



ROYAL NAVY MATTERS

BROADSHEET 2011



ROYAL NAVY MATTERS

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ADMIRAL SIR MARK STANHOPE

KCB OBE ADC, FIRST SEA LORD AND CHIEF OF NAVAL STAFF



**The Royal Navy –
right here, right
there, right now**

This edition of *Royal Navy Matters* records, among many notable accomplishments, the immense range of operational activities in which the Royal Navy has been engaged over the past year and a half. Because operations, at sea and from the sea, are what the Royal Navy primarily exists to do. It always has done and it always will. Which is why, right now, more than 8,000 sailors and marines are deployed on operations around the world, deterring and containing threats in the UK's national interest. Which is why, right now, there are well over 30 ships and submarines at sea, either engaged, or ready to engage, in operations as the UK Government directs.

Our operational tempo remains extremely high because the Royal Navy is contributing to every one of the military tasks, standing overseas commitments and contingency operations demanded of Defence. The 200-plus operations carried out by the Royal Navy in 2010 are, as this publication attests, diverse. At one end of the spectrum is, for example, 40 Commando's operations in Helmand, alongside the valuable work of the Naval Aviation Squadrons, Medical and Logistic Support capabilities, and HQ staff across Afghanistan. At the other end of the spectrum is the delivery and protection of the submarine-based strategic nuclear deterrent – now in its 43rd year of Continuous at-Sea Deterrence. And the Royal Navy has been carrying out plenty of other duties in between: from countering piracy in the Indian Ocean to conducting

maritime security operations in the Gulf; from counternarcotics patrols in the Atlantic to the protection of the UK's 14 overseas territories.

Closer to home, the Royal Navy has been protecting UK waters, by conducting maritime counterterrorist and security patrols, fishery protection, and providing Search and Rescue (SAR) cover around our coasts and in the Scottish mountains. Meanwhile, the far-flung survey ships have continued to chart the seabed, improve navigational safety and increase our understanding of the seas and the global climate.

All are a timely reminder of the inherent utility of our modern, flexible Navy – able to oscillate efficiently across the spectrum of operations.

Much of this activity is, of course, not new. The Royal Navy was countering piracy to protect British trading interests in the Indian Ocean back in the 18th century, and contributing to disaster relief operations around the world at the dawn of the 20th century.

And such activities are likely to continue. So even in the wake of the Strategic Defence and Security Review, in which some difficult decisions have necessarily been taken, the Royal Navy will remain a largely balanced Force. A Navy that has had to absorb the blow of a temporary loss of its fixed-wing strike capability, but is now focused on preparing for the return of this vital element in its armoury by the end of the decade. A Navy that will continue to provide an enduring presence within priority regions of the world, contributing to conflict

prevention and maintaining vital security along our critical maritime trade and energy routes. A Navy that is able to conduct, command and sustain operations from the sea to influence events on land, offering political choice in times of peace, tension and conflict. Above all, a Navy with a credible warfighting capability – you cannot deter effectively unless it is understood, by those whose behaviours you seek to influence, that you can intervene militarily with confidence. You cannot keep the peace unless you are physically there, and prepared and able to stay there.

Why is this so important? Because, as an island nation, in an interdependent and globalised economy, the UK's prosperity and security crucially depends on our ability to ensure access to the sea. Around 95 per cent of UK trade by volume, and 90 per cent by value, is carried by sea. We import much of the food and energy we consume; these are dependencies that are unlikely to change. In the complex, volatile and unpredictable world in which we live, we need a Navy that can protect our people, our global interests, our trade and our energy flows. How? By guaranteeing access to those areas of the world that are vital to our prosperity and security, and by maintaining the same 'good order at sea' as we would expect on land.

The Royal Navy, as the nation's professional experts and leaders on defence and security in the maritime environment, therefore plays a pivotal role supporting the delivery of the UK Government's global responsibilities and global ambitions – right here, right there, right now.

All this, and much more, is explored in depth in the pages that follow. As ever, I am most grateful to the contributors and editors, who together provide us with a rich and engaging record of what the Royal Navy is achieving on operations and accomplishing in support, for both today and tomorrow. We can all, quite rightly, be immensely proud. Read on and see why. ●



HMS CUMBERLAND'S rigid-hull inflatable boats approach a suspicious dhow



A member of HMS MONMOUTH'S weapons crew practises firing one of the ship's General Purpose Machine Guns



DEAR READER,

Welcome to the 2011 edition of *Royal Navy Matters*. The publication gives, I hope, an interesting and useful insight into the work that the Royal Navy has undertaken throughout 2010 and during the early part of 2011. Royal Navy sailors and Royal Marines have been active around the world – from the Atlantic to the Indian Ocean, on land, at sea and in the air. I trust that the following pages give a compelling account of what they have achieved since the last edition.

As I write we have over 8,500 personnel at sea or deployed on operations (at 23 per cent), have a third of the personnel on *Herrick*, are contributing to *Ellamy*, *Saxon Warrior*, *Spontex* and *Cougar*, and have a frigate in the Far East, in addition to meeting all our standing commitments, with over 75 per cent of our units actually at sea.

Once again, we are offering the publication in both hardcopy and electronic formats. An interactive DVD version includes some stunning video footage and a PDF of this book.

We are continuously developing *Royal Navy Matters* and are most grateful for your suggestions on how to improve our coverage of the Royal Navy's activities. I hope you enjoy reading and watching *Royal Navy Matters* and I look forward to your comments.

Pauline J Aquilina

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PROTECTING OUR NATION'S INTERESTS

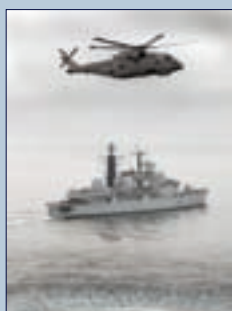
As an island nation, our prosperity and security is totally dependent on our ability to access the sea. The UK is reliant on a stable global market for the raw materials, energy and manufactured goods that underpin our way of life and, in a globalised world, we must have the ability to respond to any event that threatens our economy or national interests. That is why the Royal Navy is globally deployed and has a range of versatile ships, submarines and aircraft operated by highly professional Sailors, Airmen and Royal Marine Commandos. The Royal Navy continues to police the use of the sea in partnership with allies and retains the unique ability to influence events at sea, on land and in the air, and provides real flexibility of choice to both military and political leaders.

THE ROYAL NAVY IS:



PREVENTING CONFLICT

The Royal Navy prevents conflict by being globally deployed in order to deter threats by reassuring regional powers and stabilising potential hotspots. The coercive nature of a credible military force at sea has significant worth in reinforcing political will.



PROVIDING SECURITY AT SEA

The Royal Navy is at sea every day, working with international partners to provide global maritime security where it is needed.



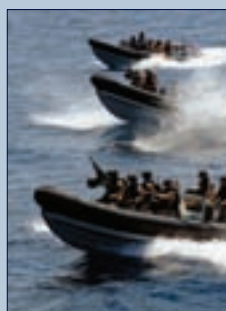
PROMOTING PARTNERSHIPS

The Royal Navy promotes stable and cooperative relationships with friendly and neutral nations around the world through working together, training together and determining common understanding.



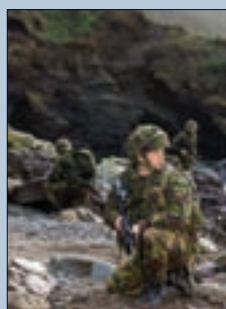
PROVIDING HUMANITARIAN ASSISTANCE

The Royal Navy provides humanitarian aid and relief from the sea, without the need to draw on a country's infrastructure or resources.



PROTECTING OUR ECONOMY

The Royal Navy contributes to the stability and economic prosperity of the UK by being deployed around the globe in order to protect trade routes and guard the flow of energy resources into our ports.



READY TO FIGHT

The Royal Navy is ready to fight and win in combat at sea, on land or in the air.

THESE ARE ENABLED BY:

Our Sailors and Marines are a highly skilled and efficient force. They are the lifeblood of our service, able to adapt to whatever the mission demands, and are key to delivering success anywhere in the world.





Sailors on parade as HMS DAUNTLESS, a Type 45 destroyer, is commissioned at BAE Systems' shipyard at Govan, Glasgow

NAVY STRATEGY POST SDSR

Following on from the Government's Strategic Defence and Security Review (SDSR), the First Sea Lord intends to issue the Navy Strategy (NS) in summer 2011. The purpose of the NS is to describe in more detail how SDSR decisions will shape the Royal Navy¹ today, tomorrow and towards 2025. The NS will be divided into three parts and will include: First Sea Lord's overview and strategic objectives (Part 1); an outline of how these strategic objectives will be achieved (Part 2); and a detailed breakdown of the personnel and equipment that will be available to resource these courses of action (Part 3).

The NS is a fully integrated part of the Ministry of Defence's (MoD's) broader 'Strategy for Defence', and as such the Royal Navy's strategic objectives will closely align with Defence's strategic objectives and will only require refreshing following a full SDSR. However, the ways and means to achieve these objectives will have to adapt to real-world events, and will be reviewed more frequently and republished at least every year.

The NS will provide essential direction to those responsible for generating current and future Royal Navy capabilities, such as nuclear deterrence, maritime task groups and individually deployed ships and assets. However, the nature

of the NS means it will also be of interest to anyone with a stake in the maritime environment. With this in mind an unclassified version of Part 1 will be produced for wider distribution. This document will focus on the First Sea Lord's strategic overview, which provides a head mark for the future of the Royal Navy. The head mark's distinctive features include a definition of the Royal Navy's roles and a description of the type of navy the Royal Navy will need to be in order to deliver SDSR commitments. Every member of the Royal Navy will have a part to play in the delivery of the NS. ●

¹ For brevity, the title 'Royal Navy' includes the Royal Marines, Royal Fleet Auxiliary and other organisations that make up the Naval Service



HMS CHATHAM in the Gulf of Aden

JANUARY 2010

- HMS CHATHAM sails for counter-piracy duties in the Gulf and off the Horn of Africa as the lead ship in NATO's Operation Ocean Shield.
- The Royal Navy and Royal Fleet Auxiliary receive awards from the International Maritime Organization for their counter-piracy work.
- HMS LANCASTER hosts maritime conference for representatives of the Australian, French, Saudi Arabian and Yemeni navies.

FEBRUARY

- HMS ST ALBANS conducts maritime security patrol in the Arabian Gulf.
- Search and Rescue (SAR) figures for 2009 are announced and HMS GANNET SAR surpasses all previous records, answering the most call-outs (447) and assisting the most people (378) since records began.
- Royal Navy aircraft carrier HMS ILLUSTRIOUS arrives in Rosyth for a £40 million maintenance and upgrade programme.
- HMS ALBION leads an amphibious Task Group heading for Exercise Cold Response in Norway.
- The last group of RN Artificers completes training. In future they will be called Engineering Technicians.
- Britannia Royal Naval College hosts a two-week visit from its affiliated German naval training establishment, the Marineschule Muerwik.

MARCH

- 40 Commando Royal Marines go to Afghanistan as a key element of Operation Herrick 12.
- RFA LARGS BAY delivers a month's supply of food for 200,000 victims of the Haitian earthquake, working directly with the UN's World Food Programme.
- Royal Navy bomb disposal experts from the Fleet Diving Squadron deployed to Afghanistan to assist in the effort to counter Improvised Explosive Devices.

- After five years in Afghanistan, the Naval Strike Wing returns to carrier operations onboard HMS ARK ROYAL.
- Two of the RN's newest vessels, the Type 45 destroyer HMS DAUNTLESS and hunter-killer submarine HMS ASTUTE, undertake sea trials together.
- Warrant Officer Matthew Tomlinson (RM) is awarded the Military Cross for rescuing comrades under enemy fire in Afghanistan.
- Lt Lucy O'Connor (RN) is selected to join the British boxing team for the 2012 Olympics.

APRIL

- RN reservist, Commander Neil Parsonage, receives a medal from the Ukrainian Government for his part in freeing the MV *Ariana* from Somali pirates.
- Royal Navy fleet flagship HMS ARK ROYAL heads for the US to participate in the Auriga deployment 2010.
- Two Iraqi Navy patrol ship crews (*Shomokh* and *Majed*) complete five-week intensive course under the stewardship of the joint US/UK Iraq Training and Advisory Mission-Navy.
- HMS CHATHAM, operating as part of NATO's Operation Ocean Shield, forces heavily armed Somali pirates to free the crew of the Indian dhow *Vishvakalyan* and abandon ship.
- 40 Commando take over command of the Sangin area of operations in Afghanistan from 3 Battalion The Rifles.

MAY

- The Royal Navy beats the Army rugby team (24-22) in front of a 56,000 crowd at Twickenham, ending the Army's eight-year reign as Inter-Service Champions.
- Royal Navy ships participate in the annual Khunjar Hadd exercise with ships from the Royal Navy of Oman.
- Troops from 40 Commando storm an IED factory in Afghanistan, capturing a large quantity of home-made explosives and other components used for making deadly booby traps.
- Twenty-three merchant seamen from the stricken MV *Dubai Moon* are rescued by HMS CHATHAM during a cyclone in waters off the Horn of Africa.
- The last Swiftsure submarine, HMS SCEPTRE, enters her home port for the final time as she prepares for decommissioning.
- HMS MONMOUTH escorts the flotilla of 'small ships' on their way to commemorate the 70th anniversary of Operation Dynamo, in which more than 300,000 allied troops were rescued from the beaches at Dunkirk in 1940.



RN counter-IED team in Helmand province

JUNE

- Royal Air Force Harriers from 1(F) Squadron Joint Force Harrier arrive on HMS ARK ROYAL off the east coast of the USA for the Auriga multinational deployment.
- HMS ALBION sails to join the Auriga deployment as the Flagship of the Amphibious Task Group.
- Troops from 40 Commando hand out more than 2,000 wind-up radios to locals in Afghanistan's Sangin District to enable local leaders to communicate more effectively with their citizens.
- First Sea Lord accompanies the Armed Forces Minister, Nick Harvey, on a visit to troops serving with 4 Mechanized Brigade in Helmand Province, Afghanistan.
- Military Reservists turn up to work in their uniforms as part of the Armed Forces Day celebrations.
- HMS MANCHESTER'S Lynx helicopter helps Royal Montserrat Police Force to intercept £1.5 million worth of cannabis and capture five drug smugglers.

JULY

- In two weeks, HMS TYNE detains two vessels suspected of contravening UK fisheries legislation.
- Admiral Sir Trevor Soar, Commander-in-Chief Fleet, visits UK Maritime Component Command in Bahrain.
- Two Royal Navy Task Groups simulate a mock invasion of the US Eastern Seaboard as the high point of the Auriga deployment.
- HMS DARING enters dry dock for the first time to undergo maintenance following successful completion of operational sea training in the spring.



Royal Marines exit HMS ALBION



Sea Viper missile firing

AUGUST

- HMS GLOUCESTER sets sail for the South Atlantic for a seven-month tour to take over the role of the Atlantic Patrol Task (South) ship.
- Sea Viper (formerly PAAMS), the air-defence missile for the Type 45 destroyers, successfully hits sea-skimming test drone in Mediterranean trials.
- HMS GLOUCESTER intercepts a yacht in the mid-Atlantic carrying drugs with a street value of £4 million hidden in her rudder.
- The Duchess of Cornwall officiates at the commissioning ceremony to welcome HMS ASTUTE into the Royal Navy.

SEPTEMBER

- Merlin helicopters from 820 NAS deployed to Horn of Africa on anti-piracy duties onboard RFA FORT VICTORIA.
- HMS OCEAN takes part in joint amphibious exercises with the Brazilian Navy and Marines.
- British Army Apache attack helicopters deployed on HMS ARK ROYAL for the Autumn Joint Warrior exercise.
- HMS PORTLAND holds commemoration service in the Pacific Ocean for those lost during the Battle of Coronel in 1914.

OCTOBER

- National Maritime Museum joins forces with the Imperial War Museum to open a new £13 million exhibition site (No.1 Smithery) at the Historic Dockyard in Chatham.
- First live-firing of the Sea Viper air-defence missile from a Type 45 destroyer takes place from HMS DAUNTLESS.
- The third Type 45 destroyer, HMS DIAMOND, is formally accepted into the Royal Navy.
- The sixth and final Type 45 destroyer, HMS DUNCAN, is launched at Govan shipyard.
- The Strategic Defence and Security Review cuts the RN by 5,000 sailors and six ships.
- The Merlin Mk 2 makes its maiden flight to test its onboard computer systems and cockpit displays.



An RAF Harrier flies off HMS ARK ROYAL for the last time

NOVEMBER

- RFA WAVE RULER deployed to St Lucia to deliver disaster support to the island after it's hit by Hurricane Tomas.
- A Harrier jump jet flown by Flight Commander James Blackmore becomes the last of its type to fly off HMS ARK ROYAL prior to her early decommissioning.
- Celebrations take place to mark the 70th anniversary of the Battle of Taranto, during which the Royal Navy launched a devastating airborne attack on the Italian fleet.
- Lieutenant Catherine Ker becomes the Royal Navy's first female mine-clearance diver on completing the arduous course at the Defence Diving School.

DECEMBER

- HMS ARK ROYAL enters Portsmouth for the last time, prior to being decommissioned in 2011.
- HMS SCEPTRE, the last Swiftsure submarine, is decommissioned after 32 years of service in the Royal Navy.
- Harrier jump jets complete a spectacular final fly-past to mark their retirement after 41 years in service.
- The latest Astute hunter-killer submarine, HMS AMBUSH, is officially launched at Barrow-in-Furness.

JANUARY 2011

- Type 23 Frigate HMS RICHMOND deployed to Horn of Africa for anti-piracy duties off the coast of Somalia.
- 847 Naval Air Squadron returns to Afghanistan to operate the Lynx Mk 9A battlefield helicopter.
- Survey ship HMS ECHO sets off for a two-year deployment to the Far East, following maintenance and training periods during 2010.
- First Sea Lord is present at the decommissioning of Naval Strike Wing (800 NAS) as Joint Force Harrier disbands.



Astute-class submarine HMS AMBUSH prepares to launch

FEBRUARY

- RN helicopters participate for the first time in the Proud Manta ASW exercise, off the coast of Sicily.
- Government statistics confirm HMS GANNET as the UK's busiest SAR station for the fourth year in a row.
- HMS CORNWALL frees five Yemeni hostages from Somali pirates after 92 days of captivity aboard their dhow in the Indian Ocean.
- Type 22 frigate HMS CUMBERLAND rescues several hundred civilians from the port of Benghazi, Libya.

MARCH

- HMS ARK ROYAL is decommissioned on 11 March during an hour-long ceremony at Portsmouth.
- A Trafalgar-class submarine (HMS TRIUMPH) launches TLAM cruise missile at targets in Libya, in support of the UN Security Resolution 1973.
- RN Jetstream trainer aircraft from 750 NAS celebrate the end of their service life with a fly-past over RNAS Culdrose.
- HMS LIVERPOOL sails to the Mediterranean to participate in the Libyan mission to protect civilians.

APRIL

- The Hunt-class mine countermeasures ship, HMS BROCKLESBY, conducts Mine Counter Measure (MCM) operations off the coast of Libya.
- The lead element of Response Force Task Group sets sail for the Cougar 11 deployment to the Mediterranean and the Middle East.
- 3 Commando Royal Marines take command of Task Force Helmand in Afghanistan as part of Operation Herrick 14.



Royal Marines practising capsizing drill



Atlantic Patrol Task (North) supports British dependent territories in the Caribbean during the hurricane season and undertakes counternarcotics operations alongside the US Coastguard and Royal Netherlands Navy

Fishery Protection Squadron patrolling the UK's Extended Fisheries Zone

Exercise Joint Warrior spring and autumn joint training exercises around the coast of Great Britain

The Auriga deployment off the eastern seaboard of the US


Standing NATO Mine Countermeasures Group 2 operates predominantly in the Mediterranean

Atlantic Patrol Task (South) supports British dependent territories in the South Atlantic and West Africa

HMS CLYDE, the Falkland Islands Patrol Ship maintains British sovereignty of dependent territories

OPERATIONAL OVERVIEW

2011



Standing NATO Mine Countermeasures Group 1 operates from Scandinavia to North America

Search and Rescue (SAR)
– 771 Naval Air Squadron
and Gannet SAR Flight
operate from RNAS Culdrose
and Prestwick airfield

Standing NATO Maritime Group 2
activities in the Mediterranean
include Operation Active
Endeavour and Operation Ocean
Shield off the Horn of Africa

Cyprus Squadron provides
forces protection and
internal security for
UK sovereign bases

Royal Navy contributions
to the NATO International
Security Assistance Force
operations in Afghanistan and
the Iraq training programme

Anti-piracy and counterterrorism
operations in the Gulf and
around the Horn of Africa

ADMIRAL SIR TREVOR SOAR

KCB OBE, COMMANDER-IN-CHIEF FLEET

AN EVENTFUL YEAR



Maintaining the nation's security in a time of austerity and uncertainty is exercising the minds of all those with a stake in Defence. Reshaping the Royal Navy in response to the Strategic Defence and Security Review (SDSR) of October 2010 is an absolute priority within this overall task.

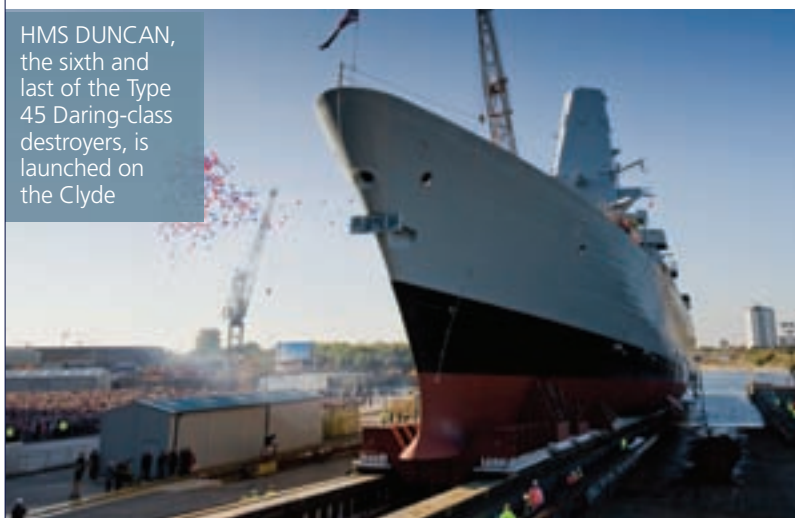
It is vital that the Royal Navy continues to meet the various commitments demanded of it by the government. However, the early retirement of four frigates, the aircraft carrier HMS ARK ROYAL, and, at a later date, another carrier, either HMS ILLUSTRIOUS or HMS OCEAN, all mean that we must adapt the way we generate and deploy our ships and submarines and how we train our people. We cannot do more with less, and so we must look to better focus our available vessels into an agile and flexible force that can operate together as well as they do independently. As we formulate and refine a Future

Vision for the RN, which will set out the shape and capabilities of the Future Force 2020 outlined in the SDSR, we will adopt the concept of the Response Force Task Group as a recognised naval output. This is not an entirely new idea. The Auriga deployment in 2010 was a textbook example of getting the maximum range of effects from a Task Group.

Looking back over the past year-and-a-half, there have been a number of highlights and milestones bearing witness to the confidence and pride with which the Service can look to the future. The firing of the first anti-aircraft Sea Viper missile from the Type 45 destroyer HMS DAUNTLESS demonstrated how we are strengthening the Royal Navy with new, more capable ships and more powerful weapon systems. In October 2010, we launched HMS DUNCAN, the sixth and final Type 45 Daring-class ship. In December, the second Astute-class hunter-killer submarine, HMS AMBUSH, was also launched, a few months after the government's commitment to funding the full complement of seven Astute boats. Meanwhile, the assessment and design work on the Type 26 Global Combat Ship is also well under way.

Operations in Afghanistan saw the constituent elements of the Naval Service much in demand, with the Commando Helicopter Force Sea King helicopters from 845 and 846 Naval Air Squadrons (NASs) rotating through Camp Bastion and Kandahar Airfield. Upgraded Royal Navy Mk 9A Lynxes from 847 NAS returned to Helmand in 2011 to undertake supply, escort and reconnaissance missions, and

HMS DUNCAN, the sixth and last of the Type 45 Daring-class destroyers, is launched on the Clyde





the Mk 7 surveillance Sea Kings that arrived in Helmand in 2009 have made an extraordinary impact, particularly with the effort to locate improvised explosive devices. Throughout a long summer, 40 Cdo were back in Helmand, the last UK-formed unit to leave Sangin – ably supported by the hundreds of Royal Navy personnel also in theatre, who undertake a variety of tasks away from the spotlight, often without the credit or recognition they deserve. This year, 2011, sees RN numbers in Afghanistan expand again as 3 Commando Brigade returns for another tour of duty.

Iraq and the wider Gulf region remain a priority, as recent events attest. The UK finally ended Operation Telic in May 2011 after concluding Royal Navy training of the Iraqi Navy to take over the protection of the Iraqi oil platforms in the shallow waters of the Gulf close to the disputed border with Iran. In addition, the RN and Royal Fleet Auxiliary presence in the wider Gulf remains significant, with Mine Countermeasures vessels keeping this strategic waterway open for trade and energy supplies.

We are doing much more besides. The continuous tasks we must carry out include the support to the overseas territories in the Caribbean, the protection and support of British territories in the South Atlantic, providing and safeguarding the nation's nuclear

Naval Service personnel have been at the heart of the response to the unfolding Libya crisis

deterrent, and assisting with border control, counterterrorism, fisheries protection and anti-drug activities closer to home. Other tasks that the RN performs in support of government policy relate to keeping the sea lanes open, international stability, deterring illegal activity at sea and fostering good relations with friends, allies and potential allies.

Over the past decade, this has seen the RN become heavily involved in counterterrorist operations in the Mediterranean and counternarcotics work in the Caribbean and off the west coast of Africa, as well as combating the growing menace from pirates operating off the Horn of Africa and the Somali Basin. Added to this, the RN must be able to react to any contingency which requires a show of force, or the ability to rescue our citizens wherever they may be stranded, as well as the provision of emergency relief.

Recent events in Libya make my point for me. Naval Service personnel have been at the heart of the UK military response to the unfolding crisis there, providing emergency relief to those caught

up in the fighting, evacuating many hundreds of civilians from more than 30 different nations, and using force where that has been necessary to protect the population and enforce the UN mandate.

I am not alone in recognising that it is the quality and determination of our sailors and marines that enable us to fulfil such a wide scope of missions around the globe, respond decisively to emerging tasks and deliver the government's Defence vision. I am in no doubt that the dedication and professionalism of our people is unparalleled, just as I recognise that such a high tempo of operations naturally takes its toll. Running so hot for so long creates pressures that need to be released. In order to reduce the tempo and bring our platforms and ships into a balance that is sustainable in the longer term, we have to rebalance the long-term operational schedule; we have to release some of that pressure. Not only will this benefit our fleet, ensuring it remains available for both the many standing tasks that fall to us and to meet the unexpected; it will also help our men and women to better balance their own busy lives. ●

Above left:
Royal Navy
Lynx helicopters
returned to
Afghanistan
in 2011

Above right:
Bags of rice are
delivered ashore
on RFA LARGS
BAY'S mexefloat
powered rafts
for the victims
of the Haitian
earthquake

THE IMPACT OF THE STRATEGIC DEFENCE AND SECURITY REVIEW (SDSR)

Without doubt, the most high-profile impact of the SDSR was the government's decision to immediately decommission the aircraft carrier, HMS ARK ROYAL, and to withdraw from service the Harrier jump jets operated by both the Fleet Air Arm and the Royal Air Force. Other decisions included the reduction of Naval Service personnel to 29,000 sailors by 2015. Furthermore, four batch 3 Type 22 frigates, HM Ships CAMPBELTOWN, CHATHAM, CORNWALL and CUMBERLAND have been decommissioned in 2011; and either HMS Illustrious or Ocean will be withdrawn by the end of 2014. As a consequence of the reduction of the surface fleet, it was also decided that the Royal Fleet Auxiliary will lose RFAs BAYLEAF, a

support tanker, and FORT GEORGE, a fleet replenishment tanker; as well as a Bay-class amphibious landing ship, LARGS BAY. That said, FORT AUSTIN, which was placed in reserve in 2009, will rejoin the active fleet.

Unwelcome as these decisions are, they reflect the Royal Navy's contribution to the national effort to reduce the national deficit. At the same time, the SDSR also established a blueprint for the longer-term transformation of the UK's Armed Forces. The aim is, over time, to ensure that they are more agile and better equipped to face the threats likely to challenge the security and interests of the United Kingdom, her overseas territories and allies in the coming decades.

Accordingly, the government

is committed to building two new Queen Elizabeth-class aircraft carriers and to purchasing the longer-range and more heavily armed version of the Joint Strike Fighter – the conventional carrier variant F-35C. Seven Astute hunter-killer submarines will also be built.

Moreover, when the current Type 23 frigates start to be decommissioned around the end of the decade, a new Type 26 Global Combat Ship will replace them, maintaining



The SDSR saw the withdrawal of the Harrier from the Fleet Air Arm

a mixed frigate/destroyer fleet of 19 escorts. The nuclear deterrent will continue to be met by a fleet of submarines, albeit armed with fewer warheads than in the past.

The reduction in the size of the available Fleet means that the Royal Navy must realign its priorities. Committed tasks (those enduring tasks set by national policy), such as the patrols in the North and South Atlantic, will remain. There will be no break in the nuclear deterrent patrols, and the protection of home waters will continue. There will, however, be some reduction in the extent of our participation in NATO maritime activity, and our counter-piracy effort will have to be carefully balanced against other commitments.

In order to meet contingent demands (in other words, the tasking of maritime forces in support of unforeseen events), the Navy has further developed the Response Force Task Group (RFTG) concept, which was trialled successfully during the 2010 Auriga Task Group deployment to the Atlantic. Each year, the plan will be to deploy a group of ships, led by an aircraft carrier or an amphibious assault ship. This group will train, form up and deploy ships to an area of significance to the national interest.

En route to its destination, the RFTG will undertake a series of exercises with allies and friends, and perform other tasks that contribute to the promotion of British interests. This, for example, covers a range of activities, including helping other nations with their maritime training, supporting export sales drives or engaging with influential representatives of states that hold a strategic defence or economic interest to the UK.

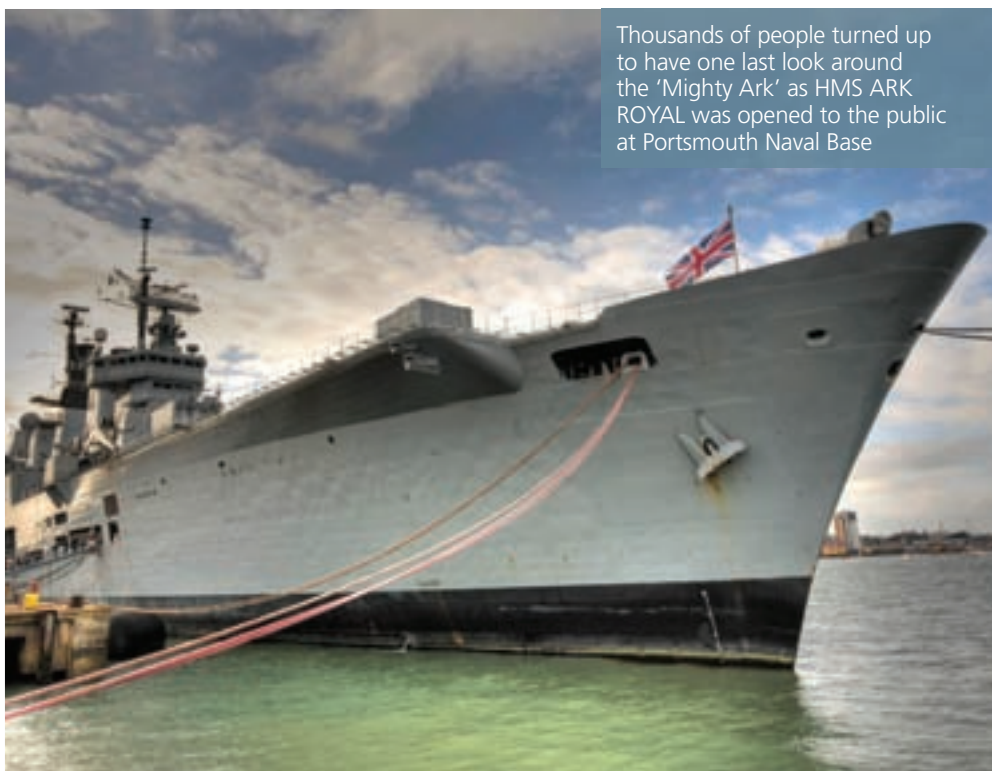
Moreover, should world events conspire to threaten UK interests abroad, then the RFTG is on hand to respond; indeed, at the time of going to press, the validity and flexibility of this concept has come to the fore in support of operations in Libya. ●

Two huge Queen Elizabeth-class aircraft carriers will be built to carry conventional fast jets



Each year, the plan is to deploy a group of ships, led by an aircraft carrier or an amphibious assault ship, that will train, form up and deploy ships to an area of significance to the national interest

Thousands of people turned up to have one last look around the 'Mighty Ark' as HMS ARK ROYAL was opened to the public at Portsmouth Naval Base





Above: A Merlin helicopter on the hangar lift being readied to join the Harrier jets on the upper deck of HMS ILLUSTRIOUS

The surface fleet is entering a period of transition that will be one of the most challenging it has faced in modern times. The Future Force 2020 concept, outlined in the Strategic Defence and Security Review, envisages a UK capability to deploy fast jets as far as 700 nautical miles into foreign territory from an aircraft carrier. But the withdrawal of the Harriers and the decision not to buy the jump-jet version of the F-35 in favour of the conventional version calls for some very careful planning, and the assistance of our American and French allies. With the first Queen Elizabeth-class aircraft carrier already partially built, a decision will be taken whether to fit the ship with the catapults and arrestor gear with which the F-35C will operate. This will be carried out after we have selected the catapult system

that will be most applicable – either steam-powered or electromagnetic.

The Royal Navy's future carriers will deliver a variety of capabilities and undertake numerous different roles. As well as providing a fixed-wing offensive capability (their primary role), these ships and their air groups offer considerable flexibility and, therefore, strategic choice for the UK. They will be able to place a Royal Marines Commando or Special Forces Group ashore, assist with humanitarian disaster-relief operations, as well as participate in a major evacuation on

the scale of Operation Highbrow (the Lebanon rescue) in 2006. The challenge in the interim is to maintain and then develop all of the skills required for operating conventional fast jets off a carrier, while also maintaining the helicopter-borne beach assault skills. We will also need to plan carefully how we intend to de-risk the transition from the short take-off ramp and vertical landing operations used on the Invincible-class carriers to the catapulted take-offs and arrested landings that the new carrier will employ.

The withdrawal of the Harriers and the decision not to buy the jump-jet version of the F-35 calls for some very careful planning

ATLANTIC PATROLS

NORTH AND SOUTH

Auring 2010, Royal Navy activity in the Atlantic continued apace, both in the North and South.

Counternarcotics, Hurricane Watch and support to UK territories, including the British Antarctic station, remained the key priorities. The Atlantic highlight of 2010 was perhaps the Auriga deployment, which was designed to meet the pre-SDSR requirement for fast-jet operations off carriers and the maintenance of amphibious warfare skills. With so many RN helicopters now involved with the effort in Afghanistan, the US supplied many of the enablers for these training exercises – welcome support from a valued ally.

Auriga was an excellent opportunity for 42 Commando Royal Marines to prepare for its 2011 deployment to Afghanistan as part of 3 Commando Brigade.

The deployment achieved much more than this, though, as helicopter carrier HMS OCEAN remained in the Atlantic after the rest of the ships returned home, to fulfil a number of other Defence tasks. She went on to undertake a maritime security patrol in the Caribbean, before sailing down to Rio de Janeiro in Brazil, where she participated in an amphibious training exercise with the Brazilian Navy and Marines. Remaining in Rio, the ship then hosted a UK Trade and Industry exhibition, followed by a reception for local dignitaries, and a bilateral security seminar that culminated in the signing of a Defence Cooperation Treaty by the

Minister for International Security Strategy, Gerald Howarth MP, and the Commander of the Brazilian Navy, Admiral Moura Neto.

Next stop was the Nigerian port of Lagos, in time to join in the celebrations for the 50th anniversary of Nigerian independence from Great Britain. HMS OCEAN hosted HRH The Duke of Gloucester and 400 guests at a reception. Meanwhile, Royal Marines from 539 Assault Squadron participated in the handover of the Joint Maritime Security Training Centre in Lagos from British mentorship to the Nigerian Armed Forces. In addition, as part of the Africa Partnership Station (APS)

HMS OCEAN remained in the Atlantic after the end of the Auriga deployment to fulfil a number of other Defence tasks

Counternarcotics, Hurricane Watch and support to UK territories remained the key priorities



programme, HMS OCEAN also welcomed 20 Nigerian Naval officer cadets onboard with their US Liaison Officer for part of the trip to Lagos, so that they could see at first hand how a British warship operates. Once in Lagos, a further 40 Nigerian sailors were invited to join in boarding, firefighting, first-aid and damage-control drills. HMS OCEAN then set off for a maritime security patrol in the Gulf of Guinea, taking a group of naval personnel from Benin, Ghana, Sierra Leone and Togo with her.

In August 2010, on her way to the South Atlantic for a seven-month tour to take over the role

of Atlantic Patrol (South), HMS GLOUCESTER was tasked by the Maritime Analysis and Operations Centre (Narcotics) in Lisbon to assist the Cape Verde authorities in West Africa in intercepting a suspicious yacht, the *Tortuga*, which was later found to be smuggling £4 million-worth of cocaine in her rudder. GLOUCESTER used her Lynx helicopter to track down the Florida-registered leisure craft. Having done her duty, GLOUCESTER then made for the South Atlantic to relieve HMS PORTLAND in providing security and protection for the British territories in that part of the world. She berthed alongside her companion for

the tour, RFA BLACK ROVER, in September 2010 at the Falkland Islands' East Cove Military Port.

Having already undertaken three Atlantic Patrols in the last four years, GLOUCESTER is an old hand at this work. While there, she also engaged in joint exercises with the Brazilian and Chilean navies and supported the Expo Naval maritime defence exhibition in Chile's port of Valparaíso. After spending Christmas in the South Atlantic, she was subsequently extended on task to allow HMS YORK to divert for a time to support humanitarian operations in Libya, before finally returning to the UK, via New York, in late March 2011.

CARIBBEAN COUNTERNARCOTICS AND HURRICANE WATCH



Channel 5 television series *Royal Navy: Caribbean Patrol* kept tabs on Type 42 destroyer HMS MANCHESTER during her seven-month tour of the Caribbean, which ended in December 2010. The Royal Navy and Royal Fleet Auxiliary ships that patrol this region work closely with the Joint Interagency Task Force (South), based in Florida's Key West, to coordinate counternarcotics activity and share intelligence. Almost as soon as she arrived on scene, her embarked Lynx helicopter spotted a go-fast boat acting suspiciously. Quick thinking enabled the ship's crew not only to coordinate the

HMS MANCHESTER prevented 800 kg of cocaine worth over £16 million on a single operation during her patrol of the Caribbean

traffickers' arrest by the Royal Montserrat Police Force, but also to spot where the cannabis (with a street value of £1.5 million), which had been hastily thrown overboard, had washed up on the beach.

The major counternarcotics success of the tour was against a converted Colombian fishing vessel. HMS MANCHESTER intercepted the boat with the intention of handing her over to the Colombian authorities. The Colombian ship's crew, however, as is the case in many of these types of operations, threw the drugs overboard. Luckily, two of the seven bales of cocaine were retrieved before they sank, and were handed over to the Colombians. This action prevented 800kg of cocaine – worth about £17 million – from reaching the streets of the UK.

As part of her other duties in the Caribbean, HMS MANCHESTER also played a key role in following hurricanes. The ship's Lynx was used to carry out aerial surveys that assisted authorities in our Overseas Territories to identify, and address

more effectively, areas damaged by Hurricanes Earl and Igor. When Hurricane Tomas slammed into St Lucia, ripping up roofs, tearing down power lines and causing devastating mudslides that knocked down buildings and other vital infrastructure, MANCHESTER came into her own. The ship's company was called at short notice to go to the aid of the town of Soufrière and spent two days tracking through mudslides and helping to clear the devastation. Their first tasks were to re-establish a working hospital, ensure the availability of clean water and bring in emergency supplies.

As part of the counternarcotics effort in the Caribbean, HMS MANCHESTER was invited to visit Cuba and became the first British warship since the 1959 Castro-led revolution to enter Havana. Rear Admiral Carlos Alfonso Duque Ramos and British Ambassador to Cuba, Dianne Melrose, were welcomed aboard the ship, and a working lunch was held to discuss how to improve counternarcotics cooperation.

SAFEGUARDING THE GULF

With such a high percentage of UK energy imports coming through the Gulf, it is absolutely essential that the sea lanes in this volatile region remain open and unimpeded. The threats are real. Terrorist attacks on shipping and the Iraqi oil platforms have, in the past, been a worrying feature. Tensions in the region have increased as the uprisings continue resonate through the Gulf States, during what has become known as the 'Arab Spring'. To help our partners to preserve stability in the region, the Royal Navy (RN) and Royal Fleet Auxiliary maintain a dozen ships in these waters and have a sustained presence totalling over 1,500 sailors and marines.

There is a particular risk of the Gulf being closed down by the seeding of mines. It is, therefore, significant that the US Navy considers the RN's Mine Countermeasures flotilla as the jewel in the crown of the maritime forces in the area. Throughout the year, the RN assigned four Sandown- and Hunt-class mine-detection and clearance vessels to the coalition force – HM Ships

CHIDDINGFOLD, GRIMSBY, MIDDLETON and PEMBROKE. The ships are kept on station in temperatures exceeding 50°C by rotating crews through each of the four vessels, rather than bringing the ships back to their home ports. Type 23 frigates HMS ST ALBANS and SOMERSET were also in the Gulf during the year, together with the RFA's Gulf Ready Tanker, RFA BAYLEAF, RFA CARDIGAN BAY, RFA LYME BAY, and the forward repair ship, RFA DILIGENCE.

There is more to keeping the sea lanes open than meets the eye. Ensuring that seabed obstacles are logged and that changes to undersea channels are recorded is the job of the two RN survey vessels, ECHO and ENTERPRISE. The latter spent over a year updating hydrographic charts off the coast of Oman to assist with ongoing work on a new \$1.7 billion development at Port Duqm. While there, she was visited by the Secretary of State for Defence, Dr Liam Fox. In January 2011, her sister ship, ECHO, began a two-year deployment to the Red Sea, Gulf and Indian Ocean.



Father Christmas pays a surprise visit to Royal Navy personnel helping to train Iraqi sailors and marines protect their oil installations

IRAQ BUILDING MARITIME CAPABILITY

The US-UK effort to train the Iraqi Navy and Marines so that they can maintain the integrity of their territorial waters and protect the two oil platforms – ABOT and KAAOT – has resulted in marked progress. The UK training effort, which began in 2004, had been expected to end in November 2010. However, in the same month, the Iraqi Council of Ministers requested that around 100 Royal Navy trainers remain for an additional six-month period. This postponement was agreed and the UK contribution to the training effort finally completed in May 2011.

During 2010, the newly formed Iraqi Navy received the final two of four Fatah-class patrol ships, MAJED and SHOMOKH, officially welcomed into the service on Valentine's Day. Later in the year, these were joined by the first of 15 coastal-patrol vessels built by Swiftships in the US. On 7 January 2011 – Iraqi National Army Day – the Iraqi Navy successfully completed its first patrol around the ABOT platform in one of their new ships.

HMS PEMBROKE and HMS GRIMSBY sail from HMNB Clyde for their two-year deployment to the Gulf

COUNTER-PIRACY AT THE HEART OF THE INTERNATIONAL EFFORT

The alarming resurgence of the pirate threat off the Horn of Africa (HoA) and within the Somali Basin continues to hamper those who pass through these waters. However, increased naval activity had a marked impact on the number of pirate attacks in 2010. In the first quarter of 2010, there were 34 per cent fewer pirate attacks worldwide than in the corresponding period in 2009. The International Maritime Bureau attributed this decrease directly to the counter-piracy effort. While the number of pirate attacks is increasing every year, the number of successful attacks is being driven down. The effort to contain them goes on. That said, the first three months of 2011 saw an unprecedented rise in pirate attacks to 142, with 97 of these taking place in the Somali Basin.

Naval activity had a marked impact on the number of pirate attacks in 2010



The RN continued to play a pivotal role in this effort, taking part in all three of the major operations: NATO's Operation Ocean Shield, the coalition-based Combined Task Force 151, and the European Union's NAVFOR Operation Atalanta. The RN's leadership role in the campaign against piracy was highlighted by the handover of command of the

EU NAVFOR in June 2010 from Rear Admiral Peter Hudson RN to Major General Buster Howes of the Royal Marines at the force's headquarters in Northwood, London. CINC Fleet commands Operation Ocean Shield, also from the Northwood headquarters, as part of his NATO responsibilities, and Commodore Tim Fraser RN is deputy to Admiral Fox USN, who leads CTF 151.

HOME WATERS

Provision of fishery protection in English, Northern Irish and Welsh waters was carried out under the agreement with the Marine Management Organisation Fisheries Agency through the Department of Environment, Food and Rural Affairs. During 2009-10, the RN Fisheries Protection Squadron provided 670

Students are given a taste of navy life onboard the University Royal Naval Unit Archer P2000 patrol boats

patrol days at sea, 30 fewer than in the previous period. These were undertaken by three River-class offshore patrol vessels – HM Ships MERSEY, SEVERN and TYNE. During the 12-month period, RN British Sea Fisheries Officers conducted 1,200 inspections at sea – 98 more than in the previous year. In total, six vessels were detained, with HMS TYNE detaining two vessels in a two-week period in July alone. Some 49 statements were forwarded for further investigation, 31 official written warnings were handed out, and a further 242 verbal warnings delivered, as against the 33 written warnings and 144 verbal warnings handed out in the 2008-09 period.

Also operating in home waters are the 14 P2000 patrol boats of the University Royal Naval Units (URNU). Major highlights for 2010 were the

Easter and summer deployments. The Easter deployment saw the patrol boats sail along the south coast of the UK, visiting numerous ports from Portsmouth to Dartmouth via Cowes, Torquay and Weymouth. The summer deployment saw the URNU venture much further afield – as far as Copenhagen via Kiel and Amsterdam.

Last year was the 70th anniversary of Operation Dynamo, the RN-led mission to rescue more than 300,000 Allied troops stuck on the beaches at Dunkirk. The frigate HMS MONMOUTH escorted a flotilla of 'Little Ships' to France to commemorate the occasion, and one of the URNU P2000 boats, Bristol University's HMS RAIDER, was also on hand to help guide the flotilla across the busy waters of the English Channel.



INDIAN OCEAN

The United Kingdom, together with its fellow members of the Five Power Defence Arrangements (FPDA) – Australia, Malaysia, New Zealand and Singapore – is commemorating the 40th anniversary of the agreement in 2011. To mark the occasion, the Royal Navy has sent HMS RICHMOND to participate in the annual Bersama Shield exercise that the FPDA navies run in the waters of the South China Sea.

In February 2011, the Type 22 frigate, HMS CORNWALL, came to the rescue of a captured dhow in the Indian Ocean after it had received a distress call from a South Korean merchant vessel that was under attack. Having used its Lynx helicopter to scare off the pirates, boarding teams of sailors and marines then retook the pirated dhow and freed the Yemeni crew – five of whom had been held hostage for 92 days. The pirates had been using the captured vessel as a mother ship and had loaded on three small skiffs, powerful outboard motors, ladders, AK-47 assault rifles and RPGs to carry out their raids.

HMS CUMBERLAND delivers rescued evacuees to Malta from the Port of Benghazi



MEDITERRANEAN

Apart from the ongoing counter-terrorist activities undertaken in the Mediterranean as part of Operation Active Endeavour, the Mediterranean also saw the final test firings for the RN's newest anti-aircraft missile system the Sea Viper (formerly PAAMS). In August 2010, a drone travelling at high speed (several hundred miles per hour) was destroyed by the Sea Viper system, having been fired off the Longbow test barge.

There was further activity in the Mediterranean at the beginning of 2011 when Merlins from 814 NAS flew 1,400 miles from Culdrose in Cornwall to Sicily to take part in the NATO anti-submarine warfare training under Exercise Proud Manta. While in Sicily, aircraft, crew and ground-support personnel were hosted by the US Navy at their Sigonella NAS.

At the start of 2011, many UK nationals found themselves stranded in Libya as the country entered the grip of a violent revolution. The British Government, therefore, arranged for chartered aircraft to take as many people as possible from Tripoli International Airport. Others who were able to leave the country by land routes were advised to. The Royal Navy subsequently played a major part in the multi-stranded evacuation plan by sending the Type 22

frigate, HMS CUMBERLAND, to Libya's port of Benghazi to pick up a further group of 207 people from 34 nations. She was later joined by HMS YORK and then HMS WESTMINSTER, who initially supported the non-combatant evacuation but went on to patrol off Benghazi to protect against possible attack from the Libyan Navy.

Following the imposition of the UN Resolution 1973, the Royal Navy has been assisting in Operation Unified Protector and Operation Ellamy to defend the civilian population from aggression and to impose a no-fly zone. Two Trafalgar-class submarines, HMS TRIUMPH and TURBULENT have been deployed to the area launching TLAM cruise missiles against targets in Libya, RN Ships then began to assist with the embargo by intercepting – and, when necessary, boarding – ships that appeared to be in contravention of the embargo.

The RN has also used the advanced air-surveillance equipment on the destroyer HMS LIVERPOOL to direct alliance aircraft engaged in imposing the no-fly zone. As we go to press, HMS BROCKLESBY, operating in support of these operations, has been making an important contribution clearing mines and keeping the port of Misurata open, and RFTG elements are being retasked in support.

Royal Marines from the Fleet Protection Group board a suspicious dhow





THE SUBMARINE SERVICE

ATTACK SUBMARINES: TRAFALGAR- AND ASTUTE-CLASS BOATS

For the attack submarine fraternity, 2010 was a watershed year. It saw the end of the Swiftsure era, with the decommissioning of the world's oldest active nuclear submarine, HMS SCEPTRE, on 10 December, after 32 years of service. With that sad news, and the decommissioning of the first Trafalgar-class boat in December 2009, the Submarine Service is making steady progress with the transition to the Astute class. Many of SCEPTRE's crew will transfer to the A boats as they join the fleet.

The decommissioning of SCEPTRE saw several of her 15 former Commanding Officers converge on the Hamoaze tributary at Devonport for a ceremony that was accompanied by music from the Band of the Scots Guards – her affiliated unit.

The second of the Astute submarines, HMS AMBUSH ("The Mighty Bush"), was rolled-out in December 2010

On a brighter note, for the first time, the government has pledged to purchase seven Astute-class boats, which will give the Royal Navy one of the most formidable hunter-killer flotillas in the world and offer a step change in capability. The Astutes will carry Tomahawk missiles alongside the existing Trafalgar-class submarines, maintaining the RN's ability to strike deep inland should the need arise. Its nuclear reactor will not need refuelling for 25 years.

The second of class, HMS AMBUSH, was launched in

December 2010 at a ceremony in Barrow-in-Furness by Lady Soar, wife of CINC Fleet. The submarines of the Royal Navy were extremely active during the year, with some patrols lasting as long as 10 months.

The television series *How to Command a Nuclear Submarine*, shown on Military History channel, gave an excellent insight as to how demanding it is to obtain command of a Royal Navy submarine. The series is scheduled to be repeated on Channel 5 in June and July 2011.

The submarines of the Royal Navy were extremely active during the year, with some patrols lasting as long as 10 months

THE CONTINUOUS AT-SEA DETERRENT VANGUARD CLASS

One of four Vanguard-class boats, HMS VICTORIOUS, arrives at HM Naval Base Devonport for a major refit

For 42 years, the Royal Navy has been responsible for deploying the United Kingdom's nuclear deterrent, and since the very first patrol there has still not been a break in this service – known as the Continuous at-Sea Deterrent. The Strategic Defence and Security Review confirmed that this will remain the chosen option for the nation's strategic deterrence, and planning has

begun for the successor to the Vanguard submarines that currently supply this capability.

In order to recognise and commemorate the extraordinary nature of this work, HRH Prince William, Commodore-in-Chief Submarines, awarded special silver and gold pins to members of the Submarine Service who had served onboard the Continuous at-Sea Deterrent submarines. Silver pins went to those submariners

who had completed a 'deterrent' patrol of at least 30 days in a Resolution (Polaris missile) or Vanguard (Trident missile) submarine. The gold pins were presented to those who had completed 20 or more patrols.

Chief Petty Officer Stephen Irvine received a gold pin for his 28 patrols – a feat that has contributed to him serving no less than eight years under water since joining the RN.





THE FLEET AIR ARM

THE IMPACT OF THE STRATEGIC DEFENCE AND SECURITY REVIEW

There is no hiding from the fact that the Strategic Defence and Security Review (SDSR) has had a major impact on the Fleet Air Arm. On one hand, it has removed our ability to deliver 'carrier strike' (a fast-jet bombing capability from aircraft carriers) for a period of about 10 years. On the other, it has confirmed the British Government's commitment to rebuilding the capability with the introduction of a conventional carrier, rather than the short-take-off and vertical-landing (STOVL) capability that we have been operating for the past three decades. Consequently, instead of buying the F-35B STOVL Joint Strike Fighter variant – the F-35B – the Government has decided to purchase the F-35C conventional version because of its longer range and greater firepower.

When the strike force is recommissioned, the United Kingdom will be one of only three nations able to consistently operate

The Lynx Wildcat has successfully completed its first test flights

conventional fast jets off ships – the other two countries being France and the United States. These two nations will be vital for the RN to meet its target of reintroducing carrier operations by the end of the decade. Talks between the RN, and the French and US Navies have taken place to garner their support. These discussions have been extremely positive and will assist the Royal Navy in training, qualifying and providing experience to the men and women who will eventually man the new Queen Elizabeth carriers.

Within 10 years, the FAA has to relearn the expertise necessary to launch heavily armed fast-jets using a catapult, and retrieve them using arrestor gear – a process that sees a hook at the back of the plane catch hold of a cable stretched across the landing runway. This is very different from STOVL operations. The introduction of the catapult and arrestor gear not only results in greater complexity, it also increases the risk. Instead of a landing in

which an aircraft slowly places itself onto the deck using its jump-jet characteristics, aircraft that may weigh as much as 20 tonnes fully armed will be flying in at about 180 miles per hour. That requires a thorough de-risking process that will need additional time to complete. It will, therefore, take longer than it would have if we had stuck with the STOVL capability of the F-35B variant.

The Future Force 2020 maritime air component will contain a mixed fleet based on the Merlin and Lynx Wildcat. In line with the recommendations laid out in the House of Commons Defence Committee's *Helicopter Capability* report (HC 434), additional Merlins from the RAF will be configured to be able to operate from ships, allowing the withdrawal of the ageing Sea Kings by 2016. This will enable the reduction in the number of different types of helicopters in the UK Armed Forces, thus bringing down maintenance costs. ●

OPERATIONS IN AFGHANISTAN

It often goes unnoticed that the Royal Navy's commitment to Afghanistan, at times, equates to about a third of the entire number of UK personnel in that theatre when 3 Commando Brigade is deployed. Even when the Royal Marines are not there, the Fleet Air Arm has a significant presence. The recently upgraded Mk 4+ Sea Kings from 846 and 845 Naval Air Squadron (NASs) have been deployed since 2007 and 2008 respectively, and spent 2010 on call 24/7, supporting troop movements and operations.

Based at Camp Bastion and Kandahar airfield, they rotate at a rate of one tour on and three off (one in four), which means they are in theatre more frequently than the Army and RAF crews that rotate at a rate of one in five. To improve the Sea King's firepower, the door-gunner's 7.62mm general-purpose machine gun was replaced with a more powerful FN Herstal M3M .50-calibre gun in 2010.

Another Sea King variant, this time the Mk 7 Area Surveillance and Control (ASaC) helicopter, has had a marked impact on the campaign against improvised explosive devices (IEDs), which have been responsible for 80 per cent of troop casualties. The NAS 854/857 Mk 7's Searchwater radar is capable of operating over land as well as sea, and is now one of the most effective sensors for locating moving objects on the ground, including the very people who may be laying down the IEDs.

A particularly useful characteristic of the three Mk 7s in Afghanistan is the fact that one of the crew is an Observer who is trained in data analysis, and is able to re-task the surveillance and mission-control computer system at a moment's notice while still in the air. This delivers fantastic flexibility. December 2010 saw the completion of their first full year in the region.

The Fleet Air Arm's Lynx helicopters returned to Afghanistan

The Mk 7 ASaC helicopter has had a marked impact on the campaign against IEDs

in January 2011, following their previous deployment in 2008-09. Since then, the helicopter has been upgraded to the Mk 9A version, with more powerful engines that are more suited to the hot and high environment, enabling operations in the heat of the summer. Like the Mk 4+ helicopter, it has been armed with a M3M .50 calibre door gun to give it more power when undertaking escort, reconnaissance and forward observation duties. The introduction of the 847 NAS Lynxes brought the total of FAA manpower in Afghanistan to about 170 men and women. ●

Below: The Lynx helicopters, flown by the Fleet Air Arm, have been upgraded to the Royal Marine Mk 9A version



NAVAL STRIKE WING (NSW)



The Naval Strike Wing was disbanded on 28 January 2011, two weeks after the final flight of the Harriers from 800 NAS on 14 December 2010. The loss of this iconic aircraft will lead to the eventual removal of FAA presence at RAF Cottesmore – consisting of around 630 personnel – to be relocated to Culdrose and Yeovilton. That said, a number of personnel will stay at the base until 2012 to complete the Harrier decommissioning process.

The loss of the iconic Harrier jump jets will eventually see the closure of their home base of RAF Cottesmore

During this phase, the RN will identify the necessary people who will be able to form the risk-management organisation that will be needed to restart safe fixed-wing operations by the end of the decade. This will comprise staff positions, as well as the necessary manpower, to enable us to maintain and develop

maritime aviation expertise with the French and US navies. The next step will be to form a test and evaluation squadron in the US, to undertake the initial trials of the F-35C to satisfy UK contractual requirements. Then, when the first aircraft are delivered, a joint RAF/RN F-35 Lightning II squadron will be raised in the UK.

EMBARKED HELICOPTERS

The FAA-embarked Lynx Mk 8 and Merlin Mk 1 helicopters were busy throughout 2010, contributing to the effort to contain and disrupt terrorism, piracy and narcotics-smuggling in the Atlantic, Gulf, Caribbean, Horn of Africa, Indian Ocean and Mediterranean. Some of the Lynx counter-piracy work was recorded for the Channel 5 series *Royal Navy: Caribbean Patrol*, which highlighted the added capability that a helicopter can bring to these dynamic and unpredictable incidents.

HMS MANCHESTER's Lynx was also on hand in the Caribbean during the hurricane season to assist with damage assessment and other logistical tasks. This proved invaluable after Hurricane Tomas made the roads around the town of Soufrière on St Lucia impassable. The Lynx was able to rush emergency relief supplies to the village of Morne Fond St Jacques,

the 300 inhabitants of which had been completely cut off for days.

In the Gulf, FAA Merlin helicopters were engaged in both counter-piracy and counterterrorist operations. In the northern Gulf area they continued to provide a valuable Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) contribution, helping coalition forces monitor traffic in the vicinity of the Iraqi oil platforms. In the southern Gulf area and Somali Basin, FAA helicopters were much in demand in the campaign against the growing numbers of pirates operating against commercial shipping and UN World Food Aid shipments. With changes to the way the counterterrorism effort in the Mediterranean operation Active Endeavour is prosecuted, there was more emphasis on the counter-piracy effort.



HMS MANCHESTER's Lynx loads up with supplies for St Lucia after the island was hit by Hurricane Tomas

SEARCH AND RESCUE

Right: A Sea King Mk 5 from 771 NAS gets ready to lower a stretcher

As well as its military tasks, the Fleet Air Arm also provides Search and Rescue (SAR) coverage of the UK from bases in Scotland (HMS GANNET – Prestwick Airport) and from RNAS Culdrose in Cornwall through 771 NAS. The Cornwall-based squadron started 2010 providing emergency assistance during severe winter weather and finished it by helping out with the flooding that affected Cornwall in November. On arrival at the centre of the flooding in St Austell, the RN Sea King Mk 5 was requested by police to scan for people in distress, before being tasked with supporting efforts to rescue elderly people from their damaged and flooded homes.

In October 2010, the crew of one of 771 Squadron's six helicopters, Rescue 193, was awarded the Edward and Maisie Lewis Award from the Shipwrecked Fishermen and Mariners' Royal Benevolent Society, which is presented to crews for outstanding rescues. The award recognised the crew's extraordinary bravery while rescuing four fishermen from a burning trawler. In gales gusting as strong as 40 knots (74 km/h), Rescue 193 twice had to send a man down on a line to the boat to bring up the trawlermen, as the first time he was swept underwater and had to be winched back up to the helicopter. The man lowered to the stricken vessel, Petty Officer Dian 'Cags' Lacy, was later awarded the Queen's Gallantry Medal.

In February 2011, the entire Sea King Force at Culdrose was

also awarded the prestigious Rolls-Royce Engineering Trophy for 2009-10 for their significant achievement in keeping the aged fleets of Sea Kings ready for action in the UK and in Afghanistan.

HMS GANNET, in Scotland, was the busiest UK military SAR station for the fourth year in a row in 2010. Overall, the unit responded to 379 call-outs. Some 145 of these emergency trips were made for

medical emergencies. Notably, one of them was while all other flights had been grounded due to the Icelandic volcanic ash cloud that had swept down the North Sea. Despite the cessation of commercial flights caused by the volcano, SAR helicopters maintained operations without a break and were able to evacuate a critically ill woman from Glasgow to London for urgent medical treatment. ●

Overall, the unit responded to 379 call-outs. Some 145 of these emergency trips were made for medical emergencies





THE ROYAL MARINES

A Royal Marine waits beside a Chinook helicopter on operations in Kajaki, Afghanistan

In April 2010, 685 men from 40 Commando (40 Cdo) Royal Marines (RM) deployed to Sangin District in southern Afghanistan's Helmand province under the command of 4 Mechanized Brigade. Sangin is an exceptionally difficult region in which to operate, owing to its isolated location, climate, difficult terrain and heavy Taliban activity. However, since the dark days of 2006, when Sangin was a besieged town, the progress on the ground has been remarkable. The barometer for this change, the Sangin Bazaar, had between 30 and 40 businesses opening each month during 40 Cdo's tour, with many shop-owners returning from as far away as Kandahar.

The Sangin Bazaar now has more than 1,000 shops. Tarmac

is being laid to make it easier for the local businessmen to bring their goods in and out, and electric lighting has been installed to enable longer business hours and better security. As the Afghan Army and Police are now almost exclusively responsible for the security in the centre of the district where the bazaar is located, the only RM presence was two police mentoring groups. This allowed the rest of 40 Cdo to concentrate on providing a ring of steel around the perimeter of the Sangin District to enable normal life to go on inside.

Within just a few short weeks on the deployment, 40 Cdo staged its first major operation, in consort with the Afghan Army, by storming a compound to dislodge Taliban fighters. Once inside, the Marines and Afghan soldiers uncovered

explosives and other equipment for making IEDs (improvised explosive devices). This not only served to make the locality safer, it also reinforced the message that no part of the territory in the region was to be considered a no-go area for ISAF troops. This message was emphasised later in the tour with the successful back-to-back operations 'Sangin Sunrise', 'Gold' and 'Silver'. Again, a mixed UK/Afghan force went into contested territory outside of Sangin to eject the Taliban and to show the local population that the insurgency would be confronted on every inch of ground.

This security assurance mission was backed up with a complementary effort to help strengthen good governance in the region. In order to help the new Governor, Mohammad Sherif,

communicate with local leaders more frequently and more easily, 40 Cdo handed out around 2,000 wind-up/rechargeable radios. These would be used to help the Governor explain to local communities what was going on, not just in terms of the security effort, but also with regard to local political and administrative progress.

Just prior to this, CINC Fleet, Sea Lord Vice Admiral Trevor Soar, Second Sea Lord Rear Admiral Charles Montgomery and Major General Buster Howes, Commandant of the Royal Marines, visited the troops in Sangin to thank them and to see at first hand some of the new equipment. In particular, the visitors wanted to know whether the new sharpshooter and sniper rifles were making a difference. This high-level visit was quickly followed up by a visit from the First Sea Lord, Admiral Mark Stanhope.

On 1 June 2010, command of the Sangin area of operations went from Task Force Helmand under Brigadier Felton to Brigadier General

The Police Mentoring Troop conduct a routine patrol around Sangin bazaar

40 Cdo completed their handover to 3/7 USMC and became the last British military unit to hold responsibility for Sangin

Osterman of COM 1 MARDIV (1st Marine Division – US Marine Corps). Although the USMC had been operating out of Sangin for several weeks, the transfer of authority marked the establishment of the USMC forward Headquarters and an increased presence of USMC personnel at Sangin. Concurrently, D Company started a 'relief in place' with the USMC at Kajaki. Towards the end of the tour in September, 40 Cdo's work was almost done as they completed their handover to 3/7 USMC and became the last British military unit to hold responsibility for Sangin.

As part of the ISAF restructuring and rationalisation of the command

organisation in Helmand, the town of Sangin, owing to its location, represented the last piece of the jigsaw and marked the refocusing of UK forces to central Helmand. The handover was followed very quickly by 40 Cdo conducting a significant mobile operation, Ghartse Surlanday, designed to go deep into the desert east of Sangin to block many of the Taliban routes into the area and get a better understanding of this part of the territory, which previously had seen little ISAF patrolling. In October 2010, 40 Cdo handed over command of Sangin to US forces before heading back to the UK via Camp Bastion. The end of the tour was met with mixed





Above left:
40 Cdo transiting
the Afghan
desert in Jackal
Armoured
Vehicles



Above right:
The sun sets on
40 Cdo's tour
of Sangin

emotions, reflected in the words of Major Duncan Forbes, 40 Cdo's Operations Officer, on arrival back in Somerset: "It's a bittersweet day being back here – 21 people from the battle group were killed, and 14 of them were Royal Marines."

In April 2011, 3 Commando Brigade returned to Helmand province after their tour in 2009 as the lead element on Herrick 14, which will run until October 2011. The 3 Commando Brigade units include 42 and 45 Commandos, as well as 30 Commando IX (Information Exploitation), formerly known as UK Landing Force Command Support Group. Also involved are the Commando Logistic Regiment, 29 (Commando) Regiment Royal Artillery and 24 (Commando) Engineer Regiment Royal Engineers. Once again, the Brigade is joined by 1 Rifles and several other British Army units, including elements of the 7th Armoured Brigade (Desert Rats).

OTHER RM UNITS

Throughout 2010, the various Royal Marine units not involved in Afghanistan undertook a demanding set of exercises, deployments and bespoke training. 42 Commando used their participation in the spring

Joint Warrior exercise and the Auriga Deployment to get ready for their upcoming tour of Afghanistan. Joint exercises with the US Marine Corps, as part of phase two of the Auriga Deployment, were followed by exercises with the Brazilian Marines after HMS OCEAN had sailed to Rio de Janeiro after the end of Auriga. The two forces of Marines practised helicopter and landing-craft assaults on a small island off Rio and demonstrated techniques and procedures to each other. The Brazilians demonstrated what they had been doing on security duties in Haiti. The RM shared some of their experiences and lessons learned in Iraq and Afghanistan.

The trip back to the UK was made via Nigeria and Sierra Leone, among other stops. In Nigeria, 1 Assault Group participated in the official handover of the Joint Maritime Security Training Centre in Lagos that was set up by the UK to help the Nigerians provide their own training to assist with the security along the volatile Niger Delta. Later, once OCEAN had sailed on to Sierra Leone, 1 Assault Group participated in a series of beach assaults with Sierra Leonean troops, before following them deep into the jungle for some valuable training.

In February 2010, 45 Commando travelled to Norway for arduous arctic training on Exercise Lupus, as preparation for a two-week multinational Arctic training package – Exercise Cold Response. HMS ALBION, the amphibious flagship, provided accommodation for the Marines, many of whom had not yet lived onboard a ship. Crucially, Cold Response, which involved 20,000 soldiers from 14 nations, enabled 45 Commando to train not only as part of a larger international force, but also with 29 Cdo Royal Artillery and 24 Cdo Royal Engineers, before deploying with them to Afghanistan on Herrick 14.

The Royal Marines Fleet Protection Group (FPGRM) started the year by accepting an award for their contribution to the campaign against piracy. FPGRM were recognised for developing highly successful vessel-boarding tactics. The highlight for the FPGRM was Exercise Sea Khanjar in the United Arab Emirates (UAE). 100 Royal Marines took part in amphibious warfare training and weapons drills with UAE forces. The culmination of the exercise was a simulated assault on Al Khatab Island to liberate it from 'enemy forces'. ●

ROYAL FLEET AUXILIARY

VERSATILE INTEGRATED SUPPORT



**HMS CORNWALL
comes alongside
RFA DILIGENCE
in the Gulf**

There is much more to the job of a Royal Fleet Auxiliary (RFA) sailor than operating the replenishment systems with which the RFA vessels are fitted. Every RFA ship, regardless of its primary role, must be capable of operating as an integrated part of the Royal Navy's Fleet, wherever it is and no matter what it is doing. Four decades of instruction with the Flag Officer Sea Training (FOST) organisation have enabled us to adopt the same battle-damage recovery standards as the RN, and have honed our abilities to operate the same or similar situational awareness and communications equipment as the RN and many of its partners. During 2010, as part of this process,

more of our ships were fitted with the latest Defence Information Infrastructure (DII) communications equipment, which is being deployed across the entire UK Defence Community at home and overseas.

The RFA is, in every sense, an integrated and versatile element within any Task Group. More than that, it is also able to operate independently to undertake government tasking anywhere in the world at a moment's notice. As well as fulfilling a broad spectrum of global operations during 2010, the RFA continued its intensive training throughout the year to ensure that its officers and ratings are capable of undertaking a wide range of skills. Weapons proficiency for onboard self-defence systems –

which include a 20/30 mm cannon, miniguns, general-purpose machine guns and Phalanx – was maintained to a high standard so that RFA ships can continue to protect themselves when called to do so. Flight-deck operations are also practised, as RFA vessels regularly operate with Fleet Air Arm helicopters on board.

The RFA is, in every sense, an integrated and versatile element within any Task Group

THE RFA IMPACT OF THE STRATEGIC DEFENCE AND SECURITY REVIEW

RFA LARGS BAY has been selected for withdrawal from the RFA

The Strategic Defence and Security Review (SDSR) resulted in the RFA being reduced by a fleet-replenishment tanker, a dry stores/ammunition vessel and an amphibious landing ship – RFAs BAYLEAF, FORT GEORGE and LARGS BAY respectively. That said, FORT AUSTIN will come out of extended readiness in 2011 and rejoin the fleet in 2012.

In addition, a combined total of 400 men and women are to leave the service under a variety of options. However, this is not a direct result of the loss of the crews from the three ships – the reduction will be made to reflect the needs of the service over the coming years. The RFA will manage the impact of the SDSR to ensure its ships continue to operate professionally and efficiently.



In addition to the reduction in manpower and the size of the Fleet, we have also been tasked with enhancing our overall efficiency by a further 10 per cent. To achieve this, we are looking at the options for adopting a manning profile, in line with the three levels of notice required for deployed forces in

the SDSR. We will, therefore, no longer man all of our ships to the levels of readiness that we did prior to SDSR. Manning levels will depend upon operational tasking; for instance, those in the Gulf will be manned and supported to enable the levels of response that are deemed appropriate.

GLOBAL OPERATIONS

Throughout 2010, RFA ships continued, as in previous years, to operate occasionally without being in direct support of Royal Navy vessels. The deployment of LARGS BAY to Haiti in March 2010 – as part of the Department for International Development's relief effort following the worst earthquake in the region for 200 years – was an excellent example of our ability to operate as a single unit. Moreover, LARGS BAY's internal dock and two motorised rafts were perfect for this sort of operation. Some of the landings were made at locations where port facilities were

sometimes basic or damaged by the earthquake and the waters often very shallow. LARGS BAY transported a broad selection of disaster-relief equipment, which included 4x4 vehicles for the aid agencies, sheets of corrugated iron, as well as water-purification equipment and other emergency stores.

The crew of LARGS BAY worked closely with the people of Anse-à-Veau, an isolated town of 5,500 inhabitants that had been cut off by the quake. In just under four days, the townspeople helped the crew to bring ashore 25,000 cartons (125 tonnes) of MREs



(Meals Ready to Eat), 630 bags of rice (31.5 tonnes) and 126 bags of beans (6.3 tonnes) to ensure that they had sufficient provisions to feed themselves until it was possible to gain access by road.

Much-needed supplies are landed for the victims of the earthquake that hit Haiti in January 2010

THE GULF

Reflecting the importance of the Arabian Gulf to the UK's energy supplies, the RFA, at times, had up to a third of its fleet in that region's waters. In the northern part of the Gulf, we continued to support the training effort in Iraq under Combined Task Force Iraqi Maritime (CTF IM) direction. CARDIGAN BAY was used as the home base for teams teaching the Iraqi Navy how to operate their ships and protect their oil platforms. Some US forces in the CTF IM set up base on the ship, which also became a logistics hub in the northern Gulf region. BAYLEAF continued as the Arabian Gulf Ready Tanker, DILIGENCE remained in the Gulf as the on-scene repair ship, and LYME BAY continued to support the mine countermeasures ships in keeping the sea lanes open. Moreover, the RFA has also been significantly involved in the counter-piracy effort that has built up in and around the Horn of Africa and the Somali Basin over the past three years.

Below: RFA CARDIGAN BAY was used as a home base for UK and US teams training the Iraqi Navy and Marines

Some US forces in the CTF IM set up base on the ship, which became a logistic hub in the northern Gulf region



RFA WAVE RULER and HMS PORTLAND undertake the tricky replenishment-at-sea manoeuvre

ATLANTIC

The Auriga deployment in the spring and summer again demonstrated the RFA's capability to integrate with the Royal Navy by stepping up to the mark with FORT GEORGE standing in as the Task Group's Flagship. This was to cover ARK ROYAL while she was on standby for possible evacuation duties in Europe due to the volcanic ash cloud. FORT GEORGE was the sole logistics/fuel ship on the deployment, although LARGS BAY did join the flotilla later with the amphibious Task Group for the second phase of the Auriga deployment.

RFAs were in evidence in the North and South Atlantic during the year as part of the Atlantic Patrols – North and South. The Northern Atlantic patrol, in particular, saw the RFA once again engaged in disaster-relief operations during the hurricane season. The fast fleet replenishment tanker, RFA WAVE RULER, having completed her Auriga duties, helped HMS MANCHESTER come to the

assistance of St Lucia after the island had been struck by Hurricane Tomas. The ship was able to transfer fresh water and purification tablets for distribution to schools and hospitals on the island. WAVE RULER, famous for the record-breaking five-tonne cocaine drugs bust back in 2007, once again joined the counternarcotics activity in the Caribbean waters, having welcomed onboard a US Coast Guard law-enforcement team.

When not engaged in counternarcotics or disaster relief, the RFA undertakes UK defence diplomacy activity by engaging with many of the countries along its various routes. In November 2010, officers from WAVE RULER attended the Independence Day celebrations on the Caribbean island of Antigua. Towards the end of the month, WAVE RULER made a visit – on behalf of Her Majesty's Government – to Grand Cayman, where VIPs were welcomed on board for an official reception.

RFA ARGUS

EXERCISE MEDICAL ENDEAVOUR

Following a £37 million refit to convert her to a Primary Casualty Receiving Facility (PCRF), RFA ARGUS has now changed her primary role. Prior to the refit, the ship's main function was as an aviation training platform: now it is as the PCRF. To put the newly installed state-of-the-art medical equipment through its paces, ARGUS was the scene of the largest medical training scenario in three years – Exercise Medical Endeavour. Around 180 medical specialists – many of them reservists from the NHS – embarked on ARGUS in July 2010 for the three-part training package off the south coast of the UK.

The first phase of the exercise covered sea-based skills, such as

fire and flood drills. The second phase ensured that the unit was operating according to UK national healthcare standards, before the simulated scenario could be played out in the third phase. For this, a team of volunteers was made up to resemble real casualties, so that the medical teams could practise the routines of accepting casualties on board, dividing them into different groups according to their wounds and requirements

(triage), administering care and – in those unfortunate cases where the casualty was dead – ensuring that the administration was appropriate.

During the exercise, the medical personnel were assessed by the same organisation and validation process used on personnel deploying to Camp Bastion in Afghanistan. Having successfully completed the training, ARGUS headed back to Falmouth to prepare for her next voyage.

A simulated casualty is brought onto RFA ARGUS for assessment and treatment

The medical personnel were assessed by the same validation process used on personnel deploying to Camp Bastion



JOINT WARRIOR



In a poignant scene, a Harrier jet emerges from HMS ARK ROYAL's hangar during preparations for the spring 2010 Joint Warrior

Each year, the Royal Navy holds two extensive two-week exercises that combine air, land and maritime forces from both NATO and non-NATO countries off the Scottish coast. These are some of the largest and most complex international military exercises held in Europe, and are designed to increase interoperability between nations likely to operate together as part of coalitions around the world. Dubbed Joint Warrior, they encompass all aspects of combat training – from anti-submarine warfare and mine countermeasures to airborne bombing raids, beach assaults, submarine v submarine

warfare, artillery practice, and even defence against fast inflatable boats.

This year's exercises in spring and autumn, like others in recent times, have been particularly useful for pre-deployment training in preparation for operations in Afghanistan. To this end, many of the activities have been specifically designed to replicate insurgency-type actions and peacekeeping tasks, rather than traditional state-on-state conflicts.

The spring exercise was also used to prepare the carrier Task Group that headed off for the Auriga deployment and to get the US destroyer, USS BARRY, used to working as part of a UK flotilla. The

2010 exercises in spring involved units from Belgium, Brazil, France, Germany, Italy, the Netherlands, New Zealand and the United States. Some 50 combat aircraft participated in the training, undertaking as many as 75 sorties per day from sites across the United Kingdom.

The autumn exercise involved 8,000 men and women from 14 countries, including 30 ships, three submarines, seven helicopter units and 11 land units. In all, combat forces from Belgium, Canada, Denmark, Estonia, France, Greece, the Netherlands, Norway, Poland, Spain, Sweden, Turkey and the United States took part. This mix saw fast jets practising the integration of their bombing runs with naval bombardments, attack helicopter strikes and artillery barrages – an art form known as Joint Fires. The complexity of this task was made even more challenging as the attackers were called onto their targets by units from a different nation. ●

Many of the activities have been specifically designed to replicate insurgency-type actions and peacekeeping tasks

The Auriga 2010 deployment combined carrier strike and amphibious assault training

The Auriga deployment of 2010 was a chance to send two Task Groups (TGs) – one carrier strike and one amphibious assault – to the eastern seaboard of the United States for a series of back-to-back exercises with the US and Canadian Navies. The carrier strike TG consisted of aircraft carrier HMS ARK ROYAL, Type 23 frigate HMS SUTHERLAND, Type 42 destroyer HMS LIVERPOOL, and the Royal Fleet Auxiliary (RFA) replenishment ship, FORT GEORGE. Also in the

Group was the US Navy Arleigh Burke-class destroyer, USS BARRY, which joined the other ships while they were training as part of the Joint Warrior 101 spring exercise.

In the early stages, the RFA acted as flagship, while ARK ROYAL was put on standby to assist with a possible evacuation due to the volcanic ash cloud from Iceland. During their Atlantic crossing, the RN/RFA ships were joined by French submarine FS PERLE. HMS SUTHERLAND's new 2087 sonar was put to work, trying to defend

the flotilla from attack by the French nuclear-powered boat. Once in American waters, however, the main purpose of the deployment began.

Some 12 AV8B Harrier IIs from the US Marine Corps landed on board the ARK ROYAL to undertake a period of joint carrier strike training. Later in June, six GR9A Harriers from Joint Force Harrier took their turn to practise shipborne operations.

The next stage of the deployment was to see the carrier TG link up with a UK Amphibious

AURIGA DEPLOYMENT

Task Group (ATG) comprising HM Ships ALBION and OCEAN, and RFA LARGS BAY, with an American TG formed up around the US Navy's KEARSARGE amphibious assault ship. The coming together of three of the Royal Navy's five capital ships enabled participants to stage an assault from the sea using helicopters and landing craft supported by fast-jets. As well as training for UK-specific tasks, the exercise was also used to improve levels of interoperability between the UK and US armed forces. The

US deployed their massive CH-53E Super Stallion helicopters and their tilt-rotor MV-22 Osprey aircraft from OCEAN to give the RN sailors some experience of these unique aircraft.

The Royal Marines from 42 Commando, together with 3 Commando Brigade's landing force, 29 Commando Royal Artillery, 24 Commando Royal Engineers and the 30 Commando IX Group, then had to endure a demanding series of tests onshore with the US Marine Corps Expeditionary Force. For this, the facilities at

Camp Lejeune in North Carolina proved an enormous benefit.

In between the two stages of the deployment, HMS ARK ROYAL sailed up to Nova Scotia to participate in the 100th anniversary celebrations of the Canadian Navy in the presence of Her Majesty the Queen. August saw the end of Auriga and the RN ships split up, with most returning to home ports in the UK and others off on additional tasking. HMS OCEAN sailed south to Rio de Janeiro to train with the Brazilian Navy and Marines. ●



As well as training for UK-specific tasks, the exercise was also used to improve levels of interoperability between the UK and US armed forces

VICE ADMIRAL CHARLES MONTGOMERY

CBE ADC, SECOND SEA LORD

A BALANCED VIEW



The government continues to regard the Royal Navy as key to the nation's security, stability and prosperity

No one can deny that the next two to three years will be a period of uncertainty and, in many cases, anxiety for all of us serving in the Royal Navy. But, we must not lose sight of the fact that last October's Strategic Defence and Security Review made absolutely clear that the government continues to regard the Royal Navy as key to the nation's security, stability and prosperity.

As a service, we have retained our position at the heart of the United Kingdom's defence vision and will continue to deliver the extensive maritime capability that the government recognises is required for our island nation. It is true that the review has tasked the Naval Service with a significant reduction in the terms of personnel and ships. Nevertheless, we will

continue to build and put into service two aircraft carriers. Moreover, there is a continued commitment to the seven Astute-class submarines and the six Daring-class destroyers. The government has also agreed the need to replace our Type 23 frigates with the new Type 26 Global Combat Ship.

My focus and number one priority, therefore, is on retaining the people we need for the future. We must carefully consider the manning levels, expertise and experience which will be required to achieve the appropriate structure. Regrettably, we will also have to determine who will not be called on to serve in the future. We must treat all of these people with the respect and understanding they deserve, and do all we can to ensure their transition to the civilian workplace.



PRIORITIES FOR THE FUTURE

I assumed the position of Second Sea Lord on the back of serving as the previous incumbent's Chief of Staff and Naval Secretary. Having worked to take forward Admiral Massey's priorities, I was fortunate to take on my new role in the knowledge that the Naval Service was in good and improving shape. The manning challenges he faced have been addressed, and in many cases overcome. There is a renewed sense of grit and fighting spirit throughout the service and leadership levels are rising. I fully intend to build on Admiral Massey's achievements.

Afghanistan, as Defence's main effort, remains top of my priorities as far as providing sufficient capable people is concerned. And, of course, the period between April and September 2011 will see the

RN providing 40 per cent of all UK armed forces in the theatre. The key elements here are the Commando Brigade Headquarters; 30, 42 and 45 Cdo; the Commando Logistics Regiment and our leadership of the Joint Force Support Headquarters, including the Joint Medical Group. We will also continue to provide elements of the Commando Helicopter Force and a significant number of Individual Augmentees.

But Afghanistan is not the only operation to which the RN will be contributing. From the South Atlantic to the Mediterranean, off the Horn of Africa and in the Gulf, we will continue to deliver operational effect in support of our national security strategy. And, of course, we will continue to deliver the nation's strategic deterrent. Beyond this, we have just deployed our Response Force Task Group as

a contingent capability for events in the Middle East and North Africa.

Leadership within the Service will be crucial to our future success. I aim to enable additional opportunities for both ratings/other ranks and officers to reflect on their leadership qualities and actively work to improve them still further. Combined with this, I will continue to adapt and expand the coaching ethos which has already seen pass rates increase significantly across a raft of training activities.

As we reshape the RN together over the coming years, we should do so with the confidence that the Naval Service remains as relevant for the nation as it ever was. The government has underlined its commitment to us and we must do everything in our power to meet the challenges that the future will bring. ●

**Royal Marines
and US Marine
Corps on a
joint patrol in
Afghanistan**



MANNING LEVELS POST SDSR



On 19 October 2010, the government published its Strategic Defence and Security Review (SDSR).

This wide-ranging strategy calls for significant reductions to be made in all three Armed Services. The coalition government has stressed that the force reductions will not impact on operations in Afghanistan, but the need to reduce the national deficit quickly has required far-reaching cutbacks on other front-line services.

As a result, the Royal Navy will decommission six ships ahead of their projected service lives, and manning levels will be reduced by a total of 5,000 by 2015. This figure is to be made up from cadres, representing approximately 3,500 front-line personnel, largely as a

The challenge for the future will be how to build back the RN's fast-jet capability in time for the entry into service of the F-35C Joint Strike Fighter

result of the ship-decommissioning programme. A further 1,500 personnel will be lost as part of a reduction in non-front-line staff numbers. In order to manage this process as compassionately and professionally as possible, a Compulsory Redundancy Programme has been launched.

A number of questions need to be answered before the redundancy

programme can be completed. The future roles of specific organisations, not just within the Navy but also within the wider Ministry of Defence community, need to be defined before the full picture can be attained. That said, the work is under way and the first of potentially four tranches of redundancy announcements was made in April, with notices being



issued in September. This first tranche will be largely informed by cuts to the front line. The subsequent tranches will focus more on the impact of non-front-line cuts. When the process is over – by 2015 – the Royal Navy will have a trained strength of approximately 30,000 sailors and marines.

One of the consequences of the SDSR is the removal from service of the Harrier jump jet and the resultant disbandment of the Joint Force Harrier and, with it, the Naval Strike Wing (NSW). As we work through this painful transition, some trainee fast-jet pilots will be offered the opportunity to transfer to the helicopter community, which itself is being reduced in size. The challenge for the future will be how to build back the RN's fast-jet capability in

Above left:
Developing the full set of skills required to man and operate the new carriers will be a complex task

Above right:
Despite the reduction in the number of escort vessels, the Royal Navy cannot afford to relax its recruitment effort

time for the entry into service of the F-35C Joint Strike Fighter.

A seed corn of maritime fast-jet capability will have to be retained in the 10-year period before the carrier variant of the F-35 enters service towards the end of the second decade. To do this, we will have to rely on our allies in the US and French armed forces. Pilots, engineers, flight deck personnel, air traffic controllers, along with all the other trades involved in flying the F-35C Joint Strike Fighter from both the Royal Navy and Royal Air Force (RAF), will have to be grown from this seed corn. Fortunately, the US Air Force, Marine Corps and Navy are used to having RN and RAF pilots embedded in their fast-jet squadrons. The agreement signed in November 2010 between Britain

and France will also enable us to place pilots and other trades into the French carrier strike capability.

With regards to the two new aircraft carriers, HMS QUEEN ELIZABETH is due to enter service in the mid part of this decade as a helicopter carrier. It will, therefore, be relatively straightforward to transfer the crew from the existing helicopter carrier. The second carrier, HMS PRINCE OF WALES, will enter service at the same time as the F-35C comes on line. At that point a decision will be made as to the state of operational readiness in which each carrier will be held. The crew for the second carrier will, however, be generated from the first. This is a well-established process. We have done it every time a new class of ship joins the fleet. ●



RECRUITMENT CONTINUES

The reduction in manpower called for by the Strategic Defence and Security Review (SDSR) has not stopped the recruitment process. As a service, we will need to continue recruiting high-calibre regular and reserve men and women into the Royal Navy and Royal Marines each year. The variety of jobs remains incredibly extensive. As well as combat and naval specialists, the Navy also offers careers for a raft of complementary skills from accountants, chaplains, chefs, dentists, doctors and lawyers to aircraft/ship engineers, nuclear physicists and pilots. Without doubt, the Royal Navy still offers a very rewarding and satisfying career unlike anything to be found elsewhere.

The SDSR has, however, put pressure on recruitment budgets, as ways of increasing efficiencies are sought. This has called for the use of innovative, creative and cost-effective techniques to attract new recruits. Even before the SDSR was published, we were already introducing new recruiting techniques using strategies most likely to attract the

technology-savvy people we need. An excellent example of this is the iPhone app developed in late 2009. Known as the Royal Navy Engineer Officer Challenge, the app addressed the area with the biggest shortfall – engineering.

Those who undertake the challenge are asked to make a series of decisions to repair the disabled HMS DETER. The app then takes the user through a number of steps – one of which puts them in contact with the Office of Naval Recruitment. This app has been hugely successful, so much so that it was updated in February 2011. A further version, released in April 2011, is available on a wider range of smartphones. This was a focused and inexpensive project. For about 10 per cent of the cost a traditional marketing campaign, the app almost met the entire recruitment target for engineers – something that we had not managed for a decade. Moreover, not only were we the first of the three services to bring out a recruiting app, we also won a Media Week Gold Award.

Another area in which there has been a traditional shortage of

manpower is within the Submarine Service. However, this has been turned around, with 100 per cent of the target met for the first time in 2010. Although the disbandment of the Naval Strike Wing means that there is no current requirement for fast-jet pilots, there will be one in the future in the years running up to the introduction of the Queen Elizabeth-class aircraft carriers at the end of this decade.

Buoyed by the success of the iPhone app, we have also developed an app for the iPad that will help schoolchildren to learn to play musical instruments with the support of the Royal Marine Band Service. This is not a recruitment tool as such, but it does spread awareness about the Royal Navy from an early age at minimal cost. ●



MARITIME RESERVES

About one third of all Maritime Reserve (MR) activity is directly undertaken in support of operations, highlighting just how important Reserves are to the RN. In Afghanistan, MR personnel are involved across a wide range of activities – from human intelligence (HUMINT) to ground support for helicopters, as well as in the vital delivery of medical assistance. During 2010, Royal Marine Reservists also served as augmentees to 40 Commando and 16 Air Assault Brigade and with the Military Support to Stabilisation Group. Overall, 10 per cent of the RNR trained strength, and 19 per cent of the RMR deployed on operations during 2010. Tragically, during these operations the RMR suffered its first KIA (Killed in Action) in recent years and numerous individuals were wounded in action. These events highlight that our Maritime Reserve is contributing to operations at the very sharp end of our business.

At the beginning of 2011, there were 205 Reservists deployed. Later in the year, some 55 RM Reservists will deploy to Afghanistan on Operation Herrick 14, filling a range of general commando and leadership roles.

Beyond Afghanistan, a contingent of 36 Seamen Reservists is currently deployed on six-month roulement duties, providing force protection to the Royal Fleet Auxiliary ships in the Gulf. Reservists also contribute to the Gulf mine countermeasures operations, and a range of other maritime security duties, highlighted by the MTO (Maritime Trade Operations) organisation in Dubai. This capability, almost entirely provided by RNR personnel, focuses on providing communications to and from merchant shipping

in the region, and is a key part of the anti-piracy effort.

In the aftermath of the devastating earthquake that struck Haiti in January 2010, a small number of Reservists provided media support to the relief effort following the assistance that RFA LARGS BAY delivered to the victims of that disaster. Furthermore, in East Africa, Maritime Reservists, based in Djibouti, contribute significantly to the Forward Logistics Support base there. There is also a Reservist lawyer providing legal advice to EUNAVFOR

staff engaged in the anti-piracy effort. At the end of 2010, 10 RM Reservists joined the Corps Exercise Steadfast Juno in Norway.

On the home front, Reservists continued to assist in media operations, particularly where military families have needed support to manage press attention where the news can be either good or bad. For example, the RMR conducted 48 per cent of all casualty notification visits during Herrick 12 (operations in Afghanistan during the spring/summer of 2010). ●

A Royal Marines Reservist hauls himself across a river as part of a demanding two-week, high-altitude mountain training exercise at the US Mountain Warfare Training Centre in the Sierra Nevada Mountains, California





THE FUTURE OF THE MARITIME RESERVES

It is now five years since the Royal Navy Reserve (RNR) and the Royal Marines Reserve (RMR) merged to form the Maritime Reserve (MR). Just over two years ago, the MR received its first full-time Commander, Commodore Chris Steel, who was awarded a CBE in the 2011 New Year's Honours list for his achievements in this role. Given the increasing contribution the MR is making to operations around the globe, the latter half of the last decade has been one of the most important periods ever for our Royal Naval and Royal Marine Reservists.

The organisation is about to enter another period of change as it engages strongly in an

important examination of its role, structure and manpower – the Future Reserves 2020 (FR20) Study. The Prime Minister initiated this study as part of the SDSR. In this six-month review of the Armed Services' Reserve Forces, it will be decided how they are to meet the requirements for operations from 2015 to 2020 and beyond.

Led by Vice Chief of the Defence Staff, General Sir Nicholas

Houghton, the Study will be carried out in three phases and completed in the summer of 2011. It will examine how Reserve Forces should be used in the future, their most cost-effective size, and the best structure to support the regular forces. The Study will conclude by presenting a detailed concept and an outline implementation plan for the future Reserves' structures in each of our three Services. ●

The latter half of the last decade has been one of the most important periods ever for Royal Naval and Royal Marine Reservists

Royal Marines Reservists practise assaulting the enemy on skis during Exercise Hairspring in March 2010

IMPROVING CONDITIONS



Two naval cousins have benefited from the Bellway special armed forces discount to buy a house in their home town of Bridgenorth

The austerity measures being brought to bear on the fiscal deficit have begun to bite, and the public sector is not immune. The pay freeze is just one weapon in the armoury to bring the nation's purse back into balance. Additionally, we have had to reduce some allowances and readers will be aware of work under way on pensions following Lord Hutton's review of public-sector pensions.

As always, context is everything and it is worth highlighting the benefits that a career in the Royal Navy affords. Very few jobs in the private sector come with such an extensive range of benefits as one in the RN. Pay and pensions aside, the RN offers a range of allowances and

"Our people will remain our most potent and flexible asset."
FIRST SEA LORD, ADMIRAL SIR MARK STANHOPE

bonuses that speak for themselves. The commitment bonus can rise to as much as £15,000 after eight years' service. Those looking to climb onto the property ladder can apply for an £8,500 interest-free loan. Healthcare provision – both at home and overseas – is first class. Access to sporting facilities and adventurous training goes way beyond that which the private sector can ever hope to offer. Life-long education opportunities, career breaks and extensive welfare support to those in uniform and their immediate families underlines the commitment we make to those in the Naval Service.

The Second Sea Lord's Personnel Functional Standards (PFS) document sets down a commitment from the Royal Navy to monitor and improve conditions for those serving in the RN across 22 specific areas. These range from accommodation, pay and leave entitlements, to resettlement support and the critically important area of the harmony between deployments at sea or on operations and time ashore with families. The document was republished in July 2010 with improved quarterly reporting criteria, where units provide an assessment of how they are meeting the



standards which have been set for the key financial and non-financial terms and conditions of service.

Two periods of reporting have taken place since the republication of the PFS, providing positive and negative feedback. NCHQ (Navy Command Headquarters) uses this feedback to help inform policy areas in which standards are not being met, which may help to generate change where necessary and practically possible. The PFS reports are also used to inform the assessment of the Moral Component of Operational Capability, what issues are really concerning naval service personnel and how this impacts upon their morale. Issues such as high operational tempo, accommodation availability and the consequences of the SDSR are understandably the key concerns of personnel presently.

Accommodation is an area in which there are substantial pressures, particularly as many people will come ashore as a result of the Strategic Defence and Security Review, and the resultant

A street of modernised Service Family Accommodation (SFA) on the Marchwood estate in Southampton

The benefits for those serving in the Navy still make a career in the RN every bit as fulfilling as one in the private sector

early decommissioning of ships and units. Even as the Compulsory Redundancy Programme begins, there will be a significant number of people looking for accommodation and, in some cases, positions to fill. Our priority, therefore, is to identify these people and ensure that they are found accommodation and roles. Thankfully, there is some accommodation that is currently mothballed that can be brought back into service. We will, however, still have to find other billets, particularly for single occupancy. In some cases, this may entail having to put bunk beds into some of the single-living accommodation, albeit for a temporary period. In addition, Royal Navy Air Stations Yeovilton and Culdrose are both due to take significant numbers of Fleet Air

Arm personnel from RAF Wittering and Cottesmore following the disbandment of Joint Force Harrier.

The impact of the pay freeze is being broadly accepted as part of the overall public sector package deployed to redress the fiscal deficit. However, there is some anxiety building due to the expected impact of some things beyond our control such as the increases in VAT and national insurance, the removal of child allowances for high earners, and the uncertainty about some allowances. That said, balancing these uncertainties against the known benefits, there is still broad agreement that the benefits for those serving in the Navy still make a career in the RN every bit as fulfilling and rewarding as one in the private sector. ●

PUTTING FAMILIES FIRST

In July 2008, the Labour government published the Service Personnel Command Paper, the aim of which was to achieve greater recognition for servicemen and women and their families within society, and to ensure that they were not disadvantaged because of their military status. The Green Paper, published a year later in July 2009, summarised progress and highlighted some of the numerous achievements. The opening of the Queen Elizabeth Hospital in Birmingham in June 2010, with its specialist military ward, and the launch of the £20 million pilot Armed Forces Home Ownership Scheme were particularly significant.

The coalition government has taken up the baton and intends to take this process even further by announcing a clear commitment to “rebuild the Military Covenant”. Specifically, the government intends to broaden it into an Armed Forces Covenant, which sets out a formal relationship between the nation and its Armed Forces and their families. In addition, the government announced a range of extra commitments in its “Programme for Government”. Among other things, this included a doubling of operational allowances and changes to rest and recuperation periods. Naval families are explicitly covered by additional schemes to introduce a £200 pupil premium for service children, as well as university scholarships for the bereaved children of servicemen and women and service leavers.

In December 2010, Professor Hew Strachan from All Souls’ College, Oxford, published his Task Force Report on recommendations for rebuilding the Covenant. The government immediately agreed to action two of the proposals: the Chief of the Defence Staff’s



We have put in place steps to enhance the way we support families who have had a close relative injured or killed

Commendation Scheme and the creation of an Armed Forces Community Covenant. The latter will encourage towns and cities throughout the nation to launch projects aimed at strengthening the bond between the military and civil communities. Pilot schemes in Oxfordshire, North Yorkshire and Hampshire have been given the go-ahead, and Portsmouth began running its own scheme in January. Special parades and other functions will also take place as the plans are further developed. The CDS Commendation Scheme will enable the serving head of the Armed Forces to publicly offer his own award and thanks to localities that have shown a special affinity to the military.

Keeping up the momentum is going to be key with such a broad-based programme of activities. The government, therefore, specifically included a reference to the Covenant in the

Armed Forces Bill, which had its first reading in the House of Commons on 8 December 2010. The reference underlines a requirement for the Defence Secretary to report annually to parliament on the progress of the Covenant, with the main emphasis on the effects of service on the welfare of members, and former members of the Armed Forces and their families.

Over the past year or two, we have put in place steps to enhance the way we support families who have had a close relative injured or killed in action or on other duties. As well as increasing the size of the welfare field force, we have strengthened the Visiting Officer service by opening new satellite offices closer to our main recruiting areas in cities such as Birmingham, Liverpool and Newcastle. This recognises a need to be nearer the families of young recruits whose next of kin are their parents, rather than wives or husbands. ●

CHAPLAINCY

THE SPIRITUAL DIMENSION OF OPERATIONAL CAPABILITY



The Reverend Martin Evans conducts the service to commemorate the decommissioning of HMS ARK ROYAL

The job of a Naval Chaplain is to do his or her best to meet the spiritual and pastoral needs of the people with whom he or she serves, wherever they may be. This is a complex role as it requires the ability to act as a friend and advisor, as well as confidant(e) to all onboard. The uniqueness of serving with a Queen's Commission, but without rank, enables the Chaplain to move between all levels of the Service, relating to both ratings and officers. The total commitment to confidentiality marks out the Chaplain as a safe port of call in times of inner turmoil, where confusion and anxiety may close off other routes. As such, the Chaplain is an integral part of ensuring the Service's operational capability.

The Naval Chaplaincy is committed to providing spiritual care for those who may belong to one of the major world faiths

The Royal Navy's heavy commitment to Operation Herrick in Afghanistan has meant that, over the past decade, Naval Chaplains have significantly contributed to the effort – with both Royal Marine units and Individual



Chaplain Bruzon officiates at an open air service on HMS IRON DUKE

Augmentees from across the Naval Service. In 2010, A Naval Chaplain accompanied 40 Commando through its gruelling six-month tour of the Sangin district – the scene of some of the most intense fighting throughout the country. The significant number of deaths during this tour was a challenge to which Naval Chaplaincy rose as it sought to help the Service as a whole, close friends, relatives and families come to terms with their bereavement.

Naval Chaplaincy is also tending to the spiritual needs of the Sister Services in Afghanistan as a number of tri-service posts are routinely filled by Naval Chaplains. In November 2011, for example, the Joint Force Senior Chaplain will be a naval appointment. It will be his task to coordinate all of the UK military Chaplains in Afghanistan. In addition, we currently have a Chaplain with the UK Joint Air Group, The Reverend David Conroy. Moreover, with

3 Commando Brigade presently deployed, five Commando Unit Chaplains are now in theatre.

Naturally, Naval Chaplains must also care for those serving at sea, and so, at any one time, there are as many as five onboard ships across the globe from the Caribbean to the Indian Ocean. Each of the five looks after the interests of two to three ships.

In line with the Royal Navy's commitment to all faiths, the Naval Chaplaincy is committed to providing spiritual care for those who may belong to one of the other major world faiths. The Civilian Chaplains to the Military, therefore, have a significant part to play in this respect. Not only do they assist with meeting the demands of the other main world faiths practised by Buddhists, Hindus, Jews, Muslims and Sikhs in the three Armed Services, they can also provide advice on wider religious and ethnic matters to the Command. ●



A member of the ship's company of HMS ST ALBANS takes Holy Communion on St Alban's Day



THE ROYAL NAVY & ROYAL MARINES CHARITY PROVIDING A SINGLE FOCUS

Above: The HMS COLLINGWOOD training establishment presents the RNRMC with a cheque for £1,071 raised at the gruelling Njimegen Matches

Below: The HMS COLLINGWOOD team proudly poses with the white ensign

The development of the Royal Navy and Royal Marines Charity (RNRMC) entered a new phase in 2010. Having completed the hard work of setting up the organisation and placing it on a steady course with a Patron (HRH The Princess Royal), a President (Admiral Sir Jock Slater), a Board of Trustees (headed by Rear Admiral John Chadwick CB) and a Chief Executive (Robert Robson), the second phase began in earnest. This entails focusing efforts where they are most needed – fundraising and marketing.

To do this, the charity's staff will be strengthened and there will be a comprehensive drive to increase the percentage of serving members who have signed up to the voluntary donation scheme known as SABS (Sports, Amenities & Benevolence Scheme). Roughly 22 per cent of the Royal Navy has so far agreed to donate to the RNRMC directly through their pay packets as part of SABS. This is an encouraging sign as it is already up on last year when 15 per cent of RN members had joined. Welcome as this is, we must take a leaf from

our sister Services who have managed to attract about 90 per cent of their respective members into their own schemes. There is a long way to go, and the Royal Air Force and British Army have a head start on us, but it should be remembered that every one per cent increase in membership adds a further £18,000 to the funds that we can distribute to those in need.

Not all naval charities belong to the RNRMC, nor is there any compulsion for them to join, but the organisation will seek to strengthen liaison with all naval charities whatever their status. During 2010, talks reached the stage where the merger of the Royal Marines Charitable Trust Fund (RMCTF) into the RNRMC fold were discussed. The RMCTF became a subsidiary of the RNRMC on 1 April 2011 and, over the course of the year, a project will realise the synergies and efficiencies that both Trustee Boards wish to see. In addition, the RNRMC formed closer ties with the WRNS Benevolent Trust in 2011, becoming a Corporate Member of the Trust and nominating a Trustee to the Council. ●



 **ROYAL NAVY & ROYAL MARINES CHARITY**

HELP FOR HEROES



New equipment is put through its paces at the Halser Company Rehabilitation Gym

Launched in 2007 by Bryn and Emma Parry, Help for Heroes (H4H) has had a dramatic impact on UK military charitable organisations and donations. By employing state-of-the-art fundraising techniques and attracting high-profile celebrity support, H4H is well on the way to raising its first £100 million for the funding of programmes and schemes that will help those who have been injured in the line of duty.

The charity has a master plan to collaborate with the Services and other charities to raise money for a network of Personal Recovery Centres (PRCs) around the UK, which will help the injured recover and, in the charity's own words, "launch them back into life". H4H hopes to raise £80 million to build the PRCs, which are not going to be traditional rehabilitation facilities. They will embody a new concept based on a more holistic approach

H4H is on the way to raising its first £100 million for the funding of programmes that will help those injured in the line of duty

where a whole range of support services can be accessed. They will provide comfortable living and learning accommodation for those on the 'Road to Recovery', giving those injured in the line of duty the very best training and opportunities to face a fulfilling future.

Additionally, it is envisaged that the centres will provide a welfare hub for those who have left the Services, but who wish to continue to be a part of an extended fellowship. As part of this project, H4H has pledged an initial £10 million in its support to an ambitious plan – to enhance the newly created Hasler

Company recovery unit at HMS DRAKE in Plymouth, which was established in September 2009 to help the injured recover from their wounds and reintegrate them back into a fulfilling life. Plans exist to build immersion and hydrotherapy pools, as well as specialised gym and fitness centres. ●



**FUNDRAISING
IN SUPPORT OF
HELP *for*
HEROES**



FIT TO FIGHT, FIT FOR LIFE

ADVENTUROUS TRAINING

Over the past few years there has been a growing realisation that more emphasis needs to be put back into the core maritime skills that sailors and marines must have. There are a number of ways of doing this through the planned training syllabus, but Adventurous Training (AT) is without doubt a key enabler in this process.

Taking people out of their normal environment and placing them into unfamiliar surroundings to test their physical and mental strength, while ensuring that the activity is both safe and carefully supervised, allows us to develop or

restore the confidence and grit that our people will need in the future.

Therefore, AT covers a range of activities that are most appropriate for this ambition. Specialist courses cover offshore sailing, sub-aqua diving, mountaineering, canoeing, skiing, caving, gliding and parachuting. These activities are delivered at four levels – 1 to 4. The first two are compulsory and require no financial contribution from participants. Levels 3 and 4 are voluntary, and those taking part generally need to fund a third of the required financing from their own pockets. The Royal Navy is tasked with delivering two of these

skill sets, offshore sailing and sub-aqua diving, to all three services.

Level 1 AT takes place during initial training, and often the recruit will not even realise that he or she is undertaking AT activities. Level 2, however, takes place after recruits are fully integrated into the Service. Significantly, the Second Sea Lord's Personal Functional Standards stipulate that 20 per cent of the Naval Service should achieve five days' AT each year. One of the main providers of this training is the Naval Outdoor Centre Germany (NOCG) – commonly known as Exercise Bavarian Surprise. During 2010, NOCG continued to supply

Above:
A member
of the Royal
Navy Kayak
Association on
the River Dart
in the south-
west of England



The Royal Navy Basic Diving Course is one of the most physically demanding in the military

Taking people out of their normal environment... allows us to develop or restore the confidence and grit that our people will need in the future



Participants of the Khumbu Challenge 2010 pose beneath the Himalayas holding the baton (centre) that symbolises the nation's support to the Armed Forces



Members of 40 Commando Royal Marines refine their sailing skills at the Water Activity Centre in Exmouth, Devon

the lion's share of AT, with 2,100 people completing summer and winter packages. Many of the other AT training days were delivered at unit level, with commanding officers detailing their own Physical Training Instructors to arrange the events. Obviously, this requires a ready available bank of trained personnel who can help deliver AT. To ensure that we can continue to do this safely, 1,656 members of the RN acquired qualifications in the various AT disciplines during 2010.

Over the course of 2010, 304 RN and RM personnel completed 23 major expeditions, including scientific shark-diving in the Pacific Ocean. There was also an open-boat navigation of the Northwest Passage in the Arctic. Furthermore, a successful return to the Himalayas for more sailors and marines undergoing recovery and rehabilitation was completed as part of Khumbu Challenge 2010. Closer to home,

some 211 people benefited from Level 2 AT activities that took place in Scotland and Wales. We have also made a significant investment in mountain-biking equipment in anticipation of the formal recognition of Mountain Biking Joint Services Mountain AT in 2011.

As we assess the need to balance AT activities with the reduction in manpower demanded by the Strategic Defence and Security Review, we will look at whether current ways of delivering this training will be sustainable in the future. To this end, we held a High Mountain-Based Training event in Scotland from February to April. For seven of the harshest weeks of the year, 175 men and women braved the conditions to see how this concept could be used in the future. Although the NOCG is funded until 2013, a decision on its sustainability beyond that date will need to be considered soon. ●

ROYAL NAVAL ASSOCIATION

UNITY, LOYALTY, PATRIOTISM, COMRADESHIP



With some 5,000 personnel due to leave the Royal Navy as part of the Strategic Defence and Security Review, the Royal Naval Association is keen to build on the Memorandum of Understanding it signed with the Royal Navy in July 2008, and play a significant role in helping the resettlement process for those who are made redundant. The RNA has a ready-made network of over 400 branches and area associations, not just in the UK, but right across the globe from Australia, Japan, New Zealand and South Africa, as well as closer to home in places like Belgium, France and Spain. These can be mobilised to assist

with the resettlement of those who are asked to leave the Service.

This year is the RNA's year of recruitment and relaunch. Over the course of 2011, the Association hopes to expand its membership and, to help with this, it has begun a rebranding campaign to raise awareness levels. Among other things, a new logo will be designed to give the association a more up-to-date and relevant image, together with a refreshed website. The RNA is especially keen to remind every serving member of the RN that they are also members of the RNA and can take advantage of the many clubs, facilities and amenities that the charity runs.



SPORTING ACHIEVEMENTS

Grit and determination are attributes essential for the sports enthusiast. Participating in

competitive matches, no matter at what level, builds a will to win and the inner strength to push one's mind and body to the limit – characteristics that are vital for those serving in the military. Over the past year, the RN has once again shown that at minimal cost to the taxpayer – thanks to generous support from the RN Sports Lottery, charities and industry – we can turn out some of the finest sportsmen and women in the country. Measured in terms of success at inter-service sport, the RN is currently the strongest of the three Services.

Winter 2010 started with RN skiers helping the British Army Telemark Ski Association to plan,

organise and run the opening event of the January 2010 World Cup Telemark series in Austria. This was the first time that Britain has run an International Ski Federation World Cup event.

In March, RN sporting achievements were recognised at the Combined Services Sports Awards. Lieutenant Commander Alan Walker was presented with the first-ever Lifetime Achievement Award by HRH The Duke of Kent for his contribution to hockey and swimming. The Royal Navy swimming team won the Team of the Year Award, recognising their domination of the sport over the past 15 years.

Spring saw another breakthrough for RN sports with our rugby team releasing the Army's eight-year stranglehold

on the Babcock Inter-Services Championship. Having gone into the half-time break at Twickenham 15-3 down it seemed that little could be done to hold back the determined Army XV. However, as soon as the match restarted, the RN team started to claw back points with a converted penalty, but were unable to prevent a third Army try taking the score to 22-6. Remarkably, another penalty and two tries saw the RN team steal a last-minute 24-22 victory.

Rugby success was followed by a win for the RN Twenty20 cricket team at Inter-Services Twenty20 competition held at Lord's in July. Chasing 116 runs in the deciding match against the Army, the RN batsmen made things difficult for themselves until they were left needing 17 off the last

The 2010 World Cup Telemark series in Austria was organised by the RN and the British Army Ski Association



12 balls. The winning runs were hit with two balls remaining.

The RN Polo team enjoyed its most successful season in more than a decade. This included beating the Army in the Rundle Cup, then defeating the Household Cavalry to win the Inter-Regimental tournament for only the third time in over 100 years. Following this, in July, the RN polo team beat the RAF in the Duke of York Cup, making them the Inter-Service Champions

"It doesn't get any better than this" – the words of the incumbent President of the Combined Services Lawn Tennis Association, the Second Sea Lord, Vice Admiral Charles Montgomery CBE ADC, as he witnessed yet another surprising victory for the Royal Navy at the Inter-Services Lawn

Above: The Royal Navy swimming team won the Team of the Year Award, recognising their domination of the sport over the past 15 years

Bottom left: The Royal Navy XV wins the 2010 Babcock Inter-Services Rugby Championship

Bottom right: After a gap of over 40 years, the RN men's alpine ski team won the Inter-Service Snow Sports Championships

Measured in terms of success at inter-service sport, the Royal Navy is currently the strongest of the three Services

Tennis Championships held at the home of tennis in Wimbledon, on 2-3 August 2010. Both the ladies' and men's teams successfully swept away the opposition over the two-day championships, and particular praise must be paid to the Navy Ladies who unceremoniously dumped the Army and the RAF out of the competition by winning 11 of their 12 rubbers.

At the start of 2011, the RN became the men's inter-services indoor hockey champions, and

skiing came back to the fore with the Royal Navy's alpine ski Team winning the men's team prize at the Inter-Service Alpine Championships for the first time in 41 years. Our Telemark team also came first in their individual competition, and RN snowboarders secured a first and third place in the Slopestyle event. The best inter-service disabled skier was Lance Corporal Pete Dunning of the Royal Marines, who was given a standing ovation on receiving his gold medal. ●



ROYAL NAVY FLEET

POST SDSR

The Strategic Defence and Security Review (SDSR) resulted in the disbandment of Joint Force Harrier and, with it, the almost immediate decommissioning of the aircraft carrier HMS ARK ROYAL. This removes our carrier strike Task Group capability until the new Queen Elizabeth-class (QE-class) carriers enter service at the end of the decade. At that stage, the United Kingdom will field its Future Force 2020, which has been scoped out in the SDSR.

The SDSR also identified the remaining four Batch 3 Type 22 frigates for decommissioning

in 2011. At a later stage, a decision will be made on whether to withdraw the remaining operational aircraft carrier – HMS ILLUSTRIOUS, which will be converted to an amphibious (helicopter) carrier – or the purpose-built helicopter carrier, HMS OCEAN. This means that, for the next 10 years, the RN fleet will be concentrated on the amphibious Task Group, which will ensure that the UK retains the ability to place an invasion force of men and equipment ashore and sustain them.

During the period between fast-jet carriers, the SDSR has confirmed that the destroyer fleet will be significantly enhanced, with the introduction of four more of the most powerful air defence vessels ever built – the Type 45 Daring class – bringing the total to six. These will be joined by the new Type 26 Global Combat Ships. Together the destroyer/frigate fleet will number 19 vessels. Moreover, six more Astute hunter-killer submarines will enter service following the commissioning of the first of class in August 2010. These

boats will replace the Trafalgar-class submarines, the first of which left the service in December 2009. The government also announced in the SDSR that the programme to replace the existing Vanguard-class ballistic-missile nuclear deterrent submarines will go ahead, but the four submarines currently in service will have their lives extended. ●

ROYAL NAVY – COMMISSIONED FLEET

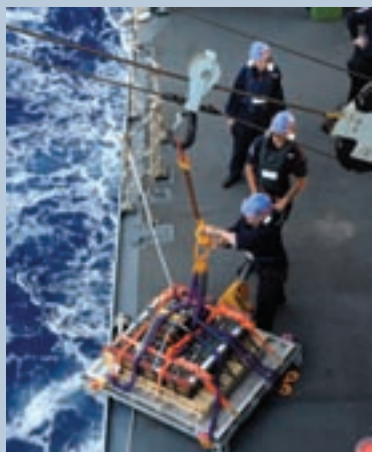
Vessel type	Quantity
Helicopter carrier	1 (2*)
Assault ship	2
Destroyer	6
Frigate	13
Submarine	11
Patrol	9
Mine hunter	16
Survey	5
University	14
Total	77

* while both ILLUSTRIOUS and OCEAN are operational

For the next 10 years, the RN fleet will be concentrated on the amphibious Task Group

Above: HMS TRIUMPH arrives back at her home base in Devonport, Plymouth flying the Jolly Roger, having launched TLAM Cruise missiles at Libyan air defence systems

THE ROYAL FLEET AUXILIARY



As a result of the SDSR, the Royal Fleet Auxiliary will be reduced to 13 ships, with the withdrawal of a fleet replenishment tanker, a dry stores/ammunition vessel and an amphibious landing ship. However, FORT AUSTIN, the fleet replenishment ship that has been in extended readiness, will rejoin the fleet in 2012. Plans for new ships under the MARS (Military Afloat Reach and Sustainability) programme are still ongoing, with the intent to award contracts at the end of 2011 or the beginning of 2012, leading to the delivery of the first ship in 2016.

ROYAL FLEET AUXILIARY – COMMISSIONED FLEET

Vessel type	Quantity
Tanker	5
Assault ship	3
Stores replenishment	3*
Medical/training	1
Repair	1
Total	13

*One ship being brought out of extended readiness

MARITIME CHANGE PROGRAMME

Having signed a Terms of Business Arrangement (ToBA) with Babcock International Group in March 2010, we have now set down a robust plan for achieving substantial savings across the whole of our UK infrastructure. The Babcock ToBA supplements an earlier agreement, signed in 2009 with BAE Systems Surface Ships, in which we agreed to award the building contracts for all of our future complex ships (those with weapons and sensors) to the company for the next 15 years. A key part of this agreement was that, once the two new carriers no longer required more than one shipyard to support their initial build, the RN would only cover the overheads of a single naval shipyard.

The Babcock ToBA fills in the missing part of the jigsaw in that, over the same 15-year period (2010–25), Babcock will guarantee significant cost savings in the fulfilment of engineering work on our major warships and nuclear

submarines. The ToBA also extends Babcock's management roles at the Clyde and Devonport naval bases. With the contracts now signed, the next phase is to realise the savings that are covered in both contracts.

The SDSR did not foresee any base closures for our major warships, and so we will continue to fine-tune the plans for basing all submarines in Her Majesty's Naval Base (HMNB) Clyde, the QE-class carriers, destroyers and some frigates at HMNB Portsmouth, and the remaining frigates and the assault ships at HMNB Devonport.

The SDSR did cut back the current fleet in order to deal with the economic difficulties that the nation faces in the short term. However, it also fully confirmed the building programme for future RN vessels, including the 13 Type 26 Global Combat Ships, seven Astute-class hunter-killer submarines, six Type 45 destroyers, the replacement for the current Vanguard-class ballistic missile submarines, and two QE-class conventional fast-jet carriers.

The Sandown-class mine countermeasures vessel, HMS RAMSEY, leaves her home port of Clyde for active service in the Gulf



ASTUTE

HUNTER-KILLER SUBMARINES

Final preparations are made to ready HMS ASTUTE for her first deep dive trials

The SDSR confirmed that seven Astute-class hunter-killer submarines will be built and operated by the Royal Navy. This will not only deliver the military capability required, but also sustain the UK industrial footprint needed for building the successor to the nuclear deterrent Vanguard-class SSBNs (Ship Submersible Ballistic Nuclear). To this end, the delivery schedule for all seven boats will be stretched to accommodate the start of the

building programme for the SSBNs, which was delayed in the SDSR.

The first submarine, HMS ASTUTE, is now undergoing extensive first-of-class sea trials to prove her war-fighting capabilities, such as Maritime Strike (using the Tomahawk Land Attack Missile), anti-submarine warfare, intelligence gathering and anti-surface ship warfare. The second boat, AMBUSH, underwent a naming ceremony on 17 December 2010, before being launched on 7 January 2011 at Barrow-in-Furness. She is

now manned by an RN crew, who will oversee her watertight integrity and support the commissioning of the reactor and propulsion systems over the next 12 months.

Procurement of the first four Astute-class boats, the initial assembly of Boat 5 and the long-lead items for Boat 6 have been fully approved by the MoD and HM Treasury. These are all now in different stages of the construction process. Approval for the remainder of the class will be sought in 2011.

FUTURE DETERRENT SUBMARINES



One of four Royal Navy nuclear deterrent submarines (SSBNs), HMS VENGEANCE

The government announced in the SDSR that it was committed to maintaining the national nuclear deterrent and that a submarine, eventually armed with the next-generation Trident D5 missile, would be used. Long-lead items for the first boat will be ordered in time for its delivery in 2028. The possibility of using three, rather than four, boats to provide Continuous at-Sea Deterrent (CASD) is still being investigated.

However, as yet, studies are unable to demonstrate that this will be possible. A three-boat solution becomes difficult as soon as one submarine enters its deep maintenance cycle, which requires each boat to be extensively refitted over a period of several years. Once that phase is reached, the

fleet would effectively consist of just two operational submarines – one of which is on patrol, with the other in maintenance or training. As well as the difficulty of achieving meaningful training and maintenance in constrained periods, this means that any strategic shock, resulting in the loss of availability of one of the two available boats, jeopardises CASD.

The decision on how many boats to operate and their exact design will be taken in about 2016. Each submarine will use a common missile compartment, and will house no more than eight operational missiles and 40 warheads. The first submarine is likely to be launched around 2024 and will leave Barrow-in-Furness a year later, eventually to be based on the Clyde at Faslane using the existing infrastructure.

TYPE 45

DARING-CLASS DESTROYERS

By the end of 2010, all six Type 45 Daring-class destroyers were in the water following the launch of HMS DUNCAN on 11 October, in Scotstoun, Glasgow. This marked the completion of the shore-based phase of the Daring build programme. The RN now has a fleet of the most powerful air-defence ships it has ever operated. With a missile range of 60 miles and a radar range well in excess of that, the ships are able to place an air-cover blanket over a Task Group at sea and direct aircraft onto targets hundreds of miles away.

The first of class, HMS DARING, was accepted into service on 31 July 2010 and is now undergoing more sea training in preparation for her first deployment in January 2012. She spent much of October 2010 on the eastern seaboard of the United States, working with a USS carrier Battle Group led by USS Enterprise – the 'Big E'.

During this deployment, the ship also completed her first replenishment at sea from a foreign tanker. In March 2011, she successfully fired her first Sea Viper missile.

Above: The sixth and final Type 45 destroyer, HMS DUNCAN, is launched into the Clyde on 11 October 2010

Bottom right: HMS DIAMOND sails down the Clyde en route to her handover to the Royal Navy at Portsmouth

The Royal Navy now has a fleet of the most powerful air-defence ships it has ever operated

Second of class, HMS DAUNTLESS, was accepted into service on 16 November 2010 and began basic operational sea training in February 2011. She was the first of the Type 45s to fire the Sea Viper missile when she successfully shot down a remotely piloted drone in September 2010. DAUNTLESS will go on her first operational deployment in April 2012.

Third of class, HMS DIAMOND, will be accepted into service in July 2011, although three Type 45s are now based in Portsmouth since she sailed in for the first time in September 2010. Fourth of class, HMS DRAGON, began sea trials last November, and the fifth Type 45, HMS DEFENDER, is expected to enter service in July 2014, once she has completed all of her trials. ●



TYPE 26

GLOBAL COMBAT SHIP

From the outset, the replacement for the Type 23 Duke-class frigates will be designed as versatile, multi-purpose vessels, able to deliver a full span of tasks – from humanitarian and disaster-relief operations to counternarcotics, counter-piracy and complex multi-threat warfare-fighting scenarios at the highest end. The Type 26 Global Combat Ship will be based on a single common, acoustically quiet hull, but with two core variants. The Anti-Submarine Warfare (ASW) variant will be fitted with low-frequency active and passive sonars in a stern mission bay, whereas the general-purpose version will have room for four boats that, instead of being lowered into the water from the side of the ship, will be launched

directly from the stern (back end). This will enable launch and recovery in higher sea states than before. Both variants will also have room for an embarked force of at least 36 additional personnel, able to undertake a range of tasks from special missions, customs-and-excise work to non-compliant boardings.

A final decision on the capabilities that will be embedded in this ship will be made towards the end of 2011. However, the need to ensure that the Type 26 Global Combat Ship will be affordable for both the RN and export customers, and will also suit our and their needs, means that a modular approach to capability is being taken. Missile launchers will be able to deliver a range of missile types – from precision attack to

anti-submarine and even loitering munitions. The flight deck will be able to take a range of aircraft from heavy-lift helicopters, such as the Chinook and Merlin to the lighter Lynx Wildcat, and the mission bay will be able to accommodate differing capabilities – from sonars, to boats and unmanned vehicles. That said, a medium-calibre gun will be fitted as standard.

The four-year assessment phase will draw to a conclusion in October 2013, when a final decision will be made on the ships' capabilities and equipment. As soon as the requirements have been fixed, the contract can be awarded. It is hoped to begin cutting steel in 2015, put the first ship into the water by 2019, and into service as quickly as possible after 2020. ●

Early computer graphic of a Type 26 Global Combat Ship

The frigates will be designed as versatile, multipurpose vehicles, able to deliver a full span of tasks



AIRCRAFT CARRIERS

QUEEN ELIZABETH-CLASS



The government confirmed its support for the manufacture of two QE-class aircraft carriers in the Strategic Defence and Security Review (SDSR). Having made this decision, it then stipulated that the RN would operate one of the QE-class carriers and hold the other in extended readiness – in other words, stored away to be used when the other ship is undergoing refit, repair or maintenance. The SDSR also took the decision to replace the short take-off and vertical landing (STOVL) variant of the Harrier replacement aircraft, the F-35B Lightning II, with the conventional F-35C version. This requires a conventionally configured carrier that has a catapult system for

Two of HMS QUEEN ELIZABETH's massive hull sections begin to take shape

The SDSR stipulated that the RN would operate one of the QE-class carriers and hold the other in extended readiness

launching the aircraft and an arrester gear system for facilitating landings.

We will, therefore, initiate a study to select the appropriate systems. The choice is either a steam-powered catapult system or one that runs off electromagnetic motors – known as EMALS (electromagnetic aircraft launching system). The study and the choice of system will ultimately decide the order in which the aircraft carriers are converted to conventional configuration.

While this study is ongoing, production of the first carrier, which started in 2009, will continue.

A steam catapult would require a boiler that would be fitted at the bottom of the ship on deck 9. Since the hull of the first carrier is already being built, this would entail cutting into it in order to install the system. EMALS, on the other hand, is fitted much higher up the ship. Whatever system is used, the flight deck would also need to be reconfigured with a

trench – one metre deep and three metres wide – along the extent of the runway. In addition, arrester gear – three cables which are attached to installations one or two decks lower – will need to be fitted.

Progress on the first carrier, HMS QUEEN ELIZABETH, has been going well since the first cutting of steel back in 2009. The ship is due to be floated in 2014 and to embark on acceptance trials in June 2016. Construction of HMS PRINCE OF WALES commenced with a formal steel-cutting ceremony in May 2011. The results of the aforementioned study will point to which conversion solution offers the best value for money, and its result will drive the carrier programme. ●



A hull segment from HMS QUEEN ELIZABETH outside BAE's shipyard at Govan

FRANCO/BRITISH NAVAL SHIPBUILDING ACHIEVING ECONOMIES OF SCALE

Now a private company, France's main naval shipbuilder, DCNS, sees itself more as a naval systems integrator than a mere boat builder. With 12,500 employees, an order book of some €14 billion and profits of between six and seven per cent from its €2.5 billion turnover, it is a major player in the global naval industry. With the encouragement of the Thales Group, which owns 25 per cent of the company, it has embarked on a major two-strand strategy to boost its exports and focus on what the company's Senior Vice President for Strategy and Development, Andreas Loewenstein, calls "groundbreaking innovation".

The current climate of austerity has created an opportunity for the British and French governments to collaborate more closely on naval matters, and enable both countries to, in Loewenstein's words, "spend better". Both countries' historical legacies leave them with overseas territories and alliance commitments that require ocean-going high-seas fleets.

Unlike any other two European states, France and the United Kingdom face the dilemma of projecting power overseas with a reduced financial budget.

However, the fact that these two countries operate the same sorts of vessels – from aircraft carriers, assault ships and nuclear submarines to air-defence, anti-submarine and mine countermeasures ships – means that there is a huge potential for economies of scale. Discussions are already under way between the two national navy departments and procurement agencies to try and figure out how best to achieve them. Andreas Loewenstein is confident that there are existing and future opportunities from which both nations could benefit without disrupting either's national shipbuilding planning and programmes, and that DCNS has a role to play. In fact, DCNS and the Royal Navy already have a deep and fruitful relationship. The missile launchers on the RN's Daring-class destroyers,

for example, are supplied by DCNS. Moreover, the new Queen Elizabeth-class aircraft carriers are being built by the Aircraft Carrier Alliance in which Thales UK (a major Thales Group subsidiary) is one of the three industry partners.

By cross-sourcing equipment wherever possible, and by sharing knowledge of the availability of COTS (Commercial Off-the-Shelf) equipment, both navies could cut their costs. In the future this could become even more productive if the two countries were to improve the interoperability of the onboard systems, converge the design of their ships more closely, or even initiate programmes together and coordinate production planning. This would also help to bolster the supply chains that serve both the French and the British industries. Andreas Loewenstein points out that, "An interesting possibility exists for a test of the long-term potential for this relationship with the design, development and production of the next generation of mine countermeasures vessels."

F-35C

LIGHTNING II FAST JET

Below: The first US Navy F-35C Lightning II carrier variant en route to US Naval Air Station Patuxent River in November 2010. The RN will take delivery of the carrier variant following decisions made in the SDSR

The decision in the Strategic Defence and Security Review to build and operate a conventional carrier, rather than a short take-off and vertical landing (STOVL) version, was derived from a requirement for the UK military to field only two manned, fast-jet combat aircraft fleets in the future – Typhoon and the F-35 Lightning II. This change brings in significant through-life cost savings, as the infrastructures required to sustain two types of

aircraft are considerably less than those needed to sustain a more diverse inventory of fast jets.

In terms of capability, the switch from the STOVL version of F-35B to the Carrier Variant F-35C introduces a considerable added punch in terms of range and weapons load. The additional 6,000lb of fuel extends the range from 900nm to 1,200nm, giving a combat radius of 640nm, as against 450nm – more than the distance from Land's End to John o'Groats as the crow flies. The F-35C will also be able to carry

an additional 3,000lb of stores, equivalent to an additional six Paveway IV laser-guided munitions or an extra 150 miles in range.

The first F-35C is due to be delivered to the UK in 2015, enabling us to raise our first operational squadron in 2018, in time for the entry into service of the first QE-class carrier. The added capability will translate into a smaller fleet of aircraft, with the initial intention of being able to routinely fly 12 aircraft from a carrier. This will expand over time. ●



The switch from the STOVL version of F-35B to the Carrier Variant F-35C introduces a considerable added punch in terms of range and weapons load

AW159

LYNX WILDCAT



A significant milestone for the RN's Lynx helicopter replacement programme was reached

on 22 November 2010 when the third AgustaWestland AW159 Lynx Wildcat test aircraft (T13) successfully completed its maiden flight. T13 is now being used to undertake testing of specific naval developments relating to the aircraft. In particular, it will be used to carry out ship helicopter operating limit trials. This milestone maintains the progress on the programme and will ensure that the first of 28 Lynx Wildcats will enter service with the RN in 2015, with deliveries due to start in 2011.

The first Lynx Wildcat helicopters are scheduled to enter service with the RN in 2015

The Wildcat Training Centre will be equipped to provide air crew and maintainer training

In preparation for the aircraft's entry into service with both the RN and the British Army, the Ministry of Defence signed a £76 million contract for the establishment of a state-of-the-art training centre at Royal Navy Air Station Yeovilton in March 2011. The Wildcat Training Centre will be equipped to provide air crew and maintainer training

using a wide range of synthetic training technology, including two Full Mission Simulators, a Flight Training Device and Cockpit Procedures Trainer. The Centre will be capable of delivering Army or Royal Navy conversion and mission training. RN maintainer and air crew training is scheduled to begin in January 2014.

MERLIN 2

UPGRADE PROGRAMME



On 25 October 2010, the Merlin Capability Sustainment Programme celebrated the maiden

flight of the Merlin Mk 2, ahead of schedule. After 35 minutes, the helicopter successfully landed back at the AgustaWestland site in Yeovilton. In all, some 30 Mk 1 Merlins will be upgraded to the Mk 2 standard by having digital flat-panel touch screens installed into the cockpit, and improvements made to the sonar and radar systems. Furthermore,

The Mk 2 Merlin helicopter successfully completed her maiden flight ahead of schedule

the defensive aids suite will be upgraded and new, more efficient rotor blades will also be fitted.

Some 30 Mk 1 Merlins will be upgraded by having digital flat-panel touch screens installed

The new mission system was tested in flight in November 2010, marking another milestone in the project that will see the upgraded aircraft re-enter service in 2013 and achieve full operational capability in 2014. In January 2011, the Ministry of Defence awarded the second phase in the 25-year Integrated Merlin Operational Support contract, valued at \$570 million. This is due to run from 2011 to 2016 and will save £12 million per year, compared with the previous contractual arrangements.



THE BATTLE OF TARANTO

A DAY OF JUDGEMENT

When Neville Chamberlain flew out to meet Adolf Hitler at his Eagle's Nest retreat in Berchtesgaden in 1938, to try and solve the stand-off over Czechoslovakia, the Royal Navy was fine-tuning plans to attack the Italian fleet at the Port of Taranto if things took a turn for the worse. Just over two years later, that attack took place and changed the future development of naval warfare.

Above: An aerial view of the Port of Taranto

"Taranto, and the night of 11–12 November 1940, should be remembered forever as having shown once and for all that, in the Fleet Air Arm, the Navy has its most devastating weapon"

ADMIRAL ANDREW CUNNINGHAM

In what became the first-ever all-aircraft ship-to-ship engagement, the Royal Navy managed to destroy half the strength of the Regia Marina (Italian Navy) battle fleet and force it to retreat further north to Naples, where it was less able

to threaten British activities in the Mediterranean Sea. Although veteran Fairey Swordfish biplanes were used during the battle, the event marked the beginning of the supremacy of the shipborne aircraft over naval guns.

Under the banner Operation Judgement, a carrier strike Task Group consisting of the aircraft carrier HMS ILLUSTRIOUS, four battle cruisers and four destroyers, sailed off the coast of Italy to play their part in a bigger operation, MB8. This larger activity would see the Fleet Air Arm also attack Cagliari and a complex network of convoys sail out on resupply missions. The Italians were confused by the extent of the manoeuvres and did not realise that ILLUSTRIOUS and her Task Group, led by Rear Admiral Lumley Lyster, who originally conceived the plans, were about to hit Taranto.

As in many operations of this nature, the RN was forced to adapt its plans after another aircraft carrier due to take part in the attack, HMS EAGLE, lost power due to a fuel system breakdown. Moreover, two of the aircraft also being readied were destroyed by fire when one of their auxiliary tanks exploded. However, some of the EAGLE's aircraft from 813 and 824 Naval Air Squadrons (NASs) flew to ILLUSTRIOUS to join the other Swordfish from 815 and 819. Eventually, 21 Swordfish – 11 armed with torpedoes and the

remaining 10 loaded with flares and bombs – were made available for the attack, which took place on the night of 11 November 1940.

The actual raid took place in two waves, led by Lieutenant Commander K Williamson, using modified torpedoes and low-level attack profiles. Up until this operation, it had generally been accepted that it was not possible to attack ships in less than 100 feet of water as the torpedoes would hit the seabed, rendering them ineffective. However, the low-altitude attack – although extremely dangerous – was a tremendous success. One battle cruiser was sunk, the *Conte di Cavour* (later raised and repaired) and two further battle cruisers were put out of action, *Littorio* and *Caio Duilio*. Other ships – including a further battle cruiser – were damaged in both the inner and outer harbours, and an oil depot set ablaze. The Royal Navy lost two aircraft and two airmen.

The Japanese Imperial Navy studied the attack on Taranto with intense interest as they intended to undertake a similar attack on the US Navy base in Hawaii – Pearl

The actual raid took place in two waves, using modified torpedoes and low-level attack profiles

Harbor. Although the Japanese attack was more devastating, and required more aircraft and ships, it could be argued that it did not achieve the same strategic success as Operation Judgement.

To mark the 70th anniversary of the battle, the Taranto Exhibition at the Fleet Air Arm Museum (www.fleetairarm.com) in Yeovilton, Somerset, has been updated with a new audiovisual presentation. It also features exhibits including the wheel of HMS ILLUSTRIOUS, two Distinguished Service Crosses and other service medals of many of the airmen who took part in this daring operation. ●

FAIREY SWORDFISH



SPECIFICATIONS

Crew:	3
Length:	35ft 8in
Wing span:	46ft 6in
Power plant:	Bristol Pegasus radial engine
Max speed:	139mph
Range:	546 miles
Armament:	2 machine guns, rockets, torpedoes, mines

The Fairey Swordfish biplane torpedo-bomber – nicknamed ‘the Stringbag’ – was designed and built in the 1930s by the Fairey Aviation Company, which also produced the Firefly and Gannet naval aircraft. Not only did the Swordfish play the key role in the Battle of Taranto, but, in 1941, a Swordfish was also credited with striking the blow that disabled the rudder on German battleship the *Bismarck*, effectively disabling it and laying it vulnerable to subsequent attack.

VICE ADMIRAL SIR ARTHUR LUMLEY ST GEORGE LYSTER

Born on 27 April 1888 in Warwickshire, Vice Admiral Lumley Lyster joined the Royal Navy in 1902 and saw action in the First World War, most notably at Gallipoli. He assumed command of his first ship, the cruiser HMS DANAE, in 1932, before becoming captain of aircraft carrier HMS GLORIOUS in December 1937. In August 1939 he was promoted to Rear Admiral. On the instructions of Admiral Pound, he drew up the plans for the attack on the Italian Fleet at the Port of Taranto and

commanded the operation from HMS ILLUSTRIOUS. In 1941 he was appointed Fifth Sea Lord and Chief of Naval Air Services, before going on to command the air operations for Operation Pedestal to break the siege of Malta. This action saw the loss of the aircraft carrier EAGLE, which was originally expected to have taken part in the battle of Taranto. Lyster took over Flag Officer Carrier Training and Administration in 1943. He later retired in July 1945 and passed away in 1957.



Vice Admiral Lumley Lyster (right)

HMS ILLUSTRIOUS

The Royal Navy's fourth ship to bear the name HMS ILLUSTRIOUS was one of a class of aircraft carriers that the Admiralty began to develop in 1935 as a radical next generation of vessel. She was built by Vickers-Armstrongs in Barrow, Cumbria, having been laid down on 27 April 1937. Launched on 5 April 1939, she was commissioned into the Royal Navy on 25 May 1940.

The carrier was damaged by German bombers in January 1941, putting her out of action

After taking part in the Battle of Taranto, the carrier was badly damaged by German dive bombers in January 1941 when several bombs penetrated her armoured flight deck, putting her out of action. She next saw service against Vichy French forces in the Indian



Fairey Swordfish aircraft flew from HMS ILLUSTRIOUS to attack the Italian Battle Fleet in the Port of Taranto

Ocean off Madagascar in 1942. After a refit in 1943, she took part in the Salerno landings in September 1943. She then spent the rest of the war engaged in operations against the Japanese forces, during which she was damaged by kamikaze attacks. HMS ILLUSTRIOUS was paid off in 1954, before being broken up on 3 November 1956.

SPECIFICATIONS

Launched:	April 1939
Commissioned:	May 1940
Displacement:	23,100 tonnes
Crew:	900
Speed:	30.5 knots
Range:	11,000 miles
No of aircraft:	36, increased to 48 and then 54



OPERATION DYNAMO

THE "MIRACLE OF DELIVERANCE"

In a poignant reconstruction of the 'Little Ships' support to Operation Dynamo, a host of small sailing craft approach Dunkirk as part of the 70th anniversary celebrations

At 6.57pm on 26 May 1940, the Admiralty gave the order for Admiral Ramsey to begin the evacuation of the 400,000-strong British Expeditionary Force (BEF) from the port of Dunkirk in France. With only a week to prepare the operation, it is remarkable that Ramsey's hodgepodge fleet managed to save more than 10 times as many people as he thought was possible – over

300,000, compared with his initial estimates of about 30,000.

The evacuation was urgently required as the front line against the Germans had collapsed. The Belgian Army was on the brink of surrender, and the French Army was about to be encircled and defeated. The Head of the BEF, General Gort – realising that the situation was hopeless – made the decision to head for Dunkirk with the sole intention of leaving the Continent with as many men as possible.

From his headquarters in Dover Castle, Kent, Admiral Ramsey and his small staff masterminded the most extraordinary wartime evacuation in history, using over 900 boats – including passenger ferries, cargo vessels, destroyers, minesweepers, corvettes, Dutch barges, yachts and fishing boats.

Royal Navy sailors manned the vast majority of all the ships that took part in the evacuation, although civilians were used in many of the 'little ships' that were inducted and checked in Sheerness

on the Isle of Sheppey, before leaving for France from Ramsgate.

Although the docks at Dunkirk were badly damaged, it was still possible to use the eastern sea wall to load troops directly onto boats. A wooden jetty was also found to be suitable for embarking soldiers. However, there were so many men gathered in the town, on the beaches and defending the perimeter, that a third of them had to be lifted off the beach. This is where the 'little ships' and some Dutch self-propelled barges were useful, as they were able to come closer inshore to ferry men from the beach to the waiting ships.

For more than a week, the ships criss-crossed the channel bringing soldiers back to Dover, where they were quickly dispatched across the country by train. During this time, not only had German artillery come within range of the beaches and the transfer boats, but the German Air Force also maintained a constant attack whenever the weather permitted. If that wasn't bad enough, the fleet was also

OPERATION DYNAMO STATISTICS

26 May: 6.57pm Operation Dynamo begins

4 June: 11.30pm BEF evacuated

Total number of men evacuated: 338,226

Men evacuated from the beaches: 98,780

Men evacuated from harbour and jetty: 239,446

British evacuees: 198,229

Foreign evacuees: 139,997
(mostly Belgian, French and Polish)

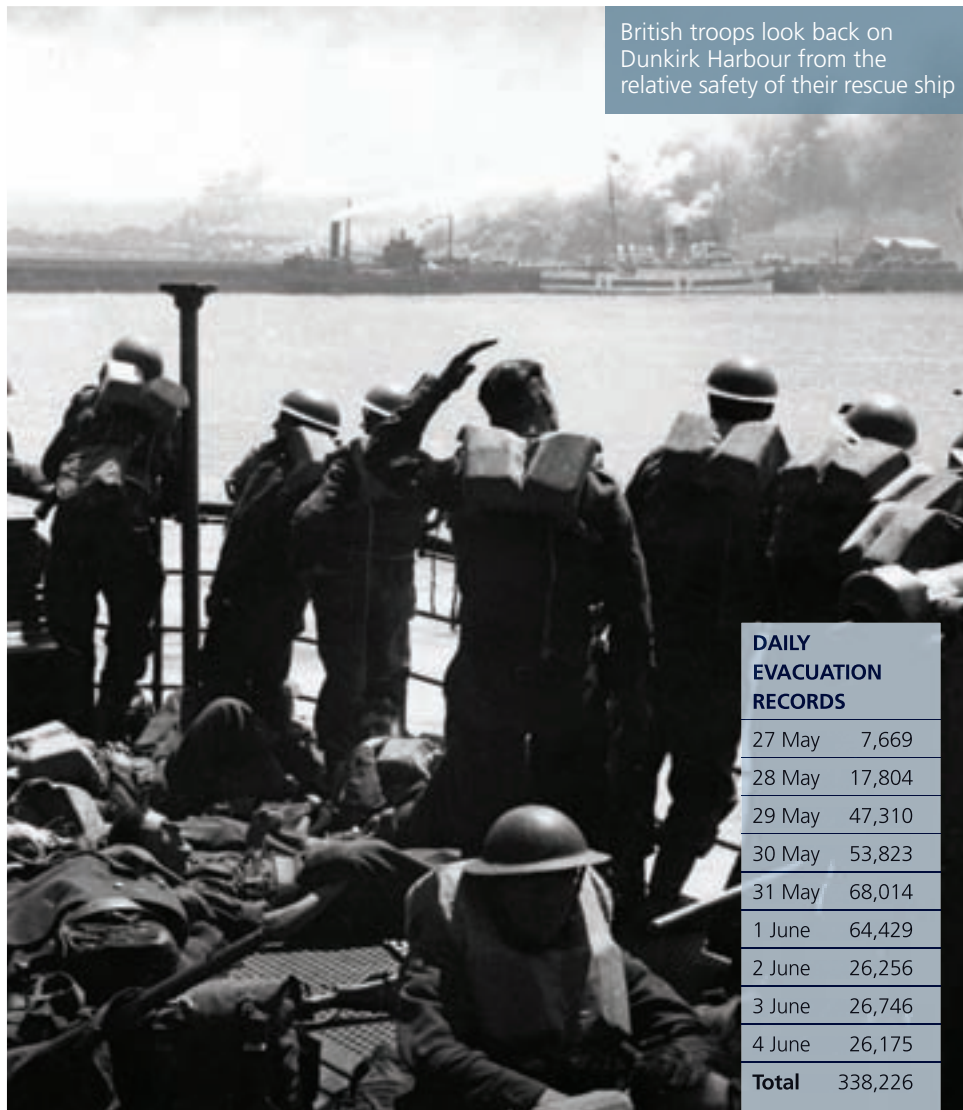
Boats used: 933

Boats lost: 236

ruthlessly attacked by German submarines and torpedo boats. Over 200 boats were sunk, with the same number again damaged. Of the 40 RN destroyers that took part, six were lost and a further 19 badly damaged. Moreover, seven French destroyers were lost, as well as one destroyer from the Polish Navy.

By the evening of 3 June, it was clear that a final push was needed to save the last of the French rearguard that had been holding the Germans at bay. Ramsey therefore despatched a mixed fleet of British, Belgian, Dutch and French ships to Dunkirk. This final phase of the evacuation managed to save a further 26,000 men, bringing the total to 338,226. At 11.30pm on 4 June 1940, the beach master, Captain William Tennant ("Dunkirk Joe") sent his famous signal: "BEF evacuated". Winston Churchill referred to the evacuation as the "miracle of deliverance".

To mark the 70th anniversary of Operation Dynamo, 50 boats from the Association of Dunkirk Little Ships left Ramsgate for Dunkirk on 27 May 2010, escorted by the Type 23 frigate HMS MONMOUTH and a P2000 training vessel, HMS RAIDER, from the University Royal Navy Unit at Bristol. ●



British troops look back on Dunkirk Harbour from the relative safety of their rescue ship

DAILY EVACUATION RECORDS

27 May	7,669
28 May	17,804
29 May	47,310
30 May	53,823
31 May	68,014
1 June	64,429
2 June	26,256
3 June	26,746
4 June	26,175
Total	338,226

VICE ADMIRAL SIR BERTRAM HOME RAMSEY



Of Scottish descent, but born in London in 1883, Bertram Ramsey joined the Royal Navy in 1898. He took command of his first ship, HMS M25, in 1915 during the First World War, during which he served as part of the Dover Patrol sailing mostly off the Belgian coast. In the final year of the war, 1918, he took part in the raids on Ostend and Zeebrugge, which attempted to neutralise the threat from German submarines. This was the first time he was mentioned in dispatches. He retired from the RN in 1938, but was called up a year later and posted to the south Kent coast as Officer-in-Charge, Dover. Having overseen the evacuation of

Dunkirk, he reported the events directly to King George VI, who rewarded him with the KCB (Knight Commander of the Order of the Bath). In 1942, he commanded the Algerian landings (Operation Torch) against Vichy French and German opposition. He was later naval commander for Operation Husky (the invasion of Sicily) in 1943. The following year, he was appointed Naval Commander in Chief of the Allied Naval Expeditionary Force for the Normandy Landings under Operation Overlord. He was killed when his aircraft crashed as it was taking off from Toussus-le-Noble in 1945, en route to a meeting with General Montgomery in Brussels.



PATROL BOATS AND NAVAL VESSELS

DAMEN

DAMEN

Over the past 40 years, Damen has grown from eight to 8,000 employees, working in 34 operating companies worldwide. The basis of this success was – and is – the philosophy of standardised series production. Damen has proven standard designs for a large range of vessels from harbour tugs, crew boats, fast suppliers, and mega yachts to cargo vessels, fast

ferries, patrol boats and naval vessels. Requirements outside these standard ranges can be accommodated in new designs, making use of proven systems and equipment from the standard series which guarantee reliability and cost effectiveness. For defence forces, coastguards and marine police, Damen can supply vessels from ten to 200 metres in length

for a wide range of activities in not just coastal areas but also in blue waters.

INTERCEPTORS

Damen Interceptors are purpose built, designed to the highest standards and fitted with full professional equipment. Extensive prototype test programmes, involving customers worldwide, are



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an integral part of the development of new Damen Interceptor designs. Safety, crew ergonomics, manoeuvrability and speed in 'real' conditions are the key factors for these ultra high-speed Damen workhorses.

INSHORE AND COASTAL

The Damen 'Inshore and Coastal' range includes Stan patrol boats with a length of 12 to 50 metres and Fast Supplier vessels of 50 and 65 metres. Close attention is given to the sea-keeping characteristics of these vessels, as they have to work in rough coastal conditions around the world.

OFFSHORE PATROL AND SURFACE COMBATANTS

Damen supplies a complete range of ships in the Offshore Patrol Vessel (OPV) and Surface Combatants sec-

tor, with standardised modules and systems. The OPVs are built to commercial standards, whereas the Surface Combatants are built to a combination of military and commercial standards with full weapon options available.

DESIGNED FOR 'REAL' CONDITIONS

Worldwide, the majority of high-speed vessels are designed for trial conditions (no wind or waves) to limit speed degradation. As a result, many high-speed vessels perform well on flat water, but show serious shortcomings in the real world conditions on the sea, and often have to slow down in heavy weather.

Back in 1980, Damen and Delft University joined forces to change the high-speed craft design philosophy and started to design for 'operability at sea' instead of 'trial conditions'. This collaboration has produced several significant concepts:

- Stan Patrol 2600, in use with the Hong Kong Police Force and US Coast Guard (87' Coastal Patrol Boat – WPB Class)
- Enlarged Ship Concept, used by defence forces, coastguards and marine police forces of Albania, Barbados, Jamaica, the Netherlands, South Africa, Vietnam and the United Kingdom. Recently, both the US Coast Guard (Fast Response Cutter – Sentinel Class) and the Canadian Coast Guard (Mid-Shore Patrol Vessel Class) have selected Damen Enlarged Ship Concept designs for their fleet modernisation projects.
- Sea Axe (or Axe Bow) designs have been used for Fast Crew Supplier vessels in offshore industries around the world and have recently been implemented in the design of Damen patrol boats. The Company recently received its first order for a 50-metre Sea Axe patrol boat.



CELEBRATING 110 YEARS OF THE "GREENIE"

The author of *The Greenie*, Commander Patrick Moore, poses with the book with Vice Admiral Sir Neville Purvis KCB and Lieutenant Commander Trevor James of HMS Collingwood Officers' Association

The 110th anniversary of the introduction of the Electrician, or "Greenie", specialist rate into the Royal Navy is commemorated this year by the publication of a new book, *The Greenie*, subtitled *The History of Warfare Technology in the Royal Navy*. Authored by Commander Patrick Moore and sponsored by HMS Collingwood Officers' Association, *The Greenie* portrays the history of warfare technology progression, from the development of the electrically fired spar torpedo in the 1860s, to the integrated combat systems of today.

The book also tells of the impact of electrical technology on the Royal Navy and the manning

changes brought in to deploy it effectively within the context of pioneering attempts to progress, entrenched views for the status quo and desperate wartime demands for maritime warfare capability. In addition to charting the evolution of specialist branches, starting with the advent of steam, *The Greenie* recalls the history associated with the growing recognition of technical specialists – from Artisan to Warrant, Commission and, eventually, Military Command status.

Courtesy of many naval heritage organisations, the book

is fully illustrated, and includes photographs and diagrams featured in 19th-century trials reports, as well as the work of the Royal Navy's best-loved cartoonists from the Second World War onwards. The technical story is enhanced by many personal recollections of the wartime and post-war events that combined to shape the Engineering Branch structure of today's Navy.

All royalties will be donated to naval charities under the auspices of HMS Collingwood Officers' Association and the Royal Navy and Royal Marines Charity. ●

The Greenie is available from all good bookshops and The History Press (www.thehistorypress.co.uk). Call 01235 465577 for direct sales.



CADET 150

Her Majesty The Queen chats to cadets at Buckingham Palace as Cadet 150 is officially launched

One hundred and fifty years ago, the War Office realised that, having been implicated in a failed assassination attempt on Emperor Napoleon III by Italian revolutionary Felice Orsini, Great Britain was once again under threat of invasion. The problem was that the nation's Armed Forces were stretched to the limit and were also recovering from the ravages of the Crimean War. To quickly bolster the Regular Army, the British government requested that all United Kingdom counties raise Volunteer Rifle Corps. Many schools decided to play their part in this call to arms by raising their own cadet forces. They are the forefathers of today's 131,000 cadets from the Sea Cadets (www.sea-cadets.org), the Air Cadets, Combined Cadet Force and the Army Cadets.

Throughout 2010, the anniversary of these formations was celebrated under the banner Cadet 150 and, over the course of

the year, numerous events, activities and commemorations took place. On 17 February 2010, Her Majesty the Queen hosted 26 specially selected 'cadet ambassadors' at Buckingham Palace. After lunch at the Ministry of Defence, the cadets were then invited to have their photographs taken with the Prime Minister at 10 Downing Street.

In April, Prince Harry – himself a former cadet – paid a visit to the 60 teenagers who were training in the Brecon Beacons for their expedition to Lesotho. The prince thanked them for supporting his charity, Sentebale. Having arrived in Lesotho on 26 July, the cadets spent time helping a number of different children's projects funded by the charity. They also went on safari and visited the Rorke's Drift battle site, made famous in the film *Zulu*.

During the summer, 130 cadets participated in a week-long residential course at the Britannia Royal Naval College (BRNC),

Dartmouth, as part of earning their Gold Duke of Edinburgh's Awards. The week kicked off with two nights on board the Royal Fleet Auxiliary ARGUS, where they were put through their paces undergoing fire-fighting drills and other team-building activities.

Cadet 150 culminated in a musical spectacular at Fairfield Halls in Croydon, Surrey. A total of 150 cadet musicians put on a stunning show with duelling xylophones, extraordinary feats of drumming expertise, light shows and songs, topped off with a performance of Tchaikovsky's *1812 Overture*. Proceeds from the show were donated to the Help for Heroes charity. ●



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A photograph of an AgustaWestland AW159 Wildcat helicopter in flight, viewed from a low angle. The helicopter is grey with "ROYAL NAVY" and "ZZ402" visible on its side. The background is a clear blue sky. The image is overlaid with several large, white, curved geometric shapes that create a sense of motion and design.

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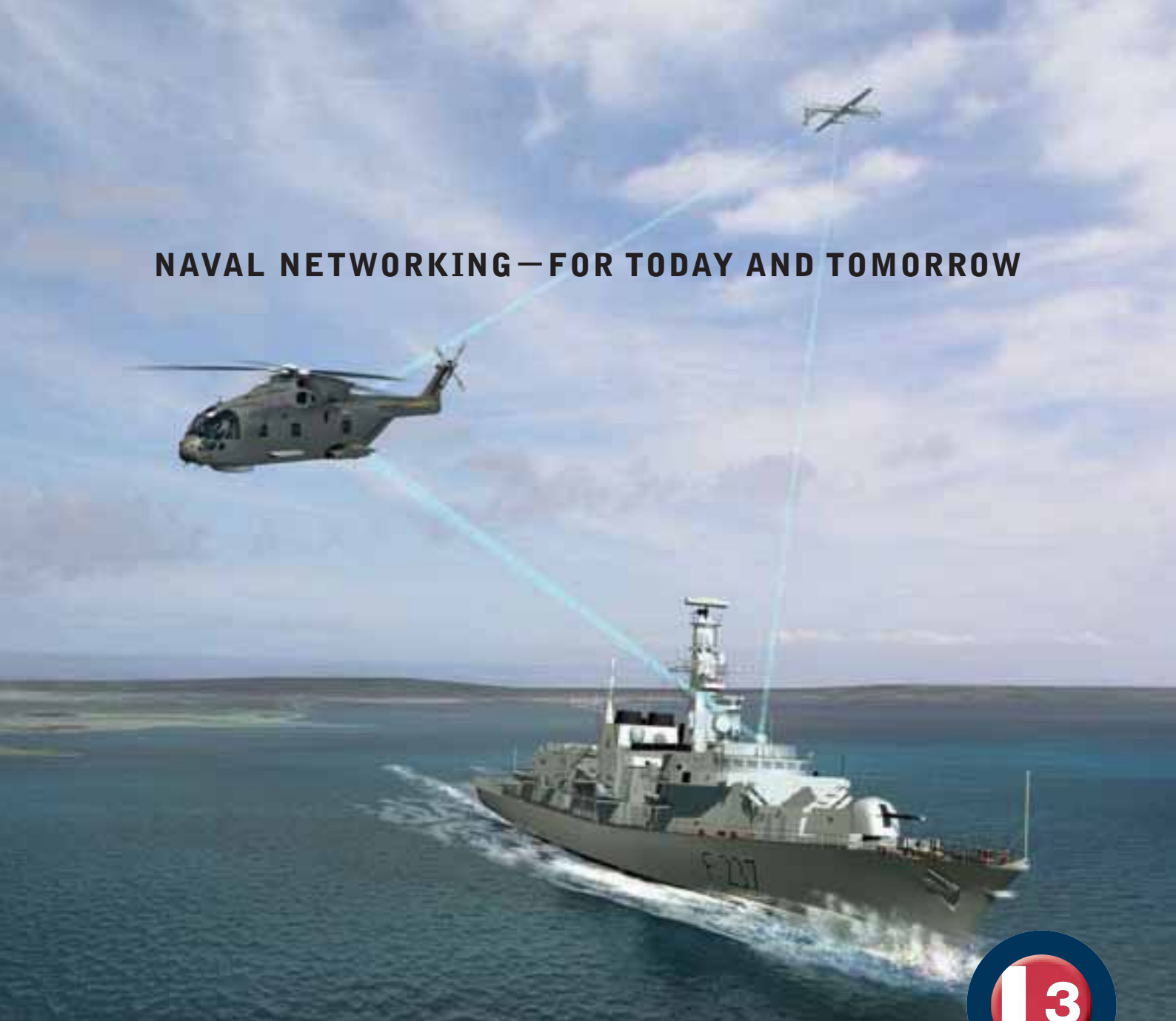
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Babcock applies its exceptional breadth and depth of expertise to provide a range of vital services to the Royal Navy and MoD, from concept design to through-life support and management, improving efficiency, reducing cost, and delivering projects successfully, safely, on-time and in-budget.

MEETING THE OPERATIONAL NEEDS OF THE ROYAL NAVY, TODAY AND TOMORROW

As the UK's leading naval support and technology business, Babcock plays a unique role supporting the Royal Navy and Ministry of Defence. As a key strategic partner in the maritime sector, underlined by a long term Terms of Business Agreement (ToBA), Babcock works closely with the MoD and Royal Navy to improve efficiency, reduce infrastructure costs, and increase service availability of the submarine and surface ship fleets, to meet the operational needs of the Royal Navy, today and tomorrow.

Babcock's role encompasses base porting, refitting, refuelling and decommissioning submarines; maintaining and refitting warships; building the next generation aircraft carriers; maintaining naval bases; equipment management and support; and engineering, design, systems integration and platform management capabilities.

SUPPORTING THE SUBMARINE FLOTILLA

As sole support provider for the RN submarine flotilla, and operator of the UK's submarine support facilities at Devonport and Clyde, Babcock's highly skilled workforce works on all aspects of the submarines, from hull and systems, nuclear reactor and secondary propulsion plant, to combat and strategic weapons systems, covering all facets of in-service support.

Babcock is working closely with the MoD under the ToBA, and as a key player in the Submarine Enterprise Performance Programme (SEPP), to develop and implement a new, performance-based approach to submarine support – flotilla output management – with a view to delivering greater assurance of submarine availability, at reduced cost, on a sustainable basis.

Babcock also leads the Submarine Support Management Group (SSMG) industry team delivering the Submarine Engineering Support Contract, providing in-service engineering design and technical support

to the UK's submarine flotilla over the next ten years, working as a joint team with the MoD and building on the successful support provided by SSMG over the last 11 years.

Further, Babcock is contributing its submarine support expertise for integration at design stage, as a key player in the future deterrent submarine concept phase.

THROUGH-LIFE EXPERTISE FOR THE SURFACE FLEET

Babcock also carries out refit and maintenance requirements on all classes of the surface fleet at its Rosyth, Devonport, and Clyde sites. As a key player in the Surface Ship Support (SSS) Alliance with the MoD and BAE Systems, Babcock is working with its alliance partners to improve RN surface ship support; changing the way maintenance is contracted, improving vessel availability, and driving out cost. Babcock sits on the Alliance Management Team and provides Class Output Management for RN classes including the amphibious fleet, for which Babcock provides holistic support as the centre of excellence for the amphibious capital ships and their landing craft.



A member of the Aircraft Carrier Alliance, Babcock's role includes nearly 50% of the modelling design and development work for the new carriers, as well as manufacture of the bow section and a number of upper blocks, and final ship assembly at Rosyth, drawing on its extensive skills in ship design, modern modular construction techniques and through-life support.

Babcock also contributes its support expertise at design and build stage as a key member of the Naval Design Partnership, and is providing design support to the new Type 26 Combat Ship.

TECHNOLOGY DESIGN, INTEGRATION AND SUPPORT

Another key element of Babcock's services in support of the Royal Navy lies in the design, integration and through-life support of high integrity engineered defence



systems and equipment. These include weapon and munitions handling and launch equipment for surface ships and submarines, as well as submerged signal ejectors, countermeasures launchers, recoverable tethered communications buoy, UUV and life raft systems for submarines, as well as surface ship systems including the automated weapon handling and integrated waste management systems for the new aircraft carriers. The Delegated Design Authority for all UK submarine weapon handling and launch systems, Babcock provided air turbine pump-based systems on the Astute submarine, for example.

INFRASTRUCTURE MANAGEMENT

Additionally Babcock provides maintenance, management and upgrade of complex engineering plant, equipment, buildings and utility distribution infrastructure at the Clyde and Devonport Naval Bases. Under the Warship Modernisation Initiative (WSMI) contracts, Babcock is contracted to provide waterfront support services, logistics, and estates and facilities management and maintenance; areas in which Babcock is delivering significant savings. At Devonport for example, a focus on relationships and partnering, an open book accounting approach, joint budgetary control and common goals on cost reduction are creating a new style of MoD/RN/industry interaction. The ToBA extends Babcock's management roles at the Clyde and Devonport Naval Bases to 2025.

EQUIPMENT AND MATERIALS SUPPLY

Babcock also manages the delivery and support of equipment, materials, and products to the Royal Navy under a number

of CLS and HESS contracts, with activities ranging from spares provision, management of repair loops, technical support, configuration control and information management, to physical warehousing and distribution services. Its supply chain services team provides managed quality spares and equipment support fully integrated with MoD systems and processes. Babcock seeks to provide an integrated equipment management role, aligned with and supporting platform availability.

INFORMATION KNOWLEDGE MANAGEMENT (IKM)

Further, Babcock's proven IKM capability provides in-service solutions for both submarines and surface ships, and complex asset management. Key areas of expertise include secure collaborative working and system hosting, software development, business intelligence and data warehousing, business re-engineering, disaster recovery and continuity, and secure remote connectivity. The company's Keynsham Data Centre can operate inside the MoD's Secret and Restricted Network boundaries and hosts a wide range of MoD and industry business-critical systems.



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PATROL BOATS AND NAVAL VESSELS

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ferries, patrol boats and naval vessels. Requirements outside these standard ranges can be accommodated in new designs, making use of proven systems and equipment from the standard series which guarantee reliability and cost effectiveness. For defence forces, coastguards and marine police, Damen can supply vessels from ten to 200 metres in length

for a wide range of activities in not just coastal areas but also in blue waters.

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Damen Interceptors are purpose built, designed to the highest standards and fitted with full professional equipment. Extensive prototype test programmes, involving customers worldwide, are



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an integral part of the development of new Damen Interceptor designs. Safety, crew ergonomics, manoeuvrability and speed in 'real' conditions are the key factors for these ultra high-speed Damen workhorses.

INSHORE AND COASTAL

The Damen 'Inshore and Coastal' range includes Stan patrol boats with a length of 12 to 50 metres and Fast Supplier vessels of 50 and 65 metres. Close attention is given to the sea-keeping characteristics of these vessels, as they have to work in rough coastal conditions around the world.

OFFSHORE PATROL AND SURFACE COMBATANTS

Damen supplies a complete range of ships in the Offshore Patrol Vessel (OPV) and Surface Combatants sec-

tor, with standardised modules and systems. The OPVs are built to commercial standards, whereas the Surface Combatants are built to a combination of military and commercial standards with full weapon options available.

DESIGNED FOR 'REAL' CONDITIONS

Worldwide, the majority of high-speed vessels are designed for trial conditions (no wind or waves) to limit speed degradation. As a result, many high-speed vessels perform well on flat water, but show serious shortcomings in the real world conditions on the sea, and often have to slow down in heavy weather.

Back in 1980, Damen and Delft University joined forces to change the high-speed craft design philosophy and started to design for 'operability at sea' instead of 'trial conditions'. This collaboration has produced several significant concepts:

- Stan Patrol 2600, in use with the Hong Kong Police Force and US Coast Guard (87' Coastal Patrol Boat – WPB Class)
- Enlarged Ship Concept, used by defence forces, coastguards and marine police forces of Albania, Barbados, Jamaica, the Netherlands, South Africa, Vietnam and the United Kingdom. Recently, both the US Coast Guard (Fast Response Cutter – Sentinel Class) and the Canadian Coast Guard (Mid-Shore Patrol Vessel Class) have selected Damen Enlarged Ship Concept designs for their fleet modernisation projects.
- Sea Axe (or Axe Bow) designs have been used for Fast Crew Supplier vessels in offshore industries around the world and have recently been implemented in the design of Damen patrol boats. The Company recently received its first order for a 50-metre Sea Axe patrol boat.

DMGIC

DELIVERING MARITIME OPERATIONAL SUPPORT IN THE DIGITAL AGE



UKHO



Set up in 2009, the mission of the Defence Maritime Geospatial Intelligence Centre (DMGIC) within the United Kingdom Hydrographic Office (UKHO) has been to deliver wide-ranging hydrographic, oceanographic and maritime intelligence to the Ministry of Defence in general and front-line RN units in particular.

As the RN has transitioned to digital navigation through WECDIS and ENCs, DMGIC's support has steadily evolved with significant benefits to front-line units in terms of timelines for delivery, cost and simplicity. Equally, with the current increase in operational tempo driven by Middle East and North African (MENA) unrest, DMGIC has increasingly found itself delivering new, digital products in support of maritime operations, contributing heavily to the compilation of the Recognised Environmental Picture (REP).

SUPPORT TO DIGITAL NAVIGATION: SIMPLISTIC, RAPID AND COST-EFFECTIVE

In the first instance, RN use of WECDIS has permitted the evolution of Admiralty Digital Catalogue Software, which sees navigators request specific charts via electronic means. The Defence Service

Delivery (DSD) team manage these requests on behalf of the Fleet Navigator, ensuring the demand is both proportionate and relevant to operational need.

Turnaround time from demand to delivery is now less than 24 hours (the order is invariably processed in less than an hour).

MENA UNREST: OPERATIONAL SUPPORT IN THE DIGITAL AGE

DMGIC's Additional Military Layers (AML) provide militarily relevant environmental information in a unified manner for display on a variety of systems (WECDIS, WAIS and Command Systems), thus preventing users from having to refer to a wide range of specialist (often paper-based) legacy products. Properly utilised, AML increases the manoeuvrability, reach and access of maritime forces. In support of MENA operations, most specifically around Libya, AML is playing its part in active RN units and, with a growing reputation, demand for this product in the Libyan Theatre of Operations has extended to other NATO units.

A good example of use of S-57 compliant AML style data, was the recent dissemination of updated depths for the port of Tripoli, based on

wholly new and recently received data. The publication of a chart is a long, involved process and in this case would have taken weeks. However, a locally produced military layer depicting the new data was generated in short order (24 hours) and despatched digitally to units considering Tripoli for NEO operations.

Equally important to the MENA piece has been the creation of wholly new Hydrographic Port assessments. Digitally compiling bathymetric data, imagery, warnings and cautions from Admiralty Pilots and all other sources available from within UKHO resources, a port's suitability for specific military operations is assessed and forwarded for incorporation into wider Defence Intelligence briefings. Seen at the highest levels, these products have been widely used to inform RN operations in Libya, particularly where NEO was concerned.

In the creation of the MENA REP, the above products are proving valuable tools and supported by other DMGIC products such as Fleet and Air Tactical Charts and Marine Environmental data products incorporating oceanography, it is assessed that DMGIC is contributing heavily to digital battlespace awareness.

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PROTECTING OUR NATION'S INTERESTS

This edition of *Royal Navy Matters* continues the traditions of the publication formerly known as *Broadsheet*. In it, we highlight the busy schedule of tasks undertaken by the Royal Navy around the globe throughout 2010 and the beginning of 2011.

The Strategic Defence and Security Review saw the withdrawal of the Harrier fast jet and, with it, the Naval Strike Wing. In all, six ships were decommissioned as a result of the review, including the flagship, HMS ARK ROYAL. The Royal Fleet Auxiliary fleet was also reduced.

The Royal Navy was once again heavily committed in Afghanistan, with the Commando Helicopter Force helicopters and the Mk 7 Sea King surveillance platforms remaining in theatre. The Joint Force Medical Group was again commanded by the Royal Navy and, after 40 Commando left Helmand, Royal Marine numbers in theatre were vastly increased with the deployment of 3 Commando Brigade.

At the beginning of 2011, operations in the Mediterranean took centre stage as the Royal Navy participated in the mission to evacuate refugees from Libya and the subsequent UN-backed operation to enforce a no-fly zone in the country to protect civilians.



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