeast/31leviathan.html; Tova Cohen, "Israeli gas find portends security but not exports," Washington Post (December 31, 2010), p. A 14, available at http://www.washingtonpost.com/wp-dyn/content/article/2010/12/30/AR2010123004593.html.

Navy-to-Navy cooperation: A topical review

Routine interactions

Cooperation between the U.S. and Israeli navies became routine during the 1980s. It was not limited to American financial assistance and Israeli procurement of American systems. In particular, the Sixth Fleet began to make regular port calls at Haifa in 1979; among the ships paying a call at Haifa that year was the aircraft carrier *Eisenhower*. By the mid 1980s, approximately 40 to 50 ships, including aircraft carriers (for example, the *Nimitz* in 1984), were visiting Haifa each year. While the stated purpose of these visits was rest and relaxation, they also afforded U.S. Naval officers the opportunity to mix with their Israeli counterparts. Since the Israeli Navy is headquartered in Haifa, the visiting U.S. officers could receive intelligence and other briefings relating to the common concerns of both navies.

After the end of the Cold War, as the number of ships assigned to the U.S. Sixth Fleet declined, and the demand signal for presence in the Persian Gulf grew, port visits to Haifa slowly decreased. In October 2000, they came to an abrupt halt in the wake of the *Cole* bombing in Yemen, because of concerns over the vulnerability of ships and sailors to terrorist attacks. It was not until 2008 that port visits once again became more or less routine.

The resumption of port calls coincided with an increasing congruence of views between the two countries regarding the Islamist terrorist threat, particularly after September 11, 2001. Israel had considerable experience in dealing with terrorists' attempts to enter the country from the sea, and had useful experience and intelligence to impart to its American counterpart. In addition, Israel's growing concern about the ballistic missile threat from Iran, while not matched by U.S. concern, was becoming a common topic during routine defense talks.

Israel did not join the American-led coalition that prosecuted the war in Afghanistan beginning in 2001; nor did it join the coalition against Saddam Hussein in 2003. As had been the case in 1991, the U.S. Administration was concerned that overt cooperation with Israel could jeopardize the support of Muslim states for both Operation Enduring Freedom (Afghanistan) and Operation Iraqi Freedom. Nevertheless, cooperation between the two countries, and their militaries, including

their navies, became more intense as both conflicts, and the war on terror, dragged on.

Israeli Navy commandos trained at SEAL facilities in the United States, while American sailors studied at Israeli war colleges. Officers from the two navies compared notes on piracy, asymmetric operations, and maritime counter-terrorist operations. As Chief of Naval Operations (CNO), Admiral Mike Mullen visited Israel in 2005 (Mullen made six subsequent visits as CJCS). His successor as CNO, Admiral Gary Roughead, visited Israel in 2008 and has a close working relationship with his Israeli counterpart, VADM Eli Merum.

Deconfliction of operations in the Indian Ocean

One area that appears to have been only partially addressed between the two navies is the issue of deconfliction. While the USN and the IN each have a formal understanding of the other's operations in the Mediterranean, it appears that no such agreement, formal or informal, has been consummated regarding operations in the Indian Ocean. This is significant, because of Israel's concerns regarding Iran, and the fact that Israel has already on occasion deployed both *Sa'ar* corvettes and *Dolphin* submarines to the Indian Ocean.

Israel is currently in the process of acquiring three more *Dolphin* submarines, of which the first two have been partially funded by Germany. The new acquisitions, which should be ready for deployment in 2013, will have an air independent propulsion capability. With six submarines, Israel could maintain two on patrol in the Mediterranean at all times. Israel would need additional submarines if the IN wished to maintain a submarine on full-time patrol in the Indian Ocean, in addition to the two aforementioned submarine patrols in the Mediterranean. Even without additional procurement, Israel could choose to have its submarines patrol the Indian Ocean on a regular basis. If so, the need for some agreement between the IN and USN. would be crucial, given Israel's seeming readiness to launch a strike against Iran in the face of a perceived threat to Israel's territory.

Despite the growing sophistication of both Israel's own missile defenses and its coordination with those of the United States, Israel's Indian Ocean deployments indicate that Israel is unlikely to be satisfied to adopt a purely defensive posture against Iran. To the extent that Israel adopts an offensive deterrent posture, and employs its naval forces for that purpose, there is a serious risk that the United States could be dragged into a confrontation between Israel and Iran, with the latter charging the U.S. with complicity in any Israeli attack. Therefore there is a real potential for increasing friction between the USN and the IN in the Indian Ocean as

Israel increases its patrols there. Deconfliction should therefore be only one element of a more broadly based set of interactions between the IN and the USN. in the Indian Ocean, to include navy-to-navy staff talks that would have participants from the naval component commands in CENTCOM, PACOM, and EUCOM.

It is for this reason that close communications between Fifth Fleet and the IN, as well as a formal understanding regarding operations in the Indian Ocean, is of major, and urgent, importance.

It is important to keep in mind that as early as 2000, Israel tested a *Dolphin*-launched cruise missile in the Indian Ocean, which were confirmed both by former U.S. officials, who asserted that they had been monitored by the USN,[76] and by Indian reports. In addition, it has been reported that *Sa'ar* 5 corvettes have also been sighted in the Indian Ocean. Indeed, Admiral Eli Merum, the current IN commander, has confirmed that the Israeli Navy is operating in the Indian Ocean on "deterrent" patrols.[77]

Missile defense cooperation

Achieving some sort of arrangement between the two navies regarding operations in the Indian Ocean should be a natural outgrowth of the increasing cooperation between the USN and IN in the realm of missile defense. In February 2001, the United States and Israel conducted the first of what would become a bi-annual missile defense exercise called Juniper Cobra. Most of the exercise took place on land: two Patriot battalions of the U.S. Army's 69th Air Defense Artillery Brigade, based in Ansbach and Wurzburg, Germany, deployed with Israeli Air Force units to defeat an imaginary Scud attack on Israel's Dimona nuclear reactor. In addition, however, the live-fire exercise also included linking the AEGIS destroyer USS *Porter*, whose Spy-1 radar was employed for early warning of missile attacks.[78]

Juniper Cobra exercises have become increasingly sophisticated, though the actual number of personnel has declined since 2001. The exercise is primarily computer based, and between 2001 and 2009 did not incorporate live fire. On the other hand, the naval component has increased with each exercise. The 2009 exercise (called Juniper Cobra 2010), for example, included AEGIS ships in both the Mediterranean

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[76] NTI Research Library Databases, "Submarine Proliferation: Israel Current Capabilities," available at http://www.nti.org/db/submarines/israel/index.html.

[77] Discussion with Vice Admiral Eliezer Merum, February 9, 2011.

[78] Global security.org, "Juniper Cobra," available at http://www.globalsecurity.org/military/ops/juniper-stallion.htm

and Red Seas as well as 70 seamen stationed ashore at Israel's Hatzor Air Force Base. These interactions will only increase as the maritime component of the Phased Adaptive Approach becomes routine.

Washington's "Phased Adaptive Approach" to regional missile defense

The Obama Administration's September 2009 decision to jettison the Third Site[79] missile defense posture for Europe, which involved a radar in the Czech Republic and ten missile launchers in Poland, had an indirect effect on USN-IN relations. The original Third Site plan was based on intelligence estimates that Iran would have an operational inter-continental ballistic missile by 2015.

The new Obama missile defense plan for Europe, called the European Phased Adaptive Approach (EPAA), reflected the long-standing view of Democratic administrations that there is a clear demarcation between "national" and "theater" missile defense, and that the latter is a more urgent priority. Accordingly, the EPAA postulated that the more imminent Iranian threat to Europe was that of an attack by medium-range ballistic missiles, and that the long-range Iranian ICBM threat would not materialize for some time. It therefore shifted the ballistic missile defense focus from land-based sites in central Europe, to sea-based missile defense in the eastern Mediterranean, which would begin in 20ll.

This shift would be followed by the next phase of the program, a move to land-based sites in southeastern Europe in combination with sea-based defenses in 2015, when a more capable land-based version of the SM-3 interceptor (termed Block 1B) would become available. Phase Three, in the 2018 timeframe, would involve deployment of a still more advanced SM-3 Block IIA missile. Phase Four, in the 2020 timeframe, would deploy the Block II B variant to counter the ICBM threat to the United States.[80]

The EPAA has had major implications for the U.S. Navy's force posture and shipbuilding program. The Navy had planned to upgrade some 21 ships to be BMD capable. The new plan called for six more upgrades, as well as the addition of long-range surveillance and tracking capability on three more ships. In addition, the EPAA called for a more frequent naval presence in the eastern Mediterranean. The first of these AEGIS ships deployed to the eastern Mediterranean in March 2011.

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[79] The first two NMD sites were Fort Greely, Alaska and Vandenberg AFB in California.

[80] The White House Office of the Press Secretary, "Fact Sheet on U.S. Missile Defense Policy: A "Phased Adaptive Approach" for Missile Defense In Europe," September 17, 2009, available at http://www.whitehouse.gov/the_press_office/FACT-SHEET-U.S.-Missile-Defense-Policy-A-Phased-Adaptive-Approach-for-Missile-Defense-in-Europe/.

As a result of the EPAA, as well as of the perceived Iranian threat, there has been a significant increase in IN-USN missile defense cooperation. Such cooperation is a key aspect of Israel's deterrent, particularly connectivity between Israel's Har Homa system (incorporating the Green Pine radar and Arrow missile system), with U.S. Patriot and AEGIS systems. Indeed, with the planned deployment of sea-based SM-3 missiles on AEGIS destroyers in the eastern Mediterranean, as well as land-based SM-3 missiles in the region, cooperation between the IN and USN will only intensify.

In this regard, the United States, Israel, and Germany staged a major Juniper Stallion naval exercise in the both the Mediterranean and the Red Seas only eight months after the Juniper Cobra exercise took place.[81] The 2010 version of Juniper Stallion was held in response to intelligence that Iran, Hezbollah, and Syria had nearly doubled their stockpile of medium-range missiles. From June 6 to 10, 2010, the *Harry S. Truman* carrier strike group deployed off the shore of southern Israel exercising against simulated missile attacks from Iran, Syria, and Hezbollah.

U.S. F/A-18s conducted simulated bombing missions against targets set up by the Israeli Air Force at its Nevatim firing range. Other elements of the exercise included 60 U.S. F-16s landing in Israel from bases in Europe and then practicing bombing missions over the Red Sea and the Mediterranean. At the same time as the exercise was held, it was reported that President Obama ordered a missile defense alert aboard Fifth and Sixth Fleet warships, and Israel put its Arrow system on alert.[82]

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[81] The exercise was initially kept secret; it was publicly referred to in a speech by NSC staffer Dennis Ross to the Anti-Defamation League on April 4, 2011.

[82] Ross alluded to this activity in his April 4 speech. For a discussion, see "Juniper Stallion 2010: Joint U.S./Israeli Military Exercise Revealed," TheLastBestHope, June 21, 2010, available at http://lastbesthope.sayanythingblog.com/2010/06/21/juniper-stallion-2010-joint-usisraeli-military-exercise-revealed/.

Israel and India cooperation

Israel's operations in the Indian Ocean point to what may well be the I.N.'s most important naval relationship apart from that with the United States—its ties to the Indian Navy. Unlike those with the U.S. Navy, Israel's ties with the Indian Navy are of relatively recent vintage, but have intensified remarkably quickly. This section details the evolving nature of the Indo-Israeli relationship.

Having voted against the 1947 UN Partition Plan for Jewish and Arab states in the British mandate of Palestine, India nevertheless recognized Israel in 1950, and permitted Israel to open a trade office in Bombay—where most, and the most influential, members of India's small Jewish community resided. Sensitive to the concerns of its Muslim population, India's negative stance toward Israel was affected by two other factors as well. First, India's position in the staunchly anti-colonialist non-aligned movement—especially Prime Minister Jawaharlal Nehru's close relationship with Egyptian President Gamal Abd-el Nasser, which blossomed after the 1956 Suez crisis—tilted it against Israel, which had attacked Egypt in concert with the former colonial powers, Britain and France. Second, India had developed close ties with the Soviet Union, which became its major arms supplier, and which had aligned itself with the more radical Arab states against Israel.

There was one domain in which India and Israel cooperated, to a limited extent—that of security. India sought and obtained Israeli small arms and ammunition during its 1962 war with China and in its 1965 and 1971 conflicts with Pakistan. In addition, beginning in the 1950s, India's intelligence agency, the Research and Intelligence Wing (RAW), cooperated with the Israeli Mossad, even during periods when Indira Gandhi, who was unfriendly towards Israel, was prime minister.[83] Finally, India's military developed "a professional appreciation of Israel's military experience and expertise." Concerned about Pakistan's emerging nuclear capability, India's military naturally took an interest in Israel's 1981 bombing of the Osirak reactor.

The need to cooperate in the security sector was one reason why relations between the two countries began to thaw as the Cold War came to an end. The collapse of India's

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[83] Kumaraswamy, P.R., India and Israel: Evolving Strategic Partnership (Tel Aviv: Bar Ilan University, 1998), pp. 2-3 available at http://www.biu.ac.il/Besa/publications/40pub.html

main sponsor, the Soviet Union, led India to re-evaluate its international strategic position. At the same time, India had begun to open its economy in response to increasing globalization. Israel offered both advanced military technology and technological cooperation in the commercial realm. Finally, the convening of the 1991 Madrid Peace Conference in the aftermath of the Gulf War[84] signaled the onset of less hostile relations between Israel and its Arab neighbors (and the Palestinians), which tempered concerns about Indian Muslim opposition to maintaining formal relations with Israel.

A final, major factor was the emergence of the Hindu-nationalist Bharatiya Janata Party (BJP) as a major national force. Staunchly pro-Israel, which it viewed as a potential ally against Pakistan, the 1989-1991 BJP government began the process of normalizing relations with Israel.[85] Its successor Congress government, led by P.V. Narasimha Rao, who had been defense minister in the mid 1980s and was intimately familiar with Indo-Israeli security cooperation, established full diplomatic relations with Israel in January 1992. Rao and his government were especially sensitive to the fact that India's defense projects tended to incur time and cost overruns and thus did not benefit from cutting-edge technology.

Indo-Israeli naval relations reflected the growing ties between the two countries, especially since the navy had always been the most pro-Western of India's military services. In November 1995 two Indian ships, a *Godavari*-class FFG and a patrol corvette paid the first-ever port call in Israel, an event that "constituted a major development in relations since the early 1950s."[86] A year later the IN commander paid a first-ever visit to India.

By the end of 1996 Israel had completed a number of major systems sales to both the Indian Navy and Air Force. These sales signaled a heightened degree of cooperation between the two states that went well beyond the formalities of port calls and visits. These included the building in India of two *Dvora* MK II patrol boats, which Israel employed to intercept Palestinian terrorists. This arrangement reflected India's ongoing desire to develop its military industry and Israel's willingness to help it do so.

In addition, it was reported in 1996 that Israel had sold ESM sensors for India's *Vikrant* aircraft carrier, and that the IN and its Indian counterpart were jointly developing electronic countermeasures systems.[87] Israel also offered to sell the Indian

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[84] Ephraim Inbar, "The Indian-Israeli Entente*," Orbis* Vol 48, No. 1, Winter 2004, p. 91.

[85] Ibid. p. 91.

[86] Kumaraswamy, India and Israel, p. 10.

[87] Ibid., p. 11.

Navy an Elta multi-mode maritime surveillance radar, which could track up to 100 targets simultaneously, for its coastal Do-228-101 patrol aircraft. The offer was made just as India awarded Elta a contract to upgrade the air force's maritime-strike Jaguar M aircraft with ten EL/M-2032 pulse Doppler radars.[88] India proceeded with the acquisition of the maritime surveillance radar as well, upgrading the first of its maritime patrol aircraft by 2001.[89] In fact, one observer noted in 2004 that "the Elta EL/M-2022A maritime radar has become the favorite airborne sensor of the Navy [and is] becoming the standard fit on the Tu-142…one naval Dhruv helicopter is also being trialed [sic] with the same and the EL/M-2022U possibly being deployed on UAVs."[90]

Israel has continued to expand its exports of naval weaponry to India. Most notable was the sale of the Barak vertically launched anti-air and anti-ship point defense missile in 2000. The sale called for eight systems and 200 missiles; seven of the systems were mounted on Indian Navy warships.[91] In 2006 Israel and India began joint development of the follow-on, longer-range, Barak II missile,[92] with testing slated to begin in 2011.

In addition, in September 2002, Israel Aircraft Industries (IAI) and Hindustan Aeronautics (HAL) reached an agreement whereby IAI would produce an advanced avionics package for the Advanced Light Helicopter (ALH), whose missions would include anti-submarine operations. Finally, beginning in 2003 India contracted for Heron UAVs; India has since become increasingly reliant on Israeli UAV technology and systems. In 2008 IAI and HAL agreed to co-develop an unmanned helicopter, for use in both land- and sea-based missions.

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[88] See http://www.aero.pub.ro/wp-content/themes/aero.pub.ro/uploads/JANE_S_ALL_THE_WORLD_S_AIRCRAF/JANE_S_AIRCRAFT_UPGRADES/jau_0777.htm.

[89] The Elta EL/M-2022A (V3) maritime radar is an Airborne Multi-Mission Optronic Stabilised Payload (AMOSP) comprising of a LLTV camera, FLIR and laser optics, installed in a retractable, gyro-stabilized turret, Ring laser Gyro INS with GPS and long-range real-time datalinking capabilities, to perform intensive day/night aerial surveillance duties. See Harry, B., *Indian Naval* Aviation-Part 2 (March 30, 2004), available at http://www.acig.org/artman/publish/article_432.shtml.

[90] Ibid.

[91] The sale was sullied by a scandal involving kickbacks to Indian agents, and resulted in the resignation of George Fernandes, the Indian defence minister, in 2001, though he soon returned to office.

[92] See http://www.defenseindustrydaily.com/israel-india-to-cooperate-on-350m-longrange-barak-sam-project-01850/.

In sum, Israeli technology and weaponry have become increasingly important to the Indian Navy, and are an important component in India's arms purchases from Israel—which is now India's leading arms supplier.

In general, the United States has taken a benign attitude toward Israeli sales and technology transfer to India. This attitude is in marked contrast to its opposition to Israeli exports of arms and technology to China. Whereas China is seen as a potential adversary, India is viewed as a potential ally, especially in the War on Terror. There is thus general support for the growing intimacy between New Delhi and Jerusalem.

Indo-Israeli maritime cooperation has not been limited to arms sales. Since 2007 the Israeli and Indian navies have held regular staff talks.[93] Perhaps more importantly, India has never remarked on the presence of Israeli submarines and corvettes in the Indian Ocean. It is unlikely that the Indian Navy has been unaware of these deployments. While India and Israel do not publicly coordinate the activities of their two navies, current IN leadership anticipates future coordination, possibly to include exercises, if political conditions permit them. In any event, the presence of Israeli ships in the Indian Ocean indicates the degree to which, as one analyst has put it, "India is not averse to a greater Israeli presence in the Indian Ocean."[94]

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[93] See http://intellibriefs.blogspot.com/2007/08/india-israel-discusses-enhancing-naval.html.

[94] Inbar, "Israeli-Indian Entente," p. 100.

Thinking about the future: Speculative scenarios

I. "Arab Spring" and future Israeli operations in the Mediterranean

It is unlikely that the current turbulence in the Middle East will subside in the near or even medium term. An uncertain Middle East poses serious strategic issues for Israel. Events associated with Israel's near neighbors and Libya could have a significant impact on IN operations. The IN now faces its most serious maritime threats since 1973, and these will affect its relationship with the USN. The following paragraphs outline the most serious of these threats.

War with Egypt

Perhaps the most serious concern emerging from the so-called "Arab Spring" is the future of Israel's relationship with Egypt. A breakdown in that relationship, resulting in restrictions on the passage of Israeli warships through the Suez Canal or Sharm el-Sheikh, could, as it did in 1967, result in a war between the two countries. The IN, particularly its commando forces, would likely be heavily engaged in any military operations against Egypt, much as in 1973. IN surface ships retain a qualitative edge over their Egyptian counterparts, as do IN submarines; not only are the weapons systems themselves more capable, but the IN's operation and maintenance practices and the training of its personnel is superior to its Egyptian counterpart. It seems likely that today Israel is in a much better position to blockade Egypt than it was in the 1973 War.

Egypt could significantly impair Israel's ability to confront Iran militarily. In the event of an Israeli-Iranian crisis, Egypt could close either the Suez Canal or Sharm el-Sheikh, or both, to Israeli warships, preventing them from entering the Indian Ocean. It was not until 2009 that an Israeli submarine transited the Suez Canal for the first

time.[95] A new government in Cairo that reversed Egypt's previous policy could argue its treaty obligations to Israel did not call for permission for submarines to transit the canal. In that case, Israeli submarines on patrol in the Indian Ocean would have to transit around Africa to return to their home base, complicating any operations against Iran. In response, Israel might retaliate against Egypt.

Egypt poses complications for Israel in situations short of war as well. Under Hosni Mubarak, Egypt in effect supported the Israeli blockade of the Hamas-led Gaza Strip. While, Egyptian ships were inconsistent in their efforts to intercept cargoes and terrorist personnel bound for Gaza, at least they periodically boarded ships suspected of bringing human aid or materiel to Hamas.

The new Egyptian leadership seems to be moving in a different direction. It brokered the rapprochement between the Palestinian Authority and Hamas, and is committed to ending the blockade of Gaza. It has already partially lifted its own blockade, opening the Rafah crossing to selected Palestinians.[96] It is possible that Non-Governmental Organizations (NGOs) or Hamas sympathizers seeking to run the Israeli blockade might therefore seek some degree of Egyptian naval escort, which would bring the Egyptian Navy in direct confrontation with the IN. In such circumstances, one or the other force might preemptively open fire.

The United States has every interest in preventing a rupture of Israeli-Egyptian relations, and certainly in preventing war between the two countries. The Navy in particular might be called upon to play a major role in helping to stabilize the eastern Mediterranean. Whether the USN could credibly act as a broker in maintaining at least a tacit Israeli-Egyptian naval partnership remains to be seen, but this should become an engagement priority. Finally, USN. high level dialogues with Egyptian naval counterparts it should work to dissuade the Egyptian Navy's leadership from providing any support to flotillas heading for Gaza.

Two-Front war with Syria and Hezbollah; three-front war with Syria, Hezbollah, and Hamas

There is no way to foretell whether or how a regime change in Syria would alter its relations either with Iran or with Hezbollah. A change in Syria's Alawi leadership, and certainly a successor Sunni regime, could well result in greater tensions with Israel,

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[95] Wertheim, Eric, "World Navies in Review," United States Naval Institute Proceedings 136 (March 2010), p. 53.

[96] Women, and men under the age of 18 and over the age of 40, are permitted entry.

and lead to armed conflict. Should that be the case, it is unlikely that Hezbollah would stay out of the war; it would likely open a second front against Israel, in southern Lebanon. Indeed, Hamas could also join in, from Gaza, forcing Israel to fight on three fronts—the first time it would have done so since 1967.

The Syrian Navy poses no real threat to Israel, though it could threaten Israel's new gas fields. Moreover, the Syrian Navy could be assisted by Hezbollah, both in terms of threatening the gas fields and, indeed, in terms of threatening the IN surface fleet. As noted earlier, Hezbollah's firing of a land-based mobile C-802 anti-ship missile in 2006 points to its development of a capability to defend the seaward approaches of southern Lebanon.

In this regard, in a May 25, 2010, "Liberation Day" ceremony, Hezbollah Secretary General Sayyed Hassan Nasrallah asserted, "We are capable of targeting and hitting any [Israeli] vessel that heads to any port on the Palestinian shore. We are determined to enter this new field of confrontation should our coastline be put under siege."[97] Although this may be an exaggerated boast, it is clear that if Hezbollah joined a conflict on the side of Syria (as it would likely do), the IN would have multiple requirements: enforcing a blockade of Lebanon and Syria in addition to that of Gaza; protecting its gas fields; negating Hezbollah's attempts at area denial; and conducting offensive operations against Hezbollah and Syria. Doing all of this while ensuring that Egypt did not enter the war would tax the small Israeli fleet. In such a scenario, the USN might be called upon to assist the IN, posing a serious dilemma for American policy makers.

Naval confrontation with Turkey

Israeli-Turkish political relations have seriously deteriorated in the past few years. Turkey has voiced its strong support for lifting the blockade of Gaza and for normalizing ties with Hamas. Turkey was the starting point for the flotilla that included the *Mavi Marmara.* Turkey has threatened to escort future flotillas, thereby creating a real chance of an Israeli-Turkish confrontation in the eastern Mediterranean.

Israel's long-standing readiness to conduct operations in international waters from the wartime attack on the *Liberty* in 1967 to the peacetime intercept of Iranian arms in 2011—on the grounds that terrorists, their sympathizers, and their weapons represent

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[97] "Nasrallah Vows to Wipe Out Israel's Navy in Case of Conflict Now Lebanon," Now Lebanon (May 25, 2010), available at
http://www.nowlebanon.com/NewsArchiveDetails.aspx?ID=171445.

acts of war against the Jewish state—increases the likelihood of a Turkish-Israeli naval firefight should Turkish ships escort a "relief" flotilla to Gaza. That Turkey might do so is a very real possibility: it was first raised by Prime Minister Erdogan in the aftermath of the *Mavi Marmara* incident. Should there be any conformation between Israel and Turkey (a NATO ally), the United States Navy would be under intense pressure to separate the two parties.

Impact of these scenarios on IN-USN cooperation

Today the USN continues to intensify its relationship with the IN and other elements of the IDF, with missile defense being the prime motivation. But unfolding events, such as those outlined above, may well call for further expanding the relationship.

Such an expanded relationship could involve a number of different possible initiatives. One that has long been discussed is the possible homeporting of a major warship in Haifa. Since the late 1970s, the USN has reviewed and rejected—on both logistical and security grounds—proposals to homeport a carrier in Haifa. With plans to station AEGIS ballistic missile defense-capable destroyers in the eastern Mediterranean already being realized, there may be both a greater incentive and more pressure for a BMD destroyer to be homeported in Haifa to signal America's commitment to Israel in the face of increasing international isolation.

The IN and the Israeli MoD may also look to the United States to finance the acquisition of additional corvettes and submarines beyond the recently completed Israeli purchase of three more *Dolphin*s from Germany, the first two of which were partly funded by Berlin. The new acquisitions, which should be ready for deployment by 2013, will have a modern and quiet air independent propulsion capability.

At the same time, Israel will clearly need to expand its surface fleet in order to protect its gas fields and to respond to the increasingly unstable environment in the eastern Mediterranean as a result of the "Arab Spring." Israel will not acquire the American Littoral Combat Ship (LCS), however. After contemplating the purchase of the LCS, the IN decided that it was too costly and was not properly configured for its operational needs. Israel may therefore look to the United States to finance the construction of additional upgraded corvettes,[98] which might, in addition to carrying out its mission in the eastern Mediterranean, enable the IN to maintain at least occasional patrols in the Indian Ocean. Israeli surface ships would then be in a position to intercept Iranian ships suspected of transporting arms to Palestinian

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[98] The Israelis are apparently considering Germany's MEKO A-100 design. See Wertheim, "World Navies," p. 53, though no decision had yet been made at the time of writing.

terrorists. Like that of submarine patrols, the presence of Israeli warships could complicate the USN's operations in the Indian Ocean.

II. Israel, India, and Iran in the Indian Ocean

Israel's recent purchase of three air independent propulsion *Dolphin*s should enable it to have a submarine on nearly full time patrol in the Indian Ocean beginning in 2013–assuming unimpeded transit of the Suez Canal. For Israel to maintain a full-time patrol in the Indian Ocean, however, it will require either at least one more submarine or the ability to maintain and refurbish its submarines along the Indian Ocean littoral. India would be the natural candidate for what would be an Israeli quasi-base. While India has maintained strict neutrality in the war of nerves between Jerusalem and Tehran, and indeed has good relations with both, it would not want Iran to initiate any kind of conflict with Israel. The possibility of a secret arrangement for *Dolphin* submarines to operate on an infrequent basis from Indian ports cannot be ruled out. This is especially so given India's concerns about a Chinese base at Gwadar and, more generally, an increase in Chinese-Pakistani cooperation that is likely to emerge in the aftermath of U.S. withdrawal from Afghanistan.

It would be difficult for Iran to monitor the extent of Indo-Israeli cooperation, given its limited intelligence collection capabilities. Some degree of at-sea cooperation between the Indian and Israeli navies may already have taken place, without the acknowledgment of either side. And, in discussions with this author senior IN leaders have not ruled out the possibility of Israeli-Indian fleet exercises.

It would be more difficult for Israel to support a surface presence in the Indian Ocean. Yet the fact that *Sa'ar* corvettes have operated there indicates that Israel has not entirely ruled out the possibility that they might deploy there—for example, if it seemed preferable to intercept ships bound for Gaza before they entered the Red Sea rather than after they emerged from the Suez Canal. In the past, Israel has had little compunction about boarding ships in international waters, and would not hesitate to do so in the Indian Ocean. Intercepting ships carrying weapons to Hezbollah or Hamas in the Indian Ocean would enable the IN to help mitigate the resupply of Hezbollah's land-based missile forces. Moreover, the Israelis might actually welcome a naval confrontation with Iran, whose fleet does not match Israel's in terms of sophistication or firepower. Such a clash could destabilize the region, however, and pose severe problems for the United States and for the Fifth Fleet in particular.

Concluding observations

The Israeli Navy is no longer seen as a mere adjunct to IDF operations on land. In addition to an evolving strategic deterrence mission, it has recognized missions in port protection, operations against seaborne terrorists and maintaining blockades. It will soon have to protect Israel's new gas fields as well. In that regard, it has not only a capable surface fleet, a small but effective submarine force, and unmanned surface systems, such as the Protector, to carry out these missions.[99] In addition, its commando force has evolved from a relatively ragtag unit to a highly sophisticated force, despite the *Mavi Marmara* fiasco. To that end, Israel has acquired new tank landing craft.[100]

While its budgetary share remains small relative to those of the other Israeli services, the IN now faces somewhat less internal MoD opposition to its plans for naval expansion: the cost of the recent Israeli purchase of a sixth *Dolphin* submarine exceeded $1 billion (and was fully funded by Israel). Most importantly, the IN is seen not only as a critical element in Israel's fight against terrorism, but as mentioned as a key strategic tool, able to provide capability deep conventional strikes against Iran.

Israel's increasing isolation in its region, its parting of the ways with Turkey, and the changes being brought about by the "Arab Spring," are altering the Israeli government's strategic calculus. The passage of Iranian warships through the Suez Canal, Egypt's readiness to terminate its blockade of Gaza, and Turkey's readiness to escort flotillas to Gaza all point to a much more challenging eastern Mediterranean environment for the IN. In addition, Egypt's change of policy indicates that the IN can no longer be certain of its freedom of movement into and out of the Red Sea. At the same time, Israel's increasingly close relationship with India opens up the possibility that IN units might clandestinely draw upon occasional Indian logistical support, especially during periods of heightened tension with Iran.

Israel may well turn to the United States for additional security assistance specifically to help address the IN's unmet needs. Operationally, it may ask the USN to intervene in any looming crisis in the eastern Mediterranean between the Israeli and Egyptian

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[99] Eric Wertheim, "World Navies in Review," *United States Naval Institute Proceedings* 137 (March 2011), p. 69.

[100] Ibid. p. 69.

or Turkish navies, especially if it is already engaged in hostilities with a post-Assad Syria and/or Hezbollah.

On the other hand, Israel would prefer that the USN not interfere with its Indian Ocean patrols and potential operations. Conversely, it is in the USN's—and America's—interests that the IN not act independently against Iran, either by launching any attacks against Iran from the Arabian Sea or even by boarding Iranian-origin ships on the high seas. It would be politically safer, and militarily less complicated, both for the United States and for Israel itself, if the IN took action against such ships nearer its territorial waters, where there would be no threat of confrontation with Iranian warships.

Given the changes in the Middle East's political landscape, and the capabilities of the Israeli fleet, it is imperative that the USN begin to consider the scenarios outlined in this paper, as well as others that also might emerge over the coming years and take necessary action to prepare for them. In addition, the USN. should intensify its dialogue with the IN. In particular, the USN., to the extent that it has a voice in policy-making circles, should seek to encourage the IN to follow a path of caution and moderation, if only because so many of Israel's regional neighbors see it as an extension of the United States. This is a tall order for the USN., and it cannot moderate Israel on its own—it is questionable whether anyone can—but it is critical that it at least attempt to do so, for the sake of both navies and the nations they defend.

Appendix A: Early history of the Israeli Navy

The Israeli Navy's beginnings and the War of Independence

When the State of Israel came into being in May 1948, the Israeli Navy barely existed. In 1943, the Jewish defense group Haganah organized the Palyam, the naval equivalent of its land force commandos, the Palmach. At around the same time, some 1,100 Haganah volunteers joined the Royal Navy (prior to independence, Israel, then called Palestine, was a British mandate); only a few actually saw combat in sea service. At the war's end, Palyam members escorted clandestine landings of European refugees on the Palestine coastline after their ships had evaded Royal Navy patrols seeking to prevent their entry, while former Royal Navy sailors rejoined the Haganah.

In January 1948—in the aftermath of the November 1947 vote to partition Palestine, which the Arab League had rejected—the leadership of the Jewish community under David Ben Gurion (who upon independence would become both prime minister and minister of defense) called for the creation of a naval force whose primary goal would be "protecting the land from the sea."[101] On March 17, the Israeli naval forces were established. The "fleet" consisted of a few derelict immigration ships, which the former RN volunteers were able to overhaul, as well as a few motor boats.[102]

The fleet's complement was a motley bunch. The Palyam personnel were undisciplined and unprofessional. They emphasized politics over seamanship, and disdained both the rank and the experience of former naval officers from other countries, such as Commander Paul Shulman, USN, and Commanders Solomon and Allen Burk, RN, all of whom had immigrated to Palestine to support the fledgling state. The so-called "head" of the sea service was a teacher and a bureaucrat with no relevant experience; he would return to teaching in 1949. In all, the country could

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[101] Israeli Defense Forces, available at
http://dover.idf.il/English/units/forces/navy/History/default.htm.

[102] Herzog, *The Arab-Israeli Wars*, p. 21.

marshal only a naval company, consisting of about 350 sailors who had Royal Navy and immigrant-running experience. Very few of these sailors were frogmen.

The nascent Israeli Navy (IN) confronted only the Egyptian Navy during the War of Independence, since the other Arab countries that attacked Israel had no fleets of their own. Despite all of its shortcomings and its tiny size, the IN attacked Tyre in Lebanon in July 1948 to deter that country from any further participation in the war. The commando unit sunk the Egyptian flagship *Emir Farouk* and damaged the minesweeper *Emira Fauzia* off the coast of Gaza in October of that year.[103]

Recognizing the need to protect the country's shoreline, Ben Gurion, by then formally ensconced as prime minister and defense minister, determined that the navy needed both to become a professional fighting force and to acquire conventional warships. The latter were not easy to come by, however. On May 25, 1950, France, Britain, and the United States issued the Tripartite Declaration, which promulgated their opposition to an arms race between Israel and the Arab states. Two years later, the three parties to the declaration established the Near East Arms Coordinating Committee, which sought to coordinate their supply of weapons to the region.

Until September 1955, when Egypt concluded a major arms purchase agreement with the Soviet Union, Western arms coordination was nominally working—though Israel concluded a secret arms deal with France, while Britain tended to supply more arms to the Arabs than to Israel. The United States sold almost no arms to the region. In 1956, Britain supplied Israel (and Egypt) with two World War II Z-type destroyers and provided training for the ships' officers and crews.[104] Egypt obtained two *Skory*-class destroyers and several *Whiskey*-class submarines from the Soviets prior to the outbreak of the October 1956 Sinai War.

As a result, the Egyptian Navy was both qualitatively and quantitatively superior to its Israeli counterpart. Accordingly, the Israeli Navy was under orders not to initiate attacks in the Mediterranean. Instead, some of its torpedo boats were transported to the Gulf of Aqaba, where they served as an adjunct to the ground force that moved south from Eilat along the Gulf of Aqaba in order to take the Strait of Tiran. The Anglo-French fleets were meant to contain the Egyptian Navy in the Mediterranean. Nevertheless, on October 30, the second day of the conflict, the EN dispatched the 1,490-ton frigate *Ibrahim el-Awal* to shell the oil refineries at Haifa port. For two hours, it fired 102mm shells—a total of 160 of them. Then, IN frigates arrived and, jointly

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[103] Inbar Efraim, "The Israeli Navy," pp. 101-102.

[104] Ibid., p. 102 and Herzog, *Arab-Israeli Wars*, p. 138.

with Israeli Air Force aircraft and French ships, pursued and damaged the ship. The IN seized it and added it to the Israeli fleet.[105]

Two years after the war, Israel purchased its first two submarines—World War II type-S class, from Britain. The mission of these boats was not only to sink enemy vessels, but also to provide reconnaissance capabilities and to support commando landings. The acquisition marked a new stage in the IN's attempt to develop a balanced fleet by dividing its limited resources among destroyers, frigates, landing craft, and submarines. The plan for a balanced fleet gained further momentum in 1965, when the Israel Defense Forces' General Staff adopted a 1963 IN plan to acquire 12 boats armed with Gabriel missiles and three type-T submarines. The IDF was facing budgetary constraints, however, and in October 1966 proposed to cut the missile boat buy in half. The IN opposed this plan, offering up other reductions instead. In the meantime, the Soviet Union had been selling *Osa* and *Komar* fast Styx missile boats to Egypt. As a result, the Egyptians once again appeared to have the superior naval capability vis-à-vis Israel.

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[105] Herzog, *Arab-Israeli Wars*, idem..; Dayan, Moshe, *Diary of the Sinai Campaign* (New York: Shocken, 1967), p. 66.

Appendix B: The IN and other navies: Turkey, Egypt, and Greece

It is widely thought that Israel and Turkey have maintained good relations virtually from the founding of the state. In fact, that is not the case. Relations have blown hot and cold over the years. The Zionist leadership, after considerable debate, chose not to ally with Turkey during World War I, but instead to side with Britain. Then, in 1947, Turkey voted against the UN partition plan and the creation of a Jewish state. Yet, Turkey became the first Muslim nation (and the sixth nation in the world) to recognize Israel, and established diplomatic relations only two years later.

Relations between Turkey and Israel improved, due both to Israel's signing of armistice agreements with Egypt and Jordan in 1949 and to Turkey's conflict with Syria over its control of Hatay province (which involved both trade agreements and secret military cooperation). But these relations lasted only until 1955, when Turkey joined with Iraq to form the Baghdad Pact.[106] In the aftermath of the Suez crisis the following year, Turkey downgraded its diplomatic representation in Israel to the lowest level (*charge d'affaires ad interim*). Turkey and Israel did not exchange ambassadors until 1992.

Relations improved somewhat in 1958-59—Prime Minister Ben Gurion secretly visited Ankara in 1958, and the two countries signed an agreement to expand diplomatic, military, and economic ties.[107] In general, however, after 1958 Turkey increasingly supported the Arab position, even committing to defend Jordan against an Israeli attack.[108]

Relations improved slightly, then deteriorated again after the Six Day War. Turkey supported the Arabs during the 1973 War, and was critical of Israel when it invaded

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[106] Hadar, Leon T., "Orienting Jerusalem toward Ankara or Cairo? Israel's New Geostrategic Debate," *Mediterranean Quarterly* (Summer 2001), pp. 13-15.

[107] Ibid., p. 14.

[108] Ibid, p. 16.

Lebanon in 1982 and annexed Jerusalem in 1989. During the first Intifada of the 1980s, Turkey became only the fourth country to recognize Palestine as an independent state.[109]

The Israeli withdrawal from Lebanon, followed by the initiation of the Madrid peace process led Turkey, like India, to upgrade its diplomatic representation in Israel to ambassadorial level in 1992. Other factors, apart from the Oslo process that followed Madrid, also accounted for Turkey's newfound warmth toward Israel. These included the establishment of full diplomatic relations between Greece and Israel in 1990, a reduction in Turkish dependence on imports of Arab oil, and the lack of Arab support of the Turkish position on Cyprus.

Israel became an important arms supplier to Turkey and, as they did with India, arms sales and military cooperation intensified during the course of the 1990s. In February 1996, Turkey and Israel signed a military training agreement that included provisions for reciprocal naval visits.[110] Moreover, and unlike India, Turkey was prepared to exercise openly with Israel. Beginning in January 1998, the navies of both countries, together with the U. S. Navy, held joint search and rescue exercises termed "Reliant Mermaid."[111] The exercises also enabled Israel to conduct refueling drills and test its communications systems.[112]

Reflecting the see-saw nature of the Turkish-Israeli relationship, however, Turkey postponed the Reliant Mermaid exercise scheduled for November 2000 due to growing strife between Israel and the Palestinians. The exercise resumed in 2001, however, and took on special significance after 2002, when the moderate Islamist Freedom and Justice (AK) party came to power.

As early as 1953, Israel's ambassador to Turkey had warned that "our relations with Turkey have been extremely good of late…however, these good relations could deteriorate overnight."[113] Many Israelis, notably those with ties to Israel's military and a number of hawkish politicians, including Benjamin Netanyahu during his first term as prime minister, seem to have overlooked this wise admonition, and envisaged a strategic

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[109] Ibid. p. 16

[110] Ibid., p. 17.

[111] See http://forum.keypublishing.com/showthread.php?t=37245.

[112] Sheera Frenkel, "Feeling spurned by Turkey, Israel beefs up ties to Greece," McClatchy Newspapers (March 2, 2011), available at http://www.mcclatchydc.com/2010/12/01/v-print/104564/feeling-spurned-by-turkey-israel.html.

[113] Hadar, "Orientating Jerusalem," p. 11.

alliance with Turkey. Instead, beginning with the 2008 Israeli operation in Gaza, tensions between the two countries over the Palestinian issue, as well as over Turkey's warming relations with Iran, have put a virtual freeze on military cooperation.

In April 2010 Israel barred the sale to Turkey of the Indo-Israeli Barak 8 missile, for fear that Ankara would permit the Iranians to study its technology (India also opposed the deal).[114] The following month, the Israeli seizure of the *Mavi Marmara* virtually froze Israeli-Turkish military cooperation. As noted above, the raid, which involved bad planning and intelligence and poor interagency cooperation on the part of the Israelis, and which took place in international waters, resulted in the death of eight Turkish citizens and an American of Turkish descent. In response, Turkey cancelled all exercises with Israel, and cut back on its arms purchases. In March 2011, Israeli commandos, again operating in international waters, seized a ship loaded with weapons that had sailed from Turkey to Gaza, though the Israelis emphasized that they did not view Turkey as complicit.

Despite the political tensions, there is a feeling in the IDF, or at least in the IN leadership, that military-to-military relations remain good, and Vice Admiral Merum, for instance, has maintained contacts with his Turkish counterpart.[115] If history is any guide, however, the IN may be fooling itself: Turkey's hostility to Israel has less to do with the AK party than with its perception of its own best interests. Turkey is turning eastward, in part because of its inability to join the European Union after over four decades of on-again off-again negotiations and in part because its robust economy has enabled it to take a leading regional—indeed, international—role. If this trend continues, Israel simply will not be a major factor in Turkey's strategic calculus.

Just as Turkey's decision to upgrade diplomatic relations with Israel was partly a response to the upgrade of relations between Israel and Greece, the freeze in Israeli-Turkish relations has been paralleled by an upswing in IN relations with Greece and several Balkan states, notably Romania, Bulgaria, Serbia, and Croatia. In 1999, when Ehud Barak, who succeeded Netanyahu as prime minister, withdrew all Israeli troops from Lebanon and reinvigorated the peace process, Greece strengthened its military ties with Israel. Among the exchange of high-level visits was that of Alex Tal, the IN commander, to Athens.[116] Beginning in 2005, the IN, the IDF home front command, and the Greek Navy

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[114] "Israel India Refuses to Sell Barak 8 to Turkey," available at http://www.militaryphotos.net/forums/showthread.php?178536-Israel-India-refuses-to-sell-Barak-8-to-Turkey.

[115] Colby, "Memorandum of Conversation."

[116] Hadar, "Orienting Jerusalem," p. 27.

undertook a humanitarian aid, search and rescue exercise that tested responses to a simulated earthquake incident. Although Greece cancelled its 2010 naval exercise with the IN in response to the *Mavi Marmara* incident, it has signaled that naval exercises with the IN (which also include the USN) will go ahead in 2011 as planned.[117] In spite of increasing cooperation, Greek officials are at pains to stress that they do not see their ties with Israel as some kind of zero-sum game vis-a-vis Turkey. They view Turkey as too large and their relations with Ankara as too important to be jeopardized on Israel's account. Israel, on the other hand, clearly sees Athens as an alternative to Ankara.

The IN has also held exercises with other Balkan navies, but these have not matched the sophistication of those with Turkey, in part because the Turkish Navy is more advanced than those of its southeastern European neighbors. Turkey initially responded to increasing Greek-Israeli cooperation by conducting exercises in Syria, but these have now been jeopardized by the ongoing instability in that country.

The IN has also broadened the scope of its cooperative ventures. It participated in a NATO exercise for the first time in June 2006. In this exercise, held off the coast of Romania, IN participation consisted of a single *Sa'ar* 5 corvette. Nevertheless, it marked the first time that the IN did more than merely observe NATO exercises. In August 2009 the Israeli government approved the participation of an Israeli warship in Active Endeavor, a NATO operation that is meant to detect and deter terrorist operations in the Mediterranean.[118]

Finally, it is worth noting that while the IN has never had a formal relationship with the Egyptian Navy, it has always sought better cooperation with its Egyptian counterpart. However, the IN has perceived that the Egyptian Navy has been less than active in interdicting sea-based terrorist operations against Israel. In addition, the change in the Egyptian regime renders it even less likely that the IN will be improving cooperation with its Egyptian counterpart any time soon.

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[117] Frenkel, "Feeling spurned."

[118] Eric Wertheim, "World Navies in Review," *United States Naval Institute Proceedings* 136, March 2010, p. 53.

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