

## International Maritime Defense Exhibition and Conference Collection Plan

This case study is set in the year 2015. It deals with real organizations, and the International Maritime Defense Exhibition and Conference (IMDEX) is a real event. The scenario and intelligence reports (INTREPs) are notional. The intelligence support is also notional, though based on real organizations and—except for the notional ships *Taina* and *Lorikeet*—real equipment.

The Australian government is concerned about the potential threat posed by a new type of patrol boat being offered for sale by a Russian company. The boat reportedly has a revolutionary propulsion system, is equipped with an antiship missile (ASM), and employs stealth technology. The Russian company plans to demonstrate the boat at IMDEX Asia in Singapore.

Following are the top-level customer needs:

- *The Australian Defence Force (ADF)* has requested any details about planned sales of the craft to countries in the region or to nonstate entities. The ADF wants to know the number of craft sold, the identity of purchasers and their intended uses of the craft, the terms of sale, and planned delivery dates.
- *The Australian navy* wants details on the craft's performance and stealth capabilities, including details about the armament—specifically the ASM performance.

### EDUCATIONAL OBJECTIVES

This case study is designed for maximum assignment flexibility. It is also an optimal opportunity for collaboration, either working as a team or through verbal and written peer reviews. The case study consists of three assignments, designed to be completed in sequence. Each assignment has three tasks. Instructors have considerable flexibility in handling the assignments.

1. Each student can independently complete all of the assignments and tasks. Written peer reviews (where students exchange the results of each assignment) work well in this option.

2. Each student can independently complete one task for each assignment. This requires collaboration with students who are assigned the other two tasks. Again, this option can make good use of peer reviews.
3. Form three teams (up to eight to ten members each). Assign each team one task for each assignment. This option requires collaboration with the teams assigned to the other two tasks. Teams then should present their results to the class verbally at the completion of each assignment.

This case study stresses creating a preliminary network model, gap analysis, and collection targeting during a weapons exhibition tradeshow and weapons performance demonstration. It features multiple targets and two customers with different interests. It requires both a target network analysis and an assessment of your collection network, using it effectively to collect against customer needs.

This exercise provides practical experience in the following:

- conducting gap analysis
- collection planning
- dealing with denial and deception
- collaborating with other analysts and collectors in developing and sharing target network models (TNMs)
- conducting system performance analyses

## ASSIGNMENT

You are a senior analyst with Australia's Defence Intelligence Organisation (DIO). DIO is the Australian government's source of expertise for matters relating to trends in global security, weapons of mass destruction, foreign military capabilities, defense economics, and transnational terrorism.

### *Assignment 1: Preliminary Assessment and Gap Analysis*

You are to prepare a preliminary assessment and identify gaps in knowledge. This involves answering two broad questions including but not limited to the following:

- What do we know: Who are the potential boat customers? Why are they interested in purchasing the craft? What is your estimate of the boat's design, performance, and stealth capability? What is the nature of the boat demonstration? Where and when will the demonstration be conducted?
- What are the critical gaps in our knowledge?

This assignment has three tasks, all of which require identifying gaps in knowledge:

1. Identify the key participants (including potential purchasers), and create a TNM of the relationships among them.

2. Prepare a preliminary estimate of the boat's design, performance, and stealth capability.
3. Develop a process model of the demonstration scenario (include timing, location, and features to be demonstrated); this task is essential in order to complete assignment 3.

### *Assignment 2: General Collection Strategy*

Next, you are to develop a collection strategy to fill the gaps identified in assignment 1. The strategy must address your customer needs defined in the introduction and should make use of Open Source Intelligence (OSINT), Human Intelligence (HUMINT), and Communications Intelligence (COMINT) assets. This assignment has three tasks, each requiring the preparation of a collection plan.

1. **OSINT:** Identify the open sources that could potentially contribute to the customer needs for your designated customers. Specifically consider the potential for "tip-off" to the other collection efforts. Include possible social media sources.
2. **HUMINT:** Define a collection plan to include tasking as many different HUMINT sources as feasible against your customer needs. Identify the specific assets you propose to use (e.g., attachés, specific recruited sources, or specific liaison sources), and explain what you would task them to collect. Balance what you expect to learn from each source against the risks involved in using that source.
3. **COMINT:** Identify the sources and types of communications that might be collected and likely value of information collected. Possible communications include but are not limited to the following: cell phones, microwave point to point, push-to-talk radios, fiber optic cable, wireless computer networks, and Internet communications. Identify potential COMINT liaison organizations (i.e., COMINT services of friendly countries) that might be in a position to assist, considering geography and mutual interest in the target, and indicate how you would use them.

### *Assignment 3: Boat Demonstration Targeting*

This makes use of the demonstration scenario model that was created in assignment 1. You are to prepare a collection strategy and plan against the weapons system performance needs. The detailed requirements you have received on this subject are next.

Provide details on the performance of the patrol craft (i.e., top speed, range, maneuverability, logistics support).

- If the ship has an ASM, determine the sensor type and performance, missile speed and flight profile, operational profile, and intended targets.

- Provide details on the reported stealth design, its effectiveness, and the hull materials used.
- Determine the type of propulsion used by the vessel.

The purpose of collection, therefore, is to support a weapons systems performance analysis based on reporting from technical collection prior to, during, and after the at-sea demonstration. The plans that come from the collection strategy should follow this process:

- Develop a collection scenario (specific targets, timing, method of collecting—that is, specific sources or assets) based on your demonstration scenario model.
- Develop collection strategies for the different types of collection against the target.
- Prepare a collection plan for the available collection assets, assessing the risk or cost versus probable payoff.

This assignment has the following tasks, each requiring a collection plan:

1. **Imagery Intelligence (IMINT):** Consider the intelligence that you might obtain from the *Taina* in Singapore harbor and when underway using each of the following types of imagery: visible (including video), synthetic-aperture radar (SAR), nighttime infrared, and multispectral imaging.
2. **Signals Intelligence (SIGINT):** This includes COMINT, ELECTRONIC INTELLIGENCE (ELINT), and FOREIGN INSTRUMENTATION SIGNALS INTELLIGENCE (FISINT) targeting during the demonstration. Identify the types of SIGINT collection systems and platforms you plan to use, the targets that you plan to use them against, and the expected intelligence to be gathered.
3. **Measurement and Signature Intelligence (MASINT):** Identify the non-imaging (airborne, land-based, or shipborne) radar types that you plan to use to collect against the vessel during the demonstration and against any weapons exercise. Identify specific targets for materials or materiel collection and the intelligence that you expect to obtain from that target. Describe how you propose to collect the materials or materiel.

## ABBREVIATIONS AND ACRONYMS

Abbreviation or Acronym	Description
ADF	Australian Defence Force
ASIS	Australian Secret Intelligence Service
ASM	antiship missile
COMINT	communications intelligence (a subset of SIGINT)

Abbreviation or Acronym	Description
DIGO	Defence Imagery and Geospatial Organisation (Australia)
DIO	Defence Intelligence Organisation (Australia)
DSD	Defence Signals Directorate (Australia)
ELINT	electronic intelligence (a subset of SIGINT)
FISINT	foreign instrumentation signals intelligence
GEOINT	Geospatial Intelligence
HUMINT	Human Intelligence
IMDEX	International Maritime Defense Exhibition and Conference
IMINT	Imagery Intelligence
INTREP	intelligence report
LPI	low probability of intercept
MASINT	Measurement and Signature Intelligence
ONA	Office of National Assessments (Australia)
OSINT	Open Source Intelligence
RCS	radar cross section
SAR	synthetic-aperture radar
SIGINT	Signals Intelligence (includes COMINT and ELINT)
SSM	surface-to-surface missile
SVR RF	Foreign Intelligence Service of the Russian Federation
SWATH	Small Waterplane Area Twin Hull
TNM	target network model
UAV	unmanned aerial vehicle
UWSA	United Wa State Army

## SCENARIO

IMDEX Asia is held every two years at the Singapore Expo, 1 Expo Drive, Singapore (close to Singapore Changi Airport—see Figure 10.1). It is hosted by the Republic of Singapore navy. It provides an opportunity for key decision makers from naval organizations and international maritime defense industry to keep abreast of the latest in maritime defense technologies.

During the upcoming exhibition (May 19–21, 2015), a Russian delegation proposes to showcase a new patrol boat at IMDEX Asia. A Russian website describes the *Taina*-class boat as an advanced type of very fast patrol boat, highly maneuverable, and optionally equipped with a new ASM. According to the website, the craft has a new hull design that employs stealth technology and a revolutionary propulsion system. The website provides no performance details about the boat. The craft was designed by the Almaz Central Marine Design Bureau of St. Petersburg, Russia. The

**FIGURE 10.1** Map of Singapore with International Maritime Defense Exhibition and Conference Location<sup>1</sup>



Source: Map courtesy of the University of Texas Libraries, the University of Texas at Austin.

Russians reportedly plan to set up a booth at the exposition and provide information about the capabilities of the boat and the missile.

Several of the parties reported to be interested in the boat are a matter of concern to the ADF customer because they may be associated with gray arms traffickers and human traffickers. Stealth is a concern because the boat could be used for illicit traffic in arms, drugs, or people. The armament and performance are a concern because of the potential threat to the customer's naval forces.

## INTELLIGENCE SUPPORT

### *Collection Platforms*

Australia operates a fleet of AP-3C maritime patrol aircraft (an upgraded version of the U.S. P-3C Orion). The upgrades improved the aircraft's radar, intelligence-gathering, and computing systems. The upgrade included fitting each aircraft with a new Elta EL/M-2022(V)3 radar, a nose-mounted Star Safire III electro-optical and infrared system, and a suite of SIGINT and ELINT equipment.

<sup>1</sup>Map of Singapore from [http://www.lib.utexas.edu/maps/middle\\_east\\_and\\_asia/singapore\\_physio-2005.jpg](http://www.lib.utexas.edu/maps/middle_east_and_asia/singapore_physio-2005.jpg) with author annotations.

Operation in the Singapore area is possible but expensive because of the long flight time from Australia. And because it is near the limit of operating range from the AP-3C staging area, loiter time in the Singapore area would be limited to a maximum of two hours.

The hydrographic survey ship *Leeuwin* currently is conducting a survey in the South China Sea. It is capable of charting waters up to 6,000 m (20,000 ft) deep. It carries the following sonars:

- C-Tech CMAS 36/39 hull-mounted high frequency (HF) active sonar
- Atlas Fansweep-20 multibeam echo sounder
- Atlas Hydrographic Deso single-beam echo sounder
- Klein 2000 towed sidescan sonar array

The *Leeuwin's* sonars allow it to produce images of the ocean bottom and to detect underwater explosions. The ship also carries an X-band surface search radar.

The *Leeuwin* can be made available for collection in the Singapore region, but its relatively slow (18 knot maximum) speed means that it would require at least one day's advance notification of the test location in order to observe the test itself.

### *Signals Intelligence*

The Defence Signals Directorate (DSD) is an intelligence agency in the Australian Department of Defence, with its HQ in Canberra. DSD provides SIGINT to the ADF and Australian government to support military and strategic decision making.

The DSD primary collection asset in the Singapore region is the yacht *Lorikeet*, a SIGINT collector operated clandestinely out of Nongsa Point Marina on the island of Batam, Indonesia, across the channel from Singapore. From the marina, the ship can intercept cell phone traffic in Singapore. It also monitors ship traffic and ship communications in the Singapore Channel. It carries an X-band marine radar for sea surveillance.

From the ship's position in the marina, an observer has a clear view of Singapore. The location therefore provides access to most of the cell phone traffic in Singapore. The *Lorikeet* also deploys for at-sea surveillance of targets of intelligence interest.

The *Lorikeet* carries these COMINT and ELINT systems:

- Thales VIGILE 400 ELINT collector, providing instantaneous direction finding and signal measurement on radars in the 500 MHz-18 GHz band, with the ability to detect low probability of intercept (LPI) radar
- Thales ALTESSE COMINT collector, providing maritime communications intercepts and cell phone collection across the HF, very high frequency (VHF), and ultra high frequency (UHF) bands with a direction finding capability

Reporting from the *Lorikeet* intercepts is classified in special COMINT channels carrying the code name KITEFIN.

### *Open Source Intelligence*

OSINT about developments in Singapore is derived from local newspapers and from the Internet. Reporting is the responsibility of Australia's Open Source Centre, which is a part of the Office of National Assessments (ONA). The role of the Open Source Centre is to collect and validate information from open sources and produce reports based on this information for ONA and other Australian and allied government agencies. The centre team is experienced in exploiting social media.

### *Imagery Intelligence*

The Defence Imagery and Geospatial Organisation (DIGO) has the responsibility to provide Geospatial Intelligence (GEOINT), from imagery and other sources, in support of the ADF and national security interests. Its primary imagery source is commercial satellite imagery. Two sources are capable of providing imagery in the Singapore region:

- *Satellite imagery* is provided by the French Pleiades satellite, which produces both visible and multispectral imagery. Visible imagery is very good quality (40 cm resolution), and multispectral imaging is at 1 m resolution. The satellite can acquire imagery anywhere within an 800-km-wide ground strip. It does strip mapping with a 20-km-wide swath and can produce stereo imagery. Imaging requests for a specific target must be submitted at least twenty-four hours in advance.
- *Unmanned aerial vehicle (UAV) imagery* is available from a special source. Pursuant to an agreement between the governments of Australia and Malaysia, two imagery-equipped UAVs operate from a clandestine airstrip near Pengerang, at the tip of the Malay Peninsula on the Singapore Strait. The two Israeli-produced Hermes 900 all-weather UAVs have a payload capacity of 300 kg and can operate for up to thirty hours at 18,000 feet altitude with an airspeed of 105 knots. Both are equipped with a high-resolution video camera capable of imaging at 20 cm resolution. The two-band video (visible and near infrared) is downlinked to the Pengerang site. The primary purpose of the operation is to monitor ship traffic in the Singapore Strait. The terms of the agreement require that all image products be shared with both countries.

### *Human Intelligence*

**Unilateral Operations** The Australian Secret Intelligence Service (ASIS) conducts HUMINT operations outside Australia and maintains a base in Singapore. Because of the value of IMDEX as a source of intelligence, ASIS has set up a HUMINT team at a safe house in Singapore for the purpose of doing real-time source tasking and for collecting intelligence during IMDEX. The team includes the Australian Naval Attaché in Singapore and two ASIS case officers with experience at

collection during previous IMDEX conventions. In addition, the following collection assets may be available for priority collection requirements:

- An agent, code-named GRAYMANE, is a service technician with Singapore Telecommunications (SingTel). His job allows him to access commercial business telephone and Internet communications. He has a past record of success at emplacing telephone taps and cyber collection equipment in commercial facilities.
- A surreptitious entry team can acquire material from locked rooms and safes or clandestinely emplace audio and video surveillance devices. Team operations in Singapore are considered to be high-risk collection efforts, since the discovery of the team during an operation would be politically embarrassing for the Australian government. Therefore, all team operations must be approved in advance by a senior ASIS official, based on an evaluation of risk versus payoff.

**Liaison Operations** The IMDEX HUMINT team maintains close ties to two ongoing multilateral liaison operations:

- A counternarcotics team comprised of intelligence officers from Indonesia, Singapore, Malaysia, and Australia meets weekly in the offices of the Internal Security Department (Singapore's domestic intelligence agency) to share intelligence about drug trafficking in the region. Reporting from these meetings carries the code name PARADIGM.
- A counterterrorism team comprised of intelligence officers from Singapore, Thailand, Malaysia, and Australia meets weekly in the offices of the Internal Security Department to share intelligence about terrorist group activity in the region. Reporting carries the code name PARADOX.

The ASIS station also maintains a liaison relationship with the Singapore Police Force.

## INTELLIGENCE REPORTS

Source/Date-Time Group	Text
HUMINT April 2007	In January 2007, a San Diego company, SeaPath Salvage, attempted to purchase the prototype stealth vessel <i>Sea Shadow</i> , which was being offered to the highest bidder by the U.S. navy. Investigation determined that SeaPath Salvage was a shell company controlled by the Almaz Central Marine Design Bureau, headquartered in St. Petersburg, Russia. The navy declined the offer. (Source: NATO Counterintelligence Summary, April 2007)

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Source/Date-Time Group	Text
HUMINT May 2012	During July 2011, a cyber collection effort bypassed the firewall of the Umoe Mandal shipbuilding company, located in Mandal, Norway. Umoe Mandal specializes in producing high-speed naval vessels such as the Skjold-class coastal corvettes. During a period extending from July through August 2011, the hackers downloaded approximately 2,400 files on ship designs and construction technology. The collection effort has the earmarks of past cyber collection efforts by Russia's intelligence service, the Foreign Intelligence Service of the Russian Federation (SVR RF). (Source: NATO Counterintelligence Summary, May 2012)
HUMINT November 12, 2014	The United Wa State Army (UWSA), headquartered in Myanmar and one of Southeast Asia's largest drug-producing and drug distribution entities, is attempting to expand its narcotics operations into Indonesia, the Philippines, and Australia. UWSA founder Bao Yuxiang does not have the means to deliver the drugs, however. He has rejected the idea of air shipments because the risk of seizure is too great and has opted to make the deliveries by small boat to clandestine locations in the region. He reportedly is considering cigarette boats (aka "go fast" boats) because of their high speed. (Source: PARADIGM reporting)
HUMINT May 10, 2015	The Indonesian terrorist group Jemaah Islamiyah recently established a small cell in a residence on Bedok Ria Drive in Singapore, near the rail yard and expo center. The Singapore police are monitoring the cell's activities. (Source: PARADOX reporting)
HUMINT May 16, 2015	The Russian boat (named <i>Taina</i> ) arrived sometime during the night of May 15. The boat currently is anchored in Singapore harbor, approximately 200 m from Pulau Bukum (see Figure 10.2). Most of the deck is covered with canvas that extends down to the waterline. Overall size is approximately 40 m in length and 15 m in width. A single armed guard is visible on the deck. (Source: Case officer serving as harbor observer)
HUMINT May 16, 2015	Suspected Burmese drug trafficker Aik Hauk arrived in Singapore with an entourage on May 15. He currently is staying at the Pan Pacific Singapore hotel. (Source: PARADIGM reporting)
HUMINT May 17, 2015	The Australian naval attaché inquired of an IMDEX director as to the possibility of seeing the <i>Taina</i> . The Russian advance

Source/Date-Time Group	Text
HUMINT May 17, 2015	<p>coordinator had previously told the director that they do not plan to showcase their patrol boat at the warships display along with the other exhibitors. Instead, they plan to invite a select set of guests onboard sometime during the conference and to take the <i>Taina</i> out into the Straits of Malacca for a performance demonstration. The Russian refused to say when the demonstration was to take place or who would be invited, explaining that those decisions had not yet been made.</p> <p>Three IMDEX exhibitors are registered from the Almaz Central Marine Design Bureau: the <i>Taina's</i> designer, Sergei Yezhov, Valery Golovin (no title), and sales representative Viktor Vetrov. All Russian attendees are staying at the Pan Pacific Singapore Hotel. (Source: IMDEX exhibitor list)</p>
IMINT May 18, 2015	<p>On its May 17 morning pass over Singapore, the Pleiades satellite obtained an image of the Russian patrol craft. The deck appeared to slant downward away from the centerline toward the water on either side and was covered with a highly reflective material. Visible on the deck, uncovered, was a single cabin, 4 × 5 m in size. See the sketch in Figure 10.3. (Source: French Pleiades satellite imagery)</p>
HUMINT May 18, 2015	<p>Surveillance was conducted on the <i>Taina's</i> daytime guard, Igor, beginning at 1800 local time. An unidentified Russian, presumably the nighttime guard, was taken to the boat on a harbor launch and Igor was aboard on the return trip. Igor spent the evening drinking at Harry's Bar on Boat Quay, a sleazy nightspot that features a live jazz band and jam sessions. Igor was observed to drink heavily and to converse with other bar patrons. He claimed to have arrived in a "fancy boat" a few days ago. In response to a patron's question about where the rest of the crew was, Igor replied that they had to stay at the embassy. After a stay in a local hotel, Igor replaced the nighttime guard at 0600 local time on May 18. (Source: Case officer reporting)</p>
COMINT May 18, 2015	<p>The information came from a cell phone conversation between "Vadim" in Singapore and "Arkady" in St. Petersburg. Vadim complained that there wasn't enough time to do the full demonstration if he had to follow the planned course. Arkady replied, "We have to maintain the appearance of our cover. Head west until you are clear of the harbor and then take up a course to the demonstration area. You're in charge of this. Don't mess it up. Leave early if you must." (Source: KITEFIN reporting)</p>

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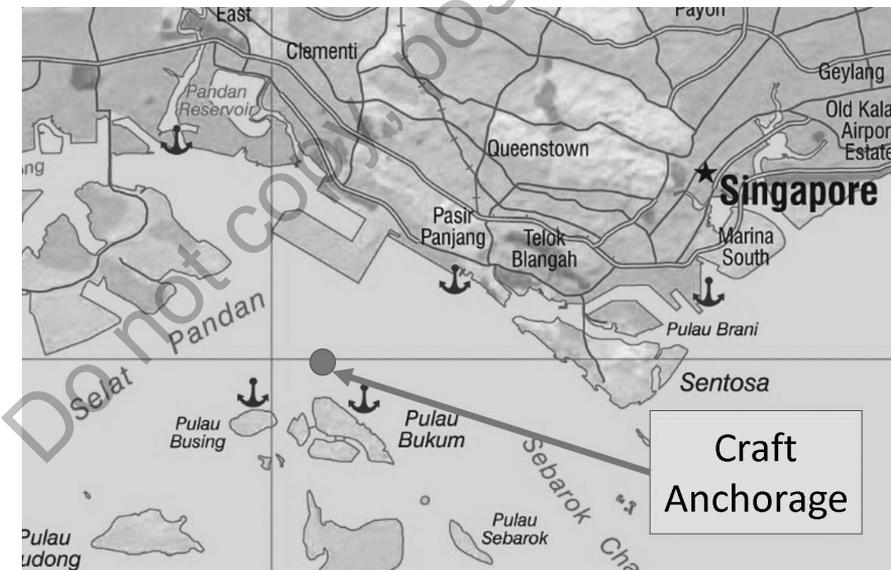
Source/Date-Time Group	Text
HUMINT May 18, 2015	The source conducted surveillance of visitors to the Russian hospitality suite, located in the Pan Pacific Singapore Hotel, on May 18. At 1745, three Russians who had manned the exhibit that day arrived: Sergei, Valery, and Viktor. There were approximately forty-five visitors to the suite during the evening, some arriving singly, some in small groups. At about 1840, the source recognized a visitor to the suite: Aik Hauk, escorted by three bodyguards. Hauk spent approximately two hours in the hospitality suite before departing with his guards. (Source: Case officer reporting)
OSINT Biographic Report May 19, 2015	Aik Hauk is the managing director of Yangon Airways. He also is a member of the UWSA, headquartered in Myanmar, and one of Southeast Asia's largest drug-producing and drug distribution entities. Hauk is the son-in-law of UWSA founder Bao Yuxiang. (Source: OSINT web search)
HUMINT May 19, 2015	The source conducted surveillance of the Russian exposition booth from 0900 to 1200. At approximately 1120, a tall, gray-bearded individual in seaman's clothing approached the booth and was handed an envelope by Valery, one of the booth attendants. The seaman pulled out a nautical chart of the region around Singapore, looked at it for a minute, and began arguing in Russian with Valery. While the argument was going on, the source was able to get a look at the chart. The chart was marked with a circle centered on a point in the South China Sea approximately 60 nm east of the entrance to Singapore Strait and a line drawn from the Strait entrance to the center of the circle. The seaman apparently noticed the source's presence, hastily folded the map, and left. (The source later was able to estimate the circle's center on a duplicate of the map. The location source pointed to fell at N01° 28' E105° 42'.) (Source: Case officer reporting)
HUMINT May 19, 2015	Surveillance continued on the Russian boat's daytime guard, Igor, beginning at 1800 local time. Igor again spent the evening drinking heavily at Harry's Bar. In response to a patron's question about how he liked guard duty, Igor replied, "It is hell. The captain—Gavrilov—he is a pig. Kicked me overboard this morning. Said I was drunk on duty. I told him, 'Vadim, you will be very, very sorry you did that.' He just laughed at me." (Source: Case officer reporting)

Source/Date-Time Group	Text
COMINT May 19, 2015	The following information came from a text message between “Vadim” and “Sergei” in Singapore: “Departure is scheduled for 0630. Notify all participants.” (Source: KITEFIN reporting)
HUMINT May 19, 2015	On May 19, the Australian naval attaché invited his counterparts to a specially arranged blue-ribbon tour of selected ships in the harbor warship display during the last conference day (May 21). The naval attachés from China, Malaysia, India, and Singapore accepted. The naval attachés from Indonesia, Pakistan, and the Philippines declined, all three pleading prior commitments during that day. (Source comment: Most attachés would jump at the opportunity for this special tour because of the opportunity to obtain valuable intelligence; the refusal of the three is most unusual.)
COMINT May 19, 2015	Communication came from the Indonesian naval attaché to unidentified person in Jakarta, Indonesia; the attaché said, “The Riyadi has to be in position by 0930.” In response to a question (undecipherable) from the Jakarta speaker, the attaché said, “Use zero one twenty, one zero four thirty. I’ll communicate with the ship on channel 7 when we are in range.” (Analyst comment: The speaker may be referring to an Indonesian Ahmad Yana class frigate named the <i>Slamet Riyadi</i> .) (Source: KITEFIN reporting)
HUMINT May 19, 2015	The source visited the Russian exposition booth and talked to Viktor Vetrov, who introduced himself as a sales representative. Vetrov inquired as to the attaché’s affiliation and was given a truthful answer. Vetrov evaded answering the source’s questions but gave the source a brochure outlining the <i>Taina</i> ’s features. The brochure contained the same information as that posted on the Almaz Central Marine Design Bureau website. The source subsequently observed the Indonesian naval attaché in a lengthy discussion with Vetrov at the booth. The Indonesian received an invitation to the Russian hospitality suite. (Source: Naval attaché)
HUMINT May 20, 2015	Three members of the Indonesian terrorist group Jemaah Islamiyah have been observed at the IMDEX exhibition. The three visited a number of the exhibits and booths on May 19. The Singapore police continue to monitor the cell’s activities. (Source: PARADOX reporting)

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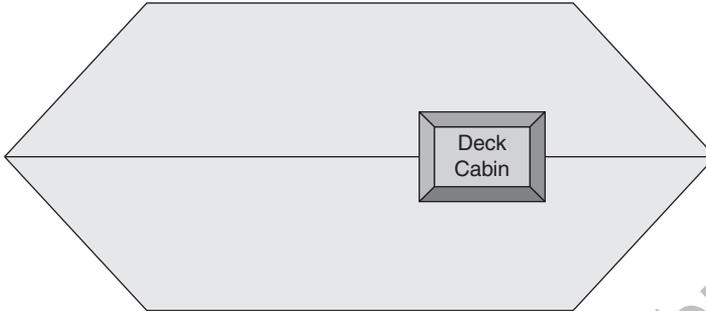
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Source/Date-Time Group	Text
COMINT May 20, 2015	From a cell phone conversation between “Sergei” in Singapore and “Arkady” in St. Petersburg, Sergei said, “The sea state tomorrow is supposed to be 4. Will the system work with the target under those conditions? It would be very embarrassing if we missed.” Arkady replied, “The target is very bright; it will stand out from the waves. Be sure that it is upright after you drop it off and everything will be fine.” (Analyst comment: Sea state 4 corresponds to a wave height of 1.25 to 2.5 m. The St. Petersburg telephone number matches that of Arkady in the May 18 report.) (Source: KITEFIN reporting)
COMINT May 20, 2015	A text message from Manuel Quirino, Philippines naval attaché, to the Philippines Naval Seas Systems Command, Cavite City, said the following: “Demonstration tomorrow. Will report preliminary evaluation enroute.” (Source: KITEFIN reporting)

**FIGURE 10.2** Reported Anchorage Location of Patrol Boat<sup>2</sup>

Source: Map courtesy of the University of Texas Libraries, the University of Texas at Austin.

<sup>2</sup>Map of Singapore from [http://www.lib.utexas.edu/maps/middle\\_east\\_and\\_asia/singapore\\_physio-2005.jpg](http://www.lib.utexas.edu/maps/middle_east_and_asia/singapore_physio-2005.jpg) with author annotations.

**FIGURE 10.3** Sketch of Patrol Boat Taken from Imagery

### BACKGROUND READING

#### *Stealth Ship Design*

A stealth ship uses stealth technology construction techniques to make it harder to detect by radar, sonar, and infrared sensors. It relies on the technologies that came from stealth aircraft design, as well as some specialized technologies that are unique to ships such as wake and acoustic signature reduction.

The highest priority in stealth design is reducing radar cross section (RCS). Two techniques are used to reduce RCS. First, the surface of the ship is made of a material that absorbs radar energy. Second, the ship's hull is constructed to avoid right angles (which strongly reflect energy back to the radar). A commonly used approach is called the *tumblehome* design, where the ship's hull becomes narrower with greater distance above the waterline.

A prototype stealth ship using tumblehome design was the U.S. *Sea Shadow*, built in 1984. Figure 10.4 shows the design. It featured a Small Waterplane Area Twin Hull (SWATH) design. Below the water were submerged twin hulls, each with a propeller, aft stabilizer, and inboard hydrofoil. The portion of the ship above water was connected to the hulls via the two angled struts. The SWATH design helped the ship remain stable even in very rough seas.

To get speed in a stealth design, the preferred approach is a surface effect craft (which has both an air cushion, like a hovercraft, and twin hulls, like a catamaran). The premier example of this design is the Skjold-class coastal corvette, shown in Figure 10.5. These corvettes were first commissioned in 1999 by the Royal Norwegian navy. They are called coastal corvettes because their seaworthiness is comparable to that of corvettes and because they do not carry torpedoes. The Skjold class are the fastest naval vessels in existence, with a top speed of 60 knots.

The Skjold corvettes are constructed using radar absorbing glass fiber/carbon composite materials for stealth. Instead of relying on a tumblehome design, the ships use faceted surfaces that have no right angle structures in the hull.

**FIGURE 10.4** Sea Shadow Stealth Ship<sup>3</sup>**FIGURE 10.5** Norwegian Skjold-Class Patrol Boat<sup>4</sup>

<sup>3</sup>Wikipedia, “*Sea Shadow* (IX-529),” [http://en.wikipedia.org/wiki/Sea\\_Shadow\\_\(IX-529\)](http://en.wikipedia.org/wiki/Sea_Shadow_(IX-529)).

<sup>4</sup>Wikipedia, “*Skjold-Class Corvette*,” [http://en.wikipedia.org/wiki/Skjold-class\\_patrol\\_boat](http://en.wikipedia.org/wiki/Skjold-class_patrol_boat).

### *Jemaah Islamiyah*

The militant Islamist group Jemaah Islamiyah is active in Southeast Asia, where its goal is to establish a pan-Islamic state. The group conducted attacks against U.S. and Western targets in Singapore, Indonesia, and the Philippines. In 2000, Jemaah Islamiyah teamed with al-Qaida to conduct a series of attacks in Indonesia. The two groups coordinated bombings of churches in nine Indonesian cities on Christmas Eve, killing eighteen people and injuring scores. In 2002, the group detonated three bombs in tourist areas of Bali. In October 2005, Jemaah Islamiyah struck Bali again in a series of suicide bombings that killed 20 people and wounded 129. The group also reportedly was behind the 2009 Ritz-Carlton and JW Marriott hotel bombings in Jakarta.

Jemaah Islamiyah also has conducted or attempted attacks on Australian targets. A plot to blow up the Israeli embassy in Canberra, Australia, on May 28, 2004, was foiled. The group reportedly is responsible for a bombing outside the Australian embassy in Jakarta on September 9, 2004, which killed 11 Indonesians and wounded more than 160.

As a result of these attacks, in 2004 the federal government, in its White Paper on Terrorism, identified Jemaah Islamiyah as the principal terrorist threat to Australia. The Australian government subsequently has concluded that the group may pose a biological or chemical weapons threat.<sup>5</sup>

While Jemaah Islamiyah has kept a low profile in recent years, the federal government continues to regard the group as a threat to Australian interests and to the Australian homeland.

### *United Wa State Army*

The Wa ethnic minority live mainly in Myanmar. The military junta that formerly ruled the country granted the Wa autonomy in the Shan State, near the border with China. Within that region, the Wa have created an armed force, the UWSA. The UWSA is an experienced military force comprising 30,000 full-time soldiers and 10,000 part-time militia fighters. The UWSA is equipped with modern weapons that include armored vehicles and surface-to-surface missiles (SSMs). The UWSA controls towns along the Chinese and Thai borders in northeastern Burma's Shan state.

The UWSA is known internationally for its drug trade in opium, heroin, and amphetamines. It is the main supplier of drugs to northeast India, China, and Thailand. It also is a conduit for supply of arms from the gray market in China to the insurgent groups of northeast India. The U.S. government has named the UWSA as a narcotics trafficking organization.

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<sup>5</sup>"Australia Fears Jemaah Islamiyah WMD Attack, Cables Reveal," *Global Security Newswire*, February 2, 2011, <http://www.nti.org/gsn/article/australia-fears-jemaah-islamiyah-wmd-attack-cables-reveal>.

The UWSA also has a commercial arm, the Hong Pang Group. Hong Pang is a true conglomerate, dealing in banks, construction, hotels, logging, telecommunications, gems and minerals, and petroleum. It owns several factories and operates its own private airline.

The USWA has been increasingly pushing in recent years to upgrade its territory to the status of an officially recognized autonomous state. But the Burmese government has been increasing military pressure on the USWA using a divide-and-encircle strategy that has left the Wa in a difficult strategic position. The USWA will need substantial additional funding, probably from its narcotics trade, in order to support military operations if the Burmese government pressure continues.

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