

# World Navies



**T**he importance of maritime power has been demonstrated time and again in recent years as naval buildups in the name of maritime sovereignty, natural-resource protection, and national pride grow ever more common across many parts of Asia, Africa, the Middle East, and South America. Warship acquisition programs in these regions are flourishing as new ships, submarines, and naval aircraft spiral into service to meet

rapidly proliferating requirements. In North America and Europe, however, the exact opposite is taking place as navies continue to cut back, protecting domestic economies weakened by recession.

This review of the world's navies presents a snapshot of activities and developments during the past year. It is arranged by region, with nations discussed alphabetically under each subheading.

# in Review

By Eric Wertheim



ROYAL AUSTRALIAN NAVY

Australia's second of two 27,000-ton Canberra-class amphibious-assault ships, the Adelaide, was launched in July 2012.

## Australia/Asia

Australia's navy is relying heavily on its government's 2009 defense white paper as a guidepost for the future, and the new submarine program will likely be the most challenging of the planned efforts.

It calls for construction of 12 locally built submarines to begin replacing the six-boat *Collins* class around 2025. In the meantime, reported reliability rates for the *Collins* class remain low, although the navy is hoping to have two-thirds of its submarine fleet available operationally by early 2014. The *Hobart*-class air-warfare destroyers also have faced delays, with the first unit now due to enter service in December 2015 and the third and final unit planned for 2018 delivery.

All of the Royal Australian Navy's AN-ZAC-class frigates are undergoing modernization with new phased-array radars and combat systems, and this effort is due to complete by 2017. Plans for new offshore patrol vessels are also in the works with a fleet introduction expected by the 2020s. The navy's troubled amphibious fleet suffered a minor setback, but also a major advance last summer when its newest ship, the 16,000-ton HMAS *Choules*, experienced a transformer casualty, repairs of which took her out of service for much of 2012. This bit of news was overshadowed, however, by the more positive announcement that the second of two 27,000-ton Canberra-class amphibious assault ships, HMAS *Adelaide*, was launched ahead of schedule by Spain's Navantia shipyard. The *Adelaide* is due to enter service in 2015, joining sister *Canberra*, which should commission a year earlier.

From an aviation perspective, 24 MH-60R shipboard antisubmarine-warfare (ASW) helicopters are due to join the fleet between 2013 and 2016 and 8 P-8A Poseidon maritime patrol aircraft are to begin replacing the current fleet of AP-3C Orions by 2018.



Bangladesh is modernizing its fleet while also building a fledgling naval shipbuilding capacity. The country is acquiring new assets that include frigates, corvettes, maritime-patrol aircraft, and helicopters—and is hoping to add

submarines to this list. Two patrol ships were recently launched in China for the Bangladeshi fleet, and local shipyards are building five 164-foot patrol craft, which are the first warships yet built domestically. By 2020 leaders hope local shipyards will be able to produce larger corvettes and frigate-sized warships. The last remaining Type 41 frigate will soon be decommissioned to make room for newer warships, such as two Jianghu-III frigates to be transferred from China in 2013. Two new South Korean corvettes also are planned for service by 2016. Reports in early 2013 indicated that the Bangladeshi navy has begun negotiations with China for its first submarines.

China commissioned its first aircraft carrier, the *Liaoning*, on 25 September 2012. The ship had originally been acquired unfinished from Russia in the 1990s and underwent Chinese refurbishment for a decade. By the end of 2012 J-15 fighters (Chinese versions of the Russian Su-33) were conducting tests from the 55,000-ton carrier. Chinese shipbuilders are no doubt gearing up for the production of additional aircraft carriers, and as many as three new domestically built carriers will probably emerge in China during the next decade.

Recent unconfirmed news reports also indicate that China is attempting to expand the reach of its land-based naval aviation force and has inked a deal to acquire 36 Tupolev Tu-22M3 bombers from Russia, with deliveries to begin by 2014. In December 2012 reports began to surface that Russia would be selling four new Lada-class submarines to China. If the Lada deal does come to fruition, it would mark the first foreign purchase

of a submarine by China since improved Kilo-class boats were delivered in 2006 to supplement its expanding modern submarine fleet.

Some reports indicate that six new 20,000-ton Type 081 amphibious helicopter-landing ships are planned for the future. These large-deck amphibious assault ships potentially could serve as a platform for new unmanned aerial vehicles (UAVs) and even short-takeoff/vertical-landing (STOVL) combat aircraft, which are said to be under development in China. New smaller ships continued to enter service with the People's Liberation Army Navy, as the first new Type 052D destroyers (a modified version of the Type 052C) were recently launched and new Type 056 guided-missile corvettes begin entering the fleet.

The ever-growing reach of China's navy was demonstrated during the summer of 2012 when two of its warships sailed through the Turkish Straits and into the Black Sea for the first time, traveling to Sevastopol in the Ukraine, Costanta in Romania, and Varna in Bulgaria. China's paranaul fleet also has experienced significant growth, and continued expansion is planned in the years ahead. Its marine-surveillance organization hopes to field 26 new ships by late 2013 with nearly half of them displacing more than 1,000 tons. The organization intends to increase its strength from 9,000 to 15,000 personnel by 2020, at which time it hopes to have 520 vessels, most of which would displace less than 1,000 tons. Other paranaul organizations, including the Fisheries Law Enforcement Command and the Maritime Safety Administration, are seeing additional growth as China enforces its claims of sovereignty in contested waterways and island chains.

**India** has a long history of carrier aviation dating back many decades, and the country's newest aircraft carrier, the *Vikramaditya*, began sea trials off Severodvinsk, Russia, in June 2012. The 44,000-ton modified *Kiev*-class carrier, formerly known as the *Admiral Gorshkov*, has been undergoing refurbishment at Severodvinsk since the mid-2000s. The carrier was due to enter service by December 2012, but propulsion problems have now delayed her delivery until late 2013. India currently has one other aircraft

carrier in service, the 28,000-ton *Viraat* (ex-HMS *Hermes*), and at least one newly built 40,000-ton *Vikrant*-class carrier is also planned for service by 2017.

India's fleet hopes to commission five new warships per year from 2013 through 2017. On 27 April 2012 India commissioned the Russian-built INS *Teg*, the first modified version of the *Talwar*-class frigates that joined the Indian fleet in 2003-04; additional units are planned. The first new Type 15A destroyer of the *Kolkata* class is also due for service in 2013.

The *Chakra*, an Akula-class nuclear-powered attack submarine leased from Russia in December 2011, heralded a new era for the Indian navy, and the *Arihant*, the first in a new class of Indian nuclear-powered ballistic-missile/cruise-missile submarines, is expected to join the fleet in the 2013-14 time frame. New conventionally powered Scorpène-class submarines built domestically to a French design are also planned for delivery around 2015.

India's naval aviation community is receiving new equipment, including MiG-29K fighters, to operate from its aircraft carriers. India also received its first P-8I Neptune land-based maritime-patrol aircraft from the United States on 20 December 2012 with a total of 12 planned. New mid-range maritime-patrol aircraft are also under consideration to supplement the longer-range P-8s. New naval variants of the light-combat aircraft are planned, as are new maritime-support, utility, and airborne-early-warning helicopters for service during the next decade. April 2012 saw the standup of the Indian Navy's third unmanned aerial vehicle squadron, which is equipped with Israeli-built UAVs. Following a string of cyber attacks on the Eastern Fleet during the first half of 2012, an Indian naval cyber-operations unit was stood up, and eventually cyber personnel are expected to sail on board as many as 100 Indian warships.

**Indonesia's** defense spending is expected to continue increasing through at least 2016 as its military looks to make up for lost ground. The U.S. shift to the Pacific and rising Chinese naval power have forced Indonesia to reexamine its naval capabilities. On the shipbuilding

front, domestic shipyard PT PAL in Surabaya hopes to become one of the world's largest shipbuilders during the years ahead. On its books right now are orders for a 410-foot dock landing ship, and more than a dozen 246- and 197-foot patrol boats for the Indonesian fleet. The navy also ordered a new 2,400-ton SIGMA corvette from Dutch shipbuilder Damen in mid-2012, with delivery due by 2017. The United States has recently been helping Indonesia achieve better maritime domain awareness through establishment of an Integrated Maritime Surveillance System with coastal and ship-based radars located around choke points. China reportedly has offered its own coastal radar system, and Indonesia is said to have recently begun building domestic versions of the Chinese C-802 and C-705 antiship missiles under license.

In December 2011 Indonesia signed a deal to acquire three South Korean-built, German-designed Type 209 submarines. Current plans call for the first two Indonesian subs to be constructed at Daewoo shipyard in Okpo, South Korea, and the final unit to be built locally at PT PAL, with deliveries to take place between 2015 and 2018. Eventually the navy hopes to have a fleet of up to 12 submarines.

**Japan's** Maritime Self-Defense Force and Coast Guard are strengthening ties with traditional allies the United States and Australia, while also looking to India as a potential counterweight against Chinese power. Last year's JIMEX-12 marked the first Japanese-Indian maritime exercises between the two navies. Japan must also work hard to maintain a technological edge against regional competitors, and its new state-of-the-art *Soryu*-class submarines and *Akizuki*-class destroyers continue to enter service.

Two 24,000-ton helicopter-carrying destroyers with expansive flight decks are planned for service by 2017; they will supplement two slightly smaller 19,000-ton *Hyuga*-class ships that had entered service by 2011. In 2012 Japan announced plans to begin acquiring a small number of AAV-7 amphibious armored personnel carriers from the United States for testing and training purposes. Japan recently announced plans to upgrade its aging P-3C Orion fleet, until new P-1 maritime-



patrol aircraft are able to begin entering service in 2016. Plans call for all JMSDF P-3Cs to be phased out of the fleet over the next 20 years.

**Malaysia** has been attempting to walk a middle ground in regional maritime disputes and has offered to mediate clashes in the South China Sea region. Sovereignty and security in the Strait of Malacca remain a primary concern for the nation, and up to six new French Gowind-class corvettes are planned for the Malaysian navy, with the first ship due for delivery in 2017. Two 262-foot ships are currently on order as well, due for delivery by late 2013. The ships are being built by NGV Tech Shipbuilders in cooperation with Daewoo of South Korea.

**Myanmar** ordered two recently retired Jianghu II-class frigates from China; the ships are likely armed with C-802

**North Korea's** unpredictable behavior continues to present serious security challenges for its neighbors. The country is said to be attempting development of nuclear-tipped missiles capable of reaching Hawaii and eventually the continental United States. Efforts such as these provide a continued impetus behind the growth of U.S. and allied ship-based ballistic-missile-defense capabilities.

**Pakistan** unveiled headquarters for its new Naval Strategic Force Command in May 2012. Very little is openly discussed about the country's maritime nuclear ambitions or this new command, which has officially been dubbed "custodian of the nation's second-strike capability." Pakistan has long been interested in acquiring nuclear-powered submarines, and recent media and academic reports indicate that development of a naval-

as China occupied contested waters in Scarborough Shoal off the Philippine coast in the South China Sea. The Philippines are left with few promising options with which to respond, though allies have offered some help as the country rebuilds its naval forces. It announced in October that it would be acquiring five patrol boats from France for roughly \$116 million. The Philippine Coast Guard will receive at least some of these new vessels, which are to include one French 269-foot ship and four 79-foot patrol craft by 2014. The Philippine navy is also seriously considering the purchase of two *Maestrale*-class frigates from Italy, and Japan has offered to transfer new patrol craft as well. U.S. military forces are beginning to return to the Philippines on a semipermanent basis, as they expand their presence in the Pacific and help the



Modern *Soryu*-class submarines continue to enter Japanese service.

antiship missiles and 100-mm guns. The ships were reportedly handed over in early 2013.

**New Zealand's** navy recently announced plans to upgrade the combat-management systems, radars, and defensive missile systems on board its ANZAC-class frigates. Other long-term goals include either modernization or replacement of the SH-2G ASW helicopter fleet. HMNZS *Resolution*, an ex-U.S. *Stalwart*-class hydrographic-survey ship, was retired in April 2012. Financial constraints will likely loom large for the fleet during the next few years even as the navy hopes to see a modest increase in the number of naval personnel in service.

launched variant of Pakistan's nuclear-armed Babur cruise missile is well under way to provide land-attack capability from the sea. The country has received several new warships from China and two new P-3C Orions from the United States to replace those that were destroyed in the 2011 terrorist attack on the naval air station in Karachi.

The **Philippines** is in the midst of what has been called the largest military modernization program in the country's history, spearheaded by the acquisition of new warships and aircraft. Defense spending increased 60 percent between 2009 and 2012, and it will likely continue to grow substantially for the next few years. Tensions remain high in 2013

Philippines build a coastal and maritime domain awareness center to aid in the collection of intelligence.

**Singapore's** naval acquisition programs are largely complete as delivery of new frigates, amphibious ships, and air-independent-propulsion submarines have allowed the small country to remain among the most technologically advanced navies in Asia. In 2012 Singapore continued discussions with the United States to host U.S. Navy littoral combat ships in Singapore on a rotating basis.

**South Korea** recently announced plans for a naval buildup that includes significant increases in the acquisition of Aegis-equipped destroyers and Type 214 submarines during the coming decade.



NAVAL PRESS SERVICE (MICHAEL NITZ)

South Korea recently announced plans to expand its fleet of Aegis destroyers.

Plans also call for an increase in the number of smaller destroyers, frigates, and mine-warfare ships during the next few years. South Korea has plans for new antisubmarine helicopters and special-operations swimmer-delivery vehicles as well. Relations with Japan have soured during the past year after South Korean President Lee Myung-bak visited contested Dokdo/Takeshima, and the South Korean navy and coast guard took part in military exercises off the islands.

**Sri Lanka's** maritime forces continue close cooperation with the Indian Navy and Coast Guard as they work to stem smuggling and other criminal activities in coastal waters. Small patrol boats play an important role in addressing these challenges, and despite budget woes, the Sri Lanka Navy hopes to eventually purchase larger long-range patrol vessels to expand its capabilities farther offshore.

**Taiwan** received two retired *Osprey*-class mine-countermeasures ships from the United States in 2012. Taiwan still has hopes to expand its submarine force, but other countries aren't willing to risk the wrath of mainland China to transfer this capability. As a result, Taiwan is now exploring the development of its own domestic submarine-production capability, though many experts remain skeptical that this can be accomplished. The country is retiring some of its longest-serving

guided-missile patrol craft and replacing them with newer missile boats, such as the stealthy Kuang Hua VI-class, the first squadron of which was operational by 2011. The Taiwanese navy is outfitting its ships with more modern antiship missiles, and it recently announced plans to retrofit Harpoon Block II antiship missiles into its two Dutch-built sister submarines, the *Hai Hu* and *Hai Lung*, beginning in 2013.

**Thailand** recently received a new 7,000-ton, 463-foot amphibious ship. A second unit is due for delivery in 2014. A new class of 2,000-ton corvettes is being built locally in Thailand, and the navy hopes to order new 2,500-ton frigates in the future, with both European and Asian designs under consideration. Plans to upgrade Thailand's Chinese Type 25T (*Naresuan*)-class frigates also have been announced, and the country recently requested the purchase of Evolved Sea Sparrow ship-based surface-to-air missiles and associated quad-pack launchers from the United States.

**Vietnam** has organized a new naval force under its Bureau of Fisheries, tasked with patrol and security of its exclusive economic zone, much of which has been claimed by China. Vietnam has ordered six Kilo-class submarines from Russia, and Chinese aggression has led

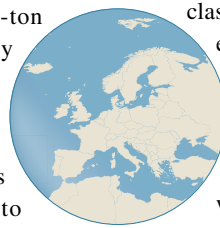
to warming relations with both Australia and the United States. Vietnamese defense spending is expected to continue increasing as the country upgrades naval facilities at Cam Ranh Bay to enable extensive submarine and ship repairs to take place there in the future. New patrol ships have been delivered in recent years, including Russian Gepard-class frigates and Tarantul V-class guided-missile patrol craft.

## Europe

**Denmark's** first new *Iver Huitfeldt*-class frigate was commissioned in early 2012, and within months the ship was conducting counterpiracy operations off the coast of Somalia. Denmark is one of a host of countries working to increase operational capabilities in the Arctic region, and in the fall of 2012 established a new Arctic command to help coordinate its strategy and operations there.

**Finland** faces a number of large defense cuts with procurement funding and personnel likely to be reduced significantly. This will undoubtedly affect naval and coastal-defense capabilities, although modernization and acquisition will still continue for some high-priority naval projects.

**France's** third 20,000-ton *Mistral*-class helicopter-landing ship *Dixmude*



was delivered three months ahead of schedule in early 2012. The ship took part in counterpiracy operations off the coast of Somalia and later helped transport forces to Africa for combat operations in Mali. Six new submarines of the *Suffren* (Barracuda) class are planned for delivery beginning in 2017, and between 2014 and 2017 French Rafale naval fighters are to be upgraded to F3 standard, which will make it possible for them to carry a wider variety of ordnance and equipment. In 2012 the French navy began operating *L'Adroit*, a privately funded offshore-patrol vessel that was offered free of charge by shipbuilder DCNS as an operational test platform through 2014.

In the spring of 2012 the French air-defense destroyer *Forbin* successfully engaged a test target replicating a supersonic, sea-skimming antiship missile in an important demonstration of her air-

**Germany** has two more Type 212A submarines on order for delivery in 2013, but the navy continues to experience problems with its new *Braunschweig* class (Type 130) corvettes. Despite delivery of the first units in 2008, they are still not ready for service. Engine problems initially held up the program, and system-integration issues have now caused the latest round of delays, with operational service now predicted for around 2014. As ballistic-missile defense remains an important mission for NATO, the German navy is said to be considering adding a ballistic-missile tracking capability to its *Sachsen*-class guided-missile frigates. In 2012 Germany also announced plans to retire two of its early 1980s-era Type 143A guided-missile patrol boats and two of its early 1990s-era Type 333 coastal mine-hunters as a cost-cutting measure.

European Union likely to fund as much as 75 percent of their cost while Greece would only have to put up 25 percent of the bill.

**Ireland** plans to launch a new class of patrol vessel to replace its *Emer*-class ships now in service. The new vessels are being built by Appledore Shipbuilders in the United Kingdom and are expected to enter service by 2015.

**Italy** has plans to build two more Type 212-class submarines in the future, and late in 2012 its navy received the first of up to ten new *Carlo Bergamini*-class frigates being built under the FREMM program.

To deal with an impending budget crunch, and to help pay for recent naval acquisitions such as the *Andrea Doria*-class air-defense destroyers and the aircraft carrier *Cavour*, Italy announced plans to reduce its naval strength through



The French navy is currently operating *L'Adroit*, a privately funded patrol ship.

defense capabilities. DCNS delivered the first of 11 new *Aquitaine*-class frigates to the French navy in November 2012. Several versions of the *Aquitaine* are to be built using the same hull design, propulsion system, and combat-data system under the FREMM (European multi-mission frigate) program. The first nine French ships will be configured for antisubmarine warfare, and the final two units are to be optimized for air-defense operations as replacements for the canceled third and fourth units of the *Forbin*-class destroyers.

**Greece's** economic crisis remains a hurdle for its military, but the navy and coast guard are trying to make do. The last of seven domestically produced Super Vita-class guided-missile patrol combatants is due to enter service in 2013, and as a reward for Greek assistance with the arms embargo against the Gaza Strip, Israel recently donated spare parts and electronics, helping the Hellenic Coast Guard maintain its modified Sa'ar IV-class ships. Up to six new coastal-patrol boats are also under consideration for Greek service, with the

2018 by cutting up to 28 ships and a significant number of personnel. The reductions are likely to include retirement of selected *Maestrale*-, *Artigliere*-, and *Minerva*-class warships along with mine-countermeasures vessels, service craft, and auxiliaries.

The **Netherlands** commissioned the third of four *Holland*-class offshore-patrol ships into service in April 2012. A new *Karel Doorman*-class joint-support ship is planned for delivery by the end of 2014, and investments continue on a number of improvement projects including future





MAURIZIO BRESCIA COLLECTION

The first new *Carlo Bergamini*-class frigate was delivered to Italy in late 2012.

sonar and combat-system upgrades for the *Walrus*-class submarines and ballistic-missile tracking enhancements on board *De Zeven Provinciën*-class frigates. The past year also saw Dutch air-force Apache attack helicopters conduct their first-ever landings on a warship during training on board the amphibious transport dock *Rotterdam*.

**Norway** is beginning to lay the groundwork for a new class of submarines to replace its *Ula*-class boats once they reach the end of their service lives, though a decision on the new design is not expected until around 2017.

In the near term, the military is considering cancellation of the NH-90 maritime helicopters because of program delays, and the Sikorsky S-70B Seahawk is said to be a leading replacement contender if the contract is canceled.

**Poland's** MEKO A-100 frigate has been under construction since 2001 and was nearly scrapped early in 2012, but the ship appears to have received a reprieve for the time being. Work is expected to continue at a snail's pace for at least several more years. Discussions are under way concerning future upgrades on Poland's *Oliver Hazard Perry*-class frigates. In the long term, the navy has hopes for an expanded maritime force by 2030 that would include three new submarines plus offshore-patrol boats, mine-countermeasures vessels, patrol boats, auxiliaries, helicopters, UAVs, and

coastal-defense missiles, although budget realities will likely temper some of these projections.

**Portugal's** second *Viana do Castelo*-class patrol ship was recently delivered. Eventually the navy hopes to build a new oiler and even a 12,000-ton modified Dutch *Rotterdam*-class amphibious transport dock for service around 2017, but budget cuts may preclude completion of the project. In 2012 Portugal received the first of its five upgraded P-3C Orion maritime-patrol aircraft after several months of delays.

**Romania** has modest plans to upgrade its Type 22 frigates *Regele Ferdinand* and *Regina Maria* with new communications equipment, as the navy hopes that future budgets will permit acquisition of larger patrol ships such as the U.S. littoral combat ship.

**Russia's** navy hopes to play an increasing role in the eastern Indian Ocean, western Pacific, South China Sea, and Arctic. The country also intends to increase the capabilities of its Black Sea Fleet during the next few years with Kilo-class submarines, frigates, and one of the two planned French *Mistral*-class amphibious-assault ships likely to be deployed to the area. The Russian economy continues to rely on defense exports as a major source of funding. As if to emphasize the importance of its defense clients, Russian warships visited Syria during the past year both

as a show of force for a friend and also to help ensure access to Syria's Tartus naval base on the Mediterranean Sea. Domestically, Russia is modernizing the naval base at Kaliningrad, enabling it to handle more modern warships and submarines. Modernization of the Russian military remains a long-standing goal, as leadership has spelled out the desire to replace 70 percent of its aging equipment with modern weapons by 2020.

Strategic nuclear forces remain Russia's highest priority, and eight Borey-class ballistic-missile submarines are planned for service by the early 2020s. Production of new Lada-class attack submarines reportedly resumed in 2012, and more Kilo-class units are also due for service in the near future. On 31 October 2012 the Russian navy officially moved its headquarters from Moscow to St. Petersburg.

**Spain's** fifth and final *Álvaro de Bazán*-class frigate was delivered in 2012, as was its fourth *Meteoro*-class patrol ship. Work continues on four new S-80 submarines, planned for service by 2019. While Spanish warships have had great success on the export market with sales to countries such as Australia, Norway, and Venezuela, Spain's armed forces face significant cuts and a difficult road ahead. During the next 12 years, the number of naval personnel will likely be reduced by around 5,000, down from a force of about 22,500 personnel today. The Spanish

government made the decision in late 2012 to retire its lone aircraft carrier, the *Príncipe de Asturias*, during 2013. Spain's fixed-wing naval aviation capability may yet survive, however, as the far larger 27,000-ton amphibious-assault ship *Juan Carlos I* was commissioned in September 2012. The ship is able to carry EAV-8B Harrier vertical/short-takeoff-and-landing fighters and helicopters plus around 6,000 tons of cargo, including more than 1,000 troops and four landing craft launched via a floodable stern docking well.

**Sweden's** first newly upgraded *Visby*-class guided-missile patrol craft was turned over to the military during the second half of 2012 after having completed extensive modifications to enhance safety and performance—and to better support international operations, which often take place far from Swedish waters. Prior to delivery, the *Visby* successfully test-fired one of her new RBS-15 Mk-3 antiship missiles.

**Turkey** has made great strides toward building an independent military-industrial base, and the MILGEM (*Heybeliada*-class) corvette program is an excellent example of this. As many as ten units of the class are eventually planned, and up to six new TF-2000 guided-missile frigates are to be built domestically with deliveries due to begin by 2020. The country hopes to build new submarines domestically as well, and six German-designed Type 214 submarines were ordered in 2009.

**Ukraine's** navy recently completed refurbishment and reactivation of its only submarine, the Foxtrot-class boat *Zaporizhzhya*. Having fallen into a state of disrepair due to age and budget shortages, she began a full refurbishment around 2008 that was completed in 2012, with the first set of sea trials successfully accomplished on 27 April.

The **United Kingdom** recently finalized and selected the F-35B STOVL variant of the Joint Strike Fighter to equip its two planned *Queen Elizabeth*-class aircraft carriers, both of which are due for delivery by 2020. This F-35 announcement coincided with cancellation of plans to install catapults and arresting gear aboard the second unit, the *Prince of Wales*. Both 65,000-ton carriers will now be built with ski jumps to facilitate rolling launch of the F-35B.

In early 2012 HMS *Daring*, the first of the new class of air-defense destroyers, sailed for the Persian Gulf on her first deployment, while the second of the class, HMS *Dauntless*, sailed off the Falkland Islands as a show of force against heated Argentine political rhetoric during the 30th anniversary of the Falklands War. Current plans call for construction of up to 13 Type 26 multipurpose frigates to begin entering service in the early 2020s.

The naval aviation community has had to live without a maritime-patrol aircraft since the Nimrod MRA.4 was canceled several years ago, and this gap will likely extend into 2015 at least; the P-8 Poseidon is considered its most likely replacement. There is also concern that the Sea King airborne early-warning helicopters are due to be retired around 2016, but a replacement platform may not be available until 2020.

Work on a new ballistic-missile submarine program is ongoing to replace the current *Vanguard*-class subs, and up to four of the new 17,000-ton SSBNs are expected to begin entering service around 2028. As new *Astute*-class nuclear-powered attack submarines join the fleet, the navy is retiring older boats such as the *Trafalgar*-class attack submarine

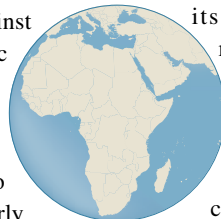
*Turbulent*, which was decommissioned in July 2012.

## Middle East/Africa

**Algeria** is expected to continue its defense growth, and its military budgets are already the largest on the African continent. Ongoing naval acquisition plans include new submarines, frigates, and corvettes. In 2012 government officials announced their intention to acquire as many as four MEKO A-200 frigates from German shipbuilder ThyssenKrupp Marine Systems. Two of the ships are to be constructed locally at an Algerian shipyard and the other two in Germany. The overall Algerian contract is reportedly worth more than 2 billion euros (\$2.7 billion), and is said to include funding for combat systems and the acquisition of Super Lynx naval helicopters.

**Angola** is expanding the reach of its navy and is reportedly discussing the acquisition of new warships from Brazil, including a *Macaé*-class patrol ship and a *Grajaú*-class patrol boat.

**Cape Verde** off the coast of West Africa has also been building ties with Brazil, which plans to transfer Embraer Bandierante maritime-patrol aircraft from



The United Kingdom selected the F-35B STOVL variant of the Joint Strike Fighter to equip its two planned *Queen Elizabeth*-class aircraft carriers.





The new Damen patrol boat *Guardião* is now operational in Cape Verde.

the Brazilian air force. The two countries also plan to expand their naval training and coordination in the future. The new 167-foot Damen patrol boat *Guardião* entered service in December 2011, becoming fully operational early in 2012.

**Egypt's** navy is due to receive four U.S.-built Ambassador IV-class guided-missile patrol craft during the next few years, and naval leaders also hope to eventually expand the aging submarine fleet by purchasing two new submarines, such as the German-designed Type 209. Political turmoil and financial issues are likely to hold up any such acquisition plans well into the future, however.

**Equatorial Guinea** has begun using its oil revenue to strengthen its maritime forces, and recent purchases include a new 2,500-ton helicopter-carrying corvette built in Bulgaria and delivered in early 2012. The country is also reportedly in talks with both South Korea and Brazil for additional patrol ships or corvettes.

**Ghana's** navy received two refurbished Type 143 patrol craft from Germany in 2012 along with three new DA42 Twin Star maritime-surveillance aircraft (one of which will be used for training) manufactured by Diamond Industries. Additional patrol craft are also on order from China.

**Iran's** more traditional navy and its Revolutionary Guard Corps navy have both been extremely active conducting exercises, test-firing weapons, and preparing new ships and submarines for service. An Iranian corvette and replenishment ship sailed through the Suez Canal to Tartus, Syria, in February 2012, marking only the second time that Iranian warships had sailed into the Mediterranean Sea since the 1979 Iranian revolution. Domestic weapons and warship construction remain very high priorities for Iran, and the past year saw delivery of new Ghadir-class midget submarines. Work is also progressing on new frigates (known as destroyers in Iranian ser-

vice) with delivery of the next ship planned for mid-2013. Iran is even rumored to have begun development of a new antiship ballistic missile, the unveiling of which was met with a healthy degree of skepticism by Western experts. In 2012 one of the three Iranian Kilo-class submarines completed a multi-year refit at Bandar Abbas, and work on the remaining units of the class is expected in the future. The Persian Gulf is not the only area of concern for Iran, however, and the country has discussed assigning new warships and submarines to better protect its interests in the Caspian Sea.

**Iraq's** navy continues to take delivery of new patrol ships and craft.



Two new Israeli submarines were launched in February 2012.

Most recently it received two offshore-support vessels in late 2012 from the U.S. shipbuilder RiverHawk Fast Sea Frames. Additional U.S.-built craft, including 115-foot Swiftships and 25-foot Defender-class patrol boats constructed by SafeBoats International, also were delivered for service during the past year.

**Israel's** first new batch of submarines was launched in February 2012 by German shipbuilder HDW. The submarines are actually lengthened, air-independent propulsion-capable variants of the three *Dolphin*-class boats already in service with Israel's navy. Two of the submarines were ordered in 2006 and are due to be operational by late 2013, while the third boat was ordered in 2012 and is still several years away from delivery.

The Israeli navy also has requirements to acquire four new corvette-sized vessels to help protect the country's expanding offshore gas production. According to some reports, the new gas production effectively doubles the size of waters that will require maritime patrols, protection, and presence. These gas facilities may themselves also be fitted with defense weapons, such as the Phalanx close-in weapon system, to help protect against terrorist attacks. The acquisition of additional Israeli unmanned surface vessels is planned as well.

**Kenya's** navy has had a busy year operationally, as it took part in actions against terrorist-linked forces in neighboring Somalia. Kenyan naval operations included troop landings and the shelling of terrorist strongholds at the port of Kismayu. The country's newest warship, a 279-foot offshore-patrol craft named *Jasiri*, was finally delivered in 2012 after numerous political, economic, and technical disputes held up her arrival for several years.

**Kuwait** is receiving the last of its Mk V special-operations craft ordered in 2006, and two diving-support ships are also on order from the American shipbuilder Swiftships. The Kuwaiti navy has a future requirement for additional patrol craft of between 164 and 246 feet in length to help patrol coastal waters.

**Morocco** received its third and final SIGMA frigate from Dutch shipyard Damen Schelde Naval Shipbuilding in September 2012. The *Allal Ben Abdellah* joins sisters *Tarik Ben Zayid*, which entered Moroccan service in September 2011, and *Sultan Moulay Ismail*, commissioned in March 2012. Both the *Allal Ben Abdellah* and *Sultan Moulay Ismail* measure 322 feet, while the larger *Tarik Ben Zayid* has an extra 24-foot hull section providing command-and-control facilities. A new 6,000-ton frigate built in France under the FREMM program also is on order for the Moroccan navy, with delivery due in 2013.

smaller domestically produced patrol boats are now entering service as well. Nigeria has additional requirements for up to 12 offshore-patrol boats for service by the early 2020s. The Nigerian government recently outsourced responsibility for much of its maritime safety and shipping regulations to private firms, taking the role away from the Nigerian Maritime Administration Safety Agency in a controversial move that sparked concerns over the potential for corruption.

**Oman** has several ongoing warship programs under way, and all three of its Project *Khareef*-class corvettes are due to enter service by the end of 2013. The acquisition of new patrol craft is also



The first new Project *Khareef* corvette entered Oman's navy in 2012.

**Namibia's** newest addition, the 2,500-ton patrol ship *Elephant*, was delivered in the summer of 2012. The 354-foot warship is fitted with a helicopter hangar and armed with a 37-mm gun and small arms. The Chinese-built ship replaces the patrol ship *Lt. Gen Jeromboam Dimo Hamaambo*, in service since 1955.

**Nigeria** received the new frigate *Thunder*, an ex-U.S. Coast Guard high-endurance cutter transferred from the United States in early 2012. Two 1,800-ton patrol ships are on order from China, and

planned in the future under proposed the Al-Ofouq program.

**Qatar** is taking delivery of up to six new patrol boats built locally by Dutch shipbuilder Damen, and all units are scheduled to enter service by 2016. Qatar hopes to eventually begin operating larger surface ships. An expanded coast guard and improved maritime-domain awareness are also high on the naval priority list.

**Saudi Arabia** is looking to enhance its ability to operate at longer ranges in the Red Sea and eastern portions of the

Persian Gulf. That requires larger ships, and both the U.S. littoral combat ship and French FREMM frigates remain under consideration for acquisition. Saudi Arabia eventually seeks to establish a submarine capability, and coast-guard expansion also remains an important goal.

**Somali** maritime piracy declined significantly this past year, and an October report by the International Maritime Bureau details this dramatic drop in reported attacks off Somalia's coast. The most impressive reductions came between July and September 2012, which saw 36 incidents in 2011 compared with just one in 2012. These findings indicate that the international naval coalitions operating in the area appear to be working. Other measures that have contributed to this success include efforts to cut pirate supply lines on the ground and establishment of more structured and layered defenses for ships traveling in high-threat regions.

**South Africa's** navy has seen modest budget increases in recent years to help fund a handful of ongoing naval-acquisition programs. New inshore- and offshore-patrol ships, auxiliaries, and service craft are all planned. The fleet also announced intentions to reopen the naval base at Salisbury Island in Durban Harbor to help conduct counterpiracy efforts off the coast of Mozambique and into the Indian Ocean. Once fully operational, the

new base is expected to host a maritime-reaction squadron, mine-countermeasures vessels, patrol craft, and a training unit. The South African Navy will likely play an increasing role in international security in the region, though continued funding will likely remain a challenge for many years. In 2012 the navy was also tasked with management and operation of the seven-ship Agriculture, Fisheries, and Forestry fleet.

**Syria's** civil war has halted all normal naval activities for the country, but the port at Tartus remains as important as ever for the Assad regime and its Russian allies. Russian ships paid several visits to the region in 2012, though overt arms shipments were eventually halted in the face of international condemnation. Some of the previous Russian arms transfers had reportedly included Kh-31 antiship missiles and coastal-defense systems employing the P-800 missile.

The **United Arab Emirates'** first Baynunah-class corvettes entered service in 2012, and the fourth of six units was launched in the UAE during February of 2012. All are due to enter service by the end of 2014. Eventually the UAE plans to operate even larger warships of up to 328 feet in length. Two new Falaj-2-class patrol craft are also on order for delivery late in 2013, and Italian shipbuilder

Fancantieri launched the first ship of the class in early 2012.

## Americas

**Argentina's** rhetoric over the Falklands/Malvinas Islands reached new heights in 2012 as the country marked the 30th anniversary of its war with the United Kingdom. Argentine defense spending is expected to increase significantly over the next few years, though the navy recently suffered a number of embarrassing setbacks. In December 2012 the sail training ship *Libertad*, which had been seized in Ghana under court order and held at the request of foreign creditors, was finally released after several months in custody. In January 2013 the retired Argentine Type 42 destroyer *Santísima Trinidad*, a veteran of the 1982 conflict, suffered a leak, was flooded, and sank while tied up pier-side, due to what many blamed on simple neglect.

**Brazil's** nuclear-submarine program formally kicked off in 2012 with French assistance. Delivery of the first new SSN is planned for around 2025, and up to six nuclear-powered attack submarines could eventually be in service by 2047. Four Scorpène-class submarines are also on order for delivery beginning around 2017. By late 2013 all three 297-foot offshore-patrol boats originally built for Trinidad



Chile began construction on a third OPV-80-class patrol ship in 2012.



and Tobago will be operational with the Brazilian navy. The three ships, previously named the *Port of Spain*, *Scarborough*, and *San Fernando*, have been renamed the *Amazonas*, *Apa*, and *Araguari* respectively, and additional units are planned.

New *Macaé*-class patrol boats also continue to enter service, and a seventh unit of the class was ordered in December 2011. Additional units, to be built domestically, are also planned. Brazil is upgrading its helicopter fleet as well, with new EC-725 transport and S-70 maritime-patrol helicopters. In August 2012 the Brazilian navy accepted the first two of six S-70B Seahawk naval helicopters. The Seahawk, which carries the Brazilian designation MH-16, is replacing aging SH-3 Sea King antisubmarine helicopters. The Brazilian marine corps is working to acquire new amphibious-assault vehicles, and 52 additional AAV-7s are to be ordered, supplementing the roughly two dozen AAVs already in service.

Canada's *Halifax*-class frigate-modernization program is ongoing, with upgrades on all 12 ships to be completed by around 2018. Fifteen new surface combatants are planned to begin replacing both the *Iroquois* and *Halifax* classes in the 2020s. Six to eight Arctic offshore-patrol ships are planned for construction with deliveries likely to begin around 2018. Canada's Joint Support Ship program calls for construction of two new vessels with the option for a third unit to replace the *Protecteur* class now in service. The submarine HMCS *Victoria* successfully launched an Mk-48 torpedo for the first time during trials and achieved full operational capability this past year. Sisters *Windsor* and *Chicoutimi* are due to reach full operational status in 2013, with yard work and modernization on the *Corner Brook* starting this year. Irving Shipbuilding of Halifax, Nova Scotia, launched the first of Canada's new coast-guard patrol vessels in May 2012, and at least eight sister ships are planned. A new coast-guard icebreaker is also due for service entry around 2017.

Chile's third OPV-80-class patrol ship was laid down at Talcahuano in mid-2012, and the ship is being built with a strengthened hull for light icebreaking and Arctic operations. The vessel is to

be armed with a 76-mm gun, far more powerful than the 40-mm guns fitted to her sisters. New Super Puma helicopters are also beginning to enter service under a 2011 order.

Colombia commissioned two Type 206A submarines recently retired from the German navy. Intended for patrol operations off the German coast, the submarines were "tropicalized" for operational service in South American waters. The submarines join two Type 209 submarines already in Colombian naval service. The first new 262-foot offshore-patrol boat

The United States has been attempting to brace itself for coming defense cuts, having spelled out their potential impact on maintenance, modernization, operations, and acquisitions. In early 2013 the U.S. Navy reduced its force-structure requirement from a fleet of 313 to 306 ships. The Navy-Marine Corps team is shifting more of its forces from the Atlantic to the Pacific fleets in line with a greater focus on Asia, while also attempting to maintain a stabilizing presence around the globe, particularly in areas like the Persian Gulf and Indian Ocean.



The USS *Fort Worth*, the second *Freedom*-class littoral combat ship, was commissioned on 22 September 2012.

was delivered to Colombia in 2012, and a second unit is due by early 2014.

Ecuador's top naval priorities include the acquisition of maritime-patrol aircraft, helicopters, and new frigates. The navy hopes to have completed refit of its two Type 209 submarines by 2014.

Mexico plans for at least two more *Oaxaca*-class patrol ships to enter service by 2014, and the fourth and final CN-235 maritime-patrol aircraft was delivered this past year under a 2010 contract. New 138-foot patrol boats also entered service in 2012.

Peru plans to expand and modernize its navy during the coming decade and has hopes to acquire new logistics-support ships, patrol ships, and a sail training vessel.

From a platform perspective, the U.S. Navy's oldest aircraft carrier, the USS *Enterprise* (CVN-65) was retired in December 2012, and plans were announced to transfer the storied *Enterprise* name to the future CVN-80. The first two carriers of the *Gerald R. Ford* class are now under construction and planned for service around 2015 and 2020 respectively, with a third unit due to deliver around 2025. Preliminary design work is ongoing for the *Ohio*-class SSBN replacement submarines, with construction due to begin in the early 2020s, and first patrols likely to start by the early 2030s. The Navy recently announced plans to rebuild the damaged submarine USS *Miami* (SSN-755) following a destructive 23 May fire caused by arson.



Venezuela's fourth and final *Gaiqueri*-class patrol ship was delivered in April 2012.

Thirty *Virginia*-class submarines are planned for service; the ninth boat, the USS *Mississippi* (SSN-782) joined the fleet on 2 June 2012, having been built in record time. A tenth unit, the *Minnesota*, is due to commission later in 2013.

Cruiser and destroyer modernization efforts are ongoing, with combat-system upgrades beginning on selected *Arleigh Burke*-class destroyers in 2012. Efforts to enhance ballistic-missile-defense (BMD) capabilities are also under way, and 5 U.S. Navy cruisers and 21 destroyers were outfitted for BMD duties by late 2012. Design work on the next-generation *Arleigh Burke* Flight III guided-missile destroyers is well under way, though rising costs will remain a challenge. Work is progressing on the three-ship *Zumwalt* class of destroyers, with the first unit due to join the Fleet in 2015. *Oliver Hazard Perry*-class frigates continue to be retired; most recently, the USS *Curtis* (FFG-38) was decommissioned in January 2013.

The multipurpose littoral combat ships remain controversial, with both the *Freedom* and *Independence* classes facing an often-uphill battle against skeptics, costs, and technological challenges. The USS *Fort Worth* (LCS-3), the second ship of the *Freedom* class, was commissioned on 22 September 2012, while the USS *Independence* (LCS-2) conducted module testing this past year. Current plans call for a total purchase of 52 littoral combat ships.

In June 2012 the U.S. Navy's first *America*-class amphibious-assault ship was launched, and a second unit is

currently under construction. The new ships are based on the previous *Wasp* and *Tarawa* classes, though they are optimized for aviation operations and do not carry well decks. The Navy's sixth *San Antonio*-class amphibious transport dock, the USS *San Diego* (LPD-22), was commissioned in May 2012, and a seventh unit is due to enter service in 2013. Work is nearing completion on the Military Sealift Command's first new mobile landing platform, to be named the *Montford Point* and due to enter service in the spring of 2013; at least two additional units are planned. The U.S. Navy's 14th and final *Lewis and Clark*-class dry-cargo/ammunition ship was delivered on 24 October 2012, and the first joint high-speed vessel, the *Spearhead* (JHSV-1) was handed over in December 2012.

The first F-35B STOVL variant of the Joint Strike Fighter was delivered to Eglin Air Force Base for U.S. Marine Corps training early in 2012. The F-35B is currently scheduled to achieve initial operational capability by 2015, and the F-35C aircraft-carrier variant is due to reach IOC in 2016. New E-2D Advanced Hawkeye aircraft have been in low-rate production since 2009, and the airborne-early-warning platforms are scheduled for initial operational deployment beginning around 2015. New P-8A Poseidon maritime-patrol aircraft are also entering service, with the first production units delivered in 2012. A total of 117 P-8s are eventually planned to replace the P-3 Orion fleet.

The U.S. Coast Guard continues its recapitalization efforts, despite a slower-than-expected pace caused by budgetary challenges. In April 2012 the third of eight planned national-security cutters was commissioned into service, as the older high-endurance cutters *Jarvis* (WHEC-725) and *Dallas* (WHEC-716) were decommissioned. The first new U.S. Coast Guard Sentinel-class cutter was delivered in February 2012. Up to 58 of these new ships, also known as fast-response cutters, are planned. The Coast Guard hopes to order a new polar icebreaker during the next few years, although until she joins the fleet the aging icebreaker *Polar Star* (WAGB-10) is undergoing refurbishment and service-life extension to keep her operational.

Venezuela's fourth and final 325-foot *Gaiqueri*-class patrol ship was delivered in April 2012, but the second unit of the class, the *Warao*, suffered significant damage following a collision in a Brazilian port this past year. The country has ordered a number of new Dutch-designed patrol vessels to be built locally with assistance from the Netherlands and Cuba. Additional boats are being built in Cuba. The fourth and final Venezuelan 80-meter patrol-boat class was laid down in August 2012 and is expected to enter service during the next few years. ❄

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