

Royal Navy at the crossroads

Joris Janssen Lok

Once — in the 18th, 19th and early 20th Century — Great Britain was the world's dominant sea power. Since then, the impact of two World Wars, decolonization, economic crises and the end of the Cold War have all contributed to a gradual decline of British naval might. This decline roughly spanned the one hundred years between 1915 and 2015. Today, Britannia no longer rules all the waves and the Royal Navy is finding itself at a crossroads, at a time of sharply increased international tensions, re-emerging peer adversaries¹ and the uncertainties associated with a looming Brexit and a politically deeply divided nation.²

As of 2018, the Royal Navy (RN) numbers 33,000 active personnel (plus 10,000 reservists), three active naval bases (Devonport and Portsmouth in Southern England; Faslane on the Clyde in Scotland), 70 commissioned ships and 170 helicopters. Because of its long history, having been founded in 1546, it is known as the "Senior Service."

The current force structure is based on the 2015 *Strategic Defence and Security Review* (SDSR) conducted by the Conservative government of then-Prime Minister David Cameron.

Key elements of that SDSR included:

- a continued commitment to nuclear deterrent and amphibious force-projection capabilities as provided by the RN,
- a commitment to re-instate an expeditionary Carrier Strike capability³, and
- a commitment that the RN should have a minimum of 19 frigates and destroyers.^{4,5}

Nuclear-powered submarines

Based on this, the RN today operates 11 nuclear-powered submarines and a variety of surface ships and helicopters.

Of the submarines, four are so-called SSBNs of the Vanguard class, in service since the 1990s. These are 150-meter undersea behemoths of 16,000 tonnes displacement, armed with 16 Trident II D-5 submarine-launched intercontinental ballistic missiles, each carrying up to 12 multiple nuclear warheads. At any given time, one of the four is on patrol (Continuous At-Sea Deterrent, CASD), submerged at a secret location in the Atlantic Ocean. This provides the UK's strategic deterrence.

Because "we cannot know what dangers we might face in the 2030s, 2040s and 2050s" (statement by then-UK Defence Secretary Michael Fallon) the UK in October 2016 started a project to build four new Dreadnought-class SSBNs to continue the strategic deterrence mission through the mid-2100s. With a length of 153 meters and a displacement of 17,200 tonnes, they will be the largest submarines ever built for the RN. Their lifetime cost is estimated to end up well beyond £30 billion. This project already has made quite an impact on the RN's current budget: in March 2018 for example, the MoD entered into a contract worth £960 million for the second phase of Dreadnought production. Another £400 million investment to continue construction was announced in December.



Hunter-killers

The other seven submarines are SSNs, nuclear-powered hunter-killers designed for Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASuW), long-range land attack (firing Tomahawk cruise missiles), special forces operations and Intelligence, Surveillance & Reconnaissance (ISR). The ageing (1980s) Trafalgar-class SSNs are being replaced by new boats of the Astute class. Four are now in service and in March 2018 the MoD signed a £1.5 billion contract for the seventh and final Astute-class submarine, the future HMS *Agincourt*, to be ready in 2024.

Amphibious force projection is provided by 3 Commando Brigade (approximately 3,500 Royal Marines that can deploy worldwide) supported by five large amphibious dock landing ships, 30 landing craft and 25 upgraded Commando Merlin Mk4 assault helicopters.

Carrier Strike

The RN's Carrier Strike capability is being reconstituted. Two 65,500-tonne aircraft carriers (cost: £6.2 billion) and an initial batch of 48 F-35s (of which 35 actually on contract) are on their way. The first new aircraft carrier,

HMS *Queen Elizabeth*, was commissioned in December 2017 after ten years of construction and testing. It conducted an initial series of flight trials with the new F-35B strike fighters in September-November 2018 off the U.S. East Coast.

The second new aircraft carrier, *Prince of Wales*, is to start sea trials in 2019, while *Queen Elizabeth* is scheduled to reach Initial Operational Capability in 2020 and Full Operational Capability by 2023.

Seventeen of the new F-35 short take-off and vertical landing (STOVL) fighters had been delivered to the UK as of November 2018, operated jointly by the RAF and RN. The first nine arrived at the RAF Marham air base in Norfolk in June and August 2018. The remainder are still in the U.S. for testing and training. The aircraft are in Block 3F standard with Amraam and Asraam air-to-air missiles plus the Paveway IV precision-guided munition integrated; more weapons (including the long-range Meteor air-to-air missile) will follow in the coming years.

F-35 controversy

By 2024, the UK expects to have received its first 48 F-35Bs. The long-term plan is to acquire a total of 138 aircraft. As

[During the Royal Visit of King Willem Alexander and Queen Maxima of the Netherlands to London on October 23-24, 2018, the close collaboration of the RN with the RNLN was highlighted. Royal Marines and Royal Netherlands Marines performed a demonstration on the Thames \(photo credit: Netherlands MoD\)](#)

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of early December 2018, some controversy about these fighters was emerging (not for the first time). The RAF, reportedly, would prefer the second batch of 90 aircraft to be of the F-35A (conventional take-off and landing, CTOL) variant that cannot operate from the RN's new carriers. The F-35A is US\$10 million less expensive per aircraft than the F-35B, while being arguably more capable (in terms of range, maneuverability and weapons load). However, RN supporters say that such a move by the RAF would be detrimental to the Carrier Strike mission.

Will the state of the UK defense budget be such that the 90 additional F-35s can be afforded at all? That would seem to be a more pressing question, given competing priorities and the forecasted post-Brexit decline of the UK economy. In any case, the first RN Carrier Strike Group operational deployment "East of Suez" is planned for 2021, when the RN will begin regular deployments of this nature to project power "from the sea" worldwide.

As currently foreseen, the RN's Carrier Strike Group will typically comprise no fewer than seven units. Apart from the carrier and its embarked air wing, two destroyers, two frigates, one SSN plus two fleet replenishment ships ("2+2+1+2") will be required. One or some of these may be provided by allied navies. The Royal Netherlands Navy (RNLN) will deploy a warship with the first Carrier Strike Group in 2021, UK Prime Minister Theresa May announced on October 24. Another option for Dutch support may be to base some of the RNLN's NH90 helicopters on the British carrier.

Frigates and destroyers

The stated minimum force of 19 frigates and destroyers currently includes six fairly new Type 45 (Daring class) destroyers, commissioned in 2010-2013, whose primary role is Anti-Air Warfare (AAW). The remainder are Type 23 (Duke class) frigates, commissioned in 1991-2002 and therefore much older. Eight of these are optimized for ASW, carrying the Sonar 2087 towed variable-depth low-frequency active sonar mounted in the stern. The other five are used as general purpose patrol frigates.

The 2015 SDSR decided that the planned procurement of next-generation Type 26 (City-class) frigates was to be reduced, from 13 (planned to replace all Type 23s) to just eight (to replace the ASW-optimized frigates only). The history of the Type 26 goes back to 1997. It took the UK Government, MoD and prime contractor BAE Systems 20 years to get to the point where a £3.7 billion build contract

was signed in 2017. This was for the first three ships only, which therefore cost approximately £1.25 billion each. The first of these (the future HMS *Glasgow*) is now under construction, albeit at a slow pace. This is done deliberately to keep in business shipyard capacity at BAE Systems, the UK's only remaining company capable of building complex warships. First of class *Glasgow* is not to be launched until 2024 and should enter operational service in 2027, 30 years after the project started.

MoD statements say that the Type 26s will be extremely capable, especially in the ASW role. Their primary mission will be to protect the aircraft carriers and the nuclear deterrent submarines. But, not only will they be very expensive, they will also be arriving late, as the ageing Type 23s need to be decommissioned from 2023 at a rate of one per year.

Shipbuilding monopoly

In recent years, some concern has risen about the monopoly that has effectively been established in the UK naval shipbuilding market by BAE Systems since the 1990s. In 1939 there were still ten shipyards active in building complex surface warships in the UK. Today just BAE remains, with facilities in Glasgow, Scotland (surface warships) and Barrow-in-Furness, Northern England (submarines).

The UK government is currently investing billions in building new frigates, submarines and offshore patrol vessels — all with BAE Systems. An independent report by Sir John Parker, published in November 2016, set out recommendations to transform the country's shipbuilding industry by opening the market to more companies. The Parker report informed the UK National Shipbuilding Strategy (NSBS), published by the UK Government in September 2017. This outlines an ambition to make the UK's maritime industry more competitive, grow the Royal Navy fleet by the 2030s, export British ships overseas, and boost innovation, skills, jobs, and productivity across the UK, the government said at the time.

Type 31e frigates

The combination of the government's commitment to a surface fleet of at least 19 frigates and destroyers, the curtailing of the number of new Type 26 frigates and the need to start replacing Type 23 frigates in 2023, led to a decision in the 2015 SDSR to build five Type 31 frigates. Additional Type 31s might follow beyond 2030 to start increasing surface combatant numbers above 19. At the time



of SDSR 2015, the Type 31 was described as a light frigate to replace the five Type 23s used for general purpose duties.

Two years later in the NSBS, it was stated that it “should not be a complex and sophisticated warship based on traditional design approaches. It should be a modern and innovative design on a standard platform which should provide a menu of choice to support exports. It should be termed Type 31e. The ‘e’ means that export flexibility is inbuilt, not a variant.”

As of today, the requirement is for five Type 31e ships, the first entering into service in 2023 and the fifth in 2028, at a cost of £1.25 billion. In other words: five Type 31e frigates are to be built at the cost of one single Type 26. The Type 31e should have an open and adaptable ship and combat system design; using a UK-focused design and build strategy which maximizes UK prosperity, with the ships being built in a UK shipyard.

Competitive design phase

Starting in December 2018, industry consortia are engaging in a competitive design phase to come up, in 2019, with proposals to build the first batch of five Type 31e frigates. Probably the most prominent competitors are a team of Babcock International with Thales, and a team of BAE

Systems and Cammell Laird shipbuilders. The latter team are offering a design branded as the Leander: 117 meter long with a displacement (full load) of 3,700 tonnes. It is understood to be a stretched derivative of the Khareef-class corvettes that were built for Oman under a contract from 2007.

BAE will have to convince the customer that he should not break BAE’s naval shipbuilding monopoly and that BAE — which in the past has delivered projects with significant delays and cost overruns — can indeed build five surface warships in a short time and within a tight budget.

Danish-designed

Babcock is offering a design branded as the Arrowhead 140, a UK-modified derivative of the Danish-designed Iver Huitfeldt-class frigates, three of which have been in operational NATO service with the Royal Danish Navy since 2014. The Arrowhead is a fair bit larger than the Leander, measuring almost 140 meters in length with a displacement of 5,700 tonnes.

Babcock is planning to have the ships built in modules using shipyards in Northern Ireland and Scotland, with final assembly to take place at Rosyth near Edinburgh. Babcock has teamed with Thales to offer a combat system that has

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been successful on the export market and that, according to the manufacturer, is easy to adapt or upgrade, thanks to its open architecture and ongoing evolution roadmap.

Questions

Will the Carrier Strike Group be a sustainable business model for the RN? Will the National Shipbuilding Strategy succeed? Will BAE continue as the sole British builder of complex warships? What will be the impact of Brexit? Will there be sufficient budget to continue the modernization of the RN? None of these questions can currently be answered with certainty. It will be interesting to follow how events will unfold over the coming months and years.

Joris Janssen Lok is a member of the Editorial Board of *Atlantisch Perspectief*. The views expressed in this article are his own.

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1. J. Janssen Lok, 'NATO navies face new threats', *Atlantisch Perspectief*, 2018/4.
2. This article is based on public sources, including *Jane's Defence Weekly*, *Jane's Navy International*, *Jane's International Defense Review*, *Shephard's Naval Warfare International*, UK Government publications, plus the websites savetheroyalnavy.org and marineschepen.nl.
3. The UK has effectively been without Carrier Strike capability since the retirement (and subsequent sale to the U.S. Marine Corps) of the last remaining Harrier fighter aircraft in 2010. The RN's three Invincible-class aircraft carriers were decommissioned in 2005, 2011 and 2014, respectively, while the helicopter carrier HMS *Ocean* was transferred to Brazil in 2018.
4. Another decision coming from SDSR 2015 was to re-build the country's maritime patrol aviation capability (terminated in 2010) through the acquisition of nine Boeing P-8A Poseidon aircraft under a US\$3.2 billion contract signed in 2016. These highly capable platforms, based on the ubiquitous 737-800 airliner, will be operated by the Royal Air Force from Lossiemouth in Scotland. The first aircraft will arrive in 2019, the last by 2022.
5. The RN also operates five offshore patrol vessels (growing to eight as part of Brexit preparations), 12 minehunters, several support ships plus nine fleet replenishment ships operated by the Royal Fleet Auxiliary (RFA). There are six squadrons of helicopters (Merlin and Wildcat models).



The RN's new aircraft carrier HMS Queen Elizabeth conducted initial flight trials with F-35B fighter jets in September-November 2018 (photo: UK MoD)