



RCN CAPABILITIES

The Royal Canadian Navy (RCN) is a versatile and balanced blue-water (i.e., ocean going) fleet with a wide range of capabilities, which can be adapted to various missions. The fleet is capable of naval combat with major warships and is armed and crewed for sustained high-intensity operations. Ships of the RCN can also contribute to operations other than naval warfare, ranging from peace operations, constabulary action, regulatory enforcement and surveillance. The RCN contributes to Canadian Armed Forces operations ashore and is able to operate seamlessly (i.e., the navy is ‘interoperable’) with Canada’s allies and defence partners. It is a navy that can be deployed around the world, with ships and submarines capable of independent ocean crossing, but enabled by support ships. This Briefing Note provides a basic understanding of these capabilities.

Ships of the RCN

If you have read Briefing Note #10 (Assets and Platforms), you will know that Canada currently has three main classes of ships, and one interim support ship. It has 12 frigates – the *Halifax*-class – which are the workhorses of the RCN. These ships have a crew of around 240 people and are versatile ships. Canada also has four submarines – the *Victoria*-class – which have been used extensively in recent years for a variety of missions. As well, the RCN has 12 Maritime Coastal Defence Vessels (MCDVs) – the *Kingston*-class – which are smaller ships that have a crew of about 40-50 people and generally stay closer to home, although in recent years they have been deployed to West Africa and the Caribbean. Finally, the RCN now has an interim support ship – MV *Asterix* – which provides fuel and supplies to the fleet, and which is run by Federal Fleet Services with a mix of civilian and RCN personnel. (See Briefing Note #11 on *Asterix*).

In coming years, the National Shipbuilding Strategy (see Briefing Note #6) will lead to an increase in the navy’s ship assets. The RCN will receive Arctic and Offshore Patrol Ships, replenishment ships (Joint Support Ships) and new surface combatants (Canadian Surface Combatants).

Anti-Shipping Combat Operations

One of the principal tasks of any navy is sea *control*, namely control of your own ocean areas, and sea *denial*, denying non-friendly forces the military use and control of your own ocean areas. In practice this requires the ability to deter and/or sink enemy warships. This capability is resident in the RCN’s two primary war-fighting assets: the *Halifax*-class frigates; and the *Victoria*-class submarines. Canada’s frigates accomplish this task with their primary armament, the RGM-84 Harpoon missile. The Harpoon is a subsonic (i.e., slower than the speed of sound), over-the-horizon anti-ship missile capable of delivering 227 kilograms (500.5 pounds) of high explosive to an enemy target nearly 130 kilometres away.

A more powerful anti-ship weapon is the Mark 48 heavyweight torpedoes, carried by Canada's diesel-electric attack submarines. These modern torpedoes can travel up to 100 kilometres at 55 knots to deliver 295 kilograms (650 pounds) of explosives to a target. Unlike earlier versions of torpedoes, for example many of the ones used in the Battle of the Atlantic, these weapons do not detonate against the hull of their target. Rather, they explode beneath an enemy ship causing a bubble to form under the hull, lifting the vessel out of the water and cracking it in two. While an anti-ship missile like the Harpoon will do serious damage, it is the heavy torpedo that presents a truly critical threat.

Anti-Submarine Warfare

Some of the RCN's most intense combat has been in the field of anti-submarine warfare (ASW). During the Second World War, in the company of other Allied countries, Canada was responsible for defending convoys from German U-boats and this involved sinking them if possible. This ASW tasking remained the navy's core mission throughout the Cold War, as Soviet submarines could, as Germany had in WW II, try to close off the Atlantic Ocean to shipping in the event of war.

The ASW tradition remains an important part of the RCN's combat capabilities today. The navy's principal ASW asset is the *Halifax*-class frigate. Maritime helicopters are a major element of the modern hunt for submarines. The frigates served as platforms for the now-retired CH-124 Sea King helicopters and now serve as platforms for the new CH-148 Cyclone maritime helicopters. These aircraft can range out to 400 kilometres, dropping sonar buoys in the water to detect the sound of submarines, allowing the frigate to stay well out of range of enemy weapons. Once located, an enemy submarine can be attacked by the helicopter's complement of two torpedoes. In addition to their anti-ship Harpoon missiles, Canadian frigates carry Mark 46 lightweight torpedoes, which can be fired from aft tubes. These weapons are considered largely defensive, since surface ships prefer to engage submarines at long range using aircraft.

Air-Defence

The RCN's air-defence capabilities reside in its 12 frigates. These ships are designed to operate in high-risk combat zones and possess a layered anti-air defence to protect them from enemy aircraft, drones and missiles. This system includes the Rim-162 evolved Sea Sparrow missile to engage targets out to 50 kilometres, a 57 mm Mark 3 naval gun which can fire burst munition at targets within 12,000 metres, and a Phalanx Mark 15 close-in weapon system, which can fire 3,000-4,500 rounds a minute at incoming missiles or drones. Each frigate also carries an advanced system of electronic countermeasures which can divert incoming missiles before they can strike a ship.

Land Attack

Unlike some of the navies of larger states, the RCN possesses a limited capability to strike objects on land. In 2016 the RCN took possession of its first Harpoon Block II missiles, a system which adds the ability to strike targets ashore but prior to the upgrade, Canada's frigates were only able to engage targets ashore with their 57 mm gun which, as noted, has limited range. With the new Harpoons, the RCN has the ability to support ground operation by conducting tactical

strikes, an important consideration in a contested battlespace where air strikes may be too dangerous. Warships operating in coastal regions also contribute to the operations of land forces through surveillance reporting that can be collected by embarked aircraft or unmanned systems. Warships, with their advanced communications suites and large storage spaces, also provide ideal command and control platforms and supply hubs for land forces ashore.

Surveillance

Canada's premier surveillance assets are its four *Victoria*-class submarines. Diesel-electric boats are the stealthiest naval vessels in the world, able to monitor suspicious or hostile maritime activity undetected. Details on the roles and duties of submarines usually remain classified, however they have been deployed off the coast of states such as North Korea to monitor maritime traffic while conducting constabulary missions closer to home, such as fisheries patrols and support to maritime law enforcement and other governmental departments.

The RCN also employs its frigates and *Kingston*-class patrol vessels to monitor activity along Canada's coasts and in global hotspots through missions like *Operation Reassurance* (see Briefing Note #4 for a discussion of RCN participation in this operation). Information from all these sources is fed back to Canada and assimilated by the Marine Security Operations Centres (MSOCs). (See Briefing Note #19 for more about the MSOCs.) This data is, in turn, disseminated to key government agencies and can be disseminated to allies as well.

Support for Peace Operations and Disaster Relief

For more than 60 years, Canada has deployed forces abroad to support United Nations and international coalition missions to restore peace and security in areas of conflict. The navy plays an important, if often overlooked, role in these missions. While not normally directly engaged in peace operations, the RCN provides indirect support through surveillance and intelligence reporting, and direct support in moving forces and equipment and evacuating civilians.

As well, RCN vessels work with allied navies in global counter-terrorism operations by restricting the freedom of manoeuvre of terrorists in the maritime domain and intercepting merchant craft supporting terrorist and criminal activities. Canada's participation in Combined Task Force 150 (CTF 150) – including providing its commanding officer for part of 2019 (Commodore Darren Garnier) – is an example of such a mission, with work across some of the world's busiest shipping lanes in the Red Sea, Gulf of Aden and Indian Ocean.

The RCN is also one of the Canadian government's most effective tools in disaster response or humanitarian assistance. When hurricanes and natural disasters strike in coastal areas, naval vessels are often among the first responders. In situations such as these, navy ships can provide much-needed supplies, including food and water, as well as (limited) medical facilities, essential transport and aid, storage space, operational hubs and ship-based aircraft when they are needed most. Warships have large storage spaces so they can transport supplies much more cheaply than air transport. They provide effective command and control platforms and supply hubs – particularly in areas without established, or with damaged, facilities ashore.¹ As well, because they can sustain themselves, naval ships can continue to provide assistance even if airports are damaged or are being used to capacity, without straining facilities on shore.

¹ Corey Bursey, "The Royal Canadian Navy in Peace Operations," *Canadian Military Journal*, Vol. 17, No. 4 (Autumn 2017).