

HMCS Onondaga (S73) is an Oberon-class submarine that served in the Royal Canadian Navy and later the Canadian Forces. Built in the mid-1960s, Onondaga operated primarily with the Maritime Forces Atlantic until her decommissioning in 2000 as the last Canadian Oberon Class submarine.

#### Design and Construction:

The Oberon class were considered an improved version of the preceding Porpoise-class submarines, with a different frame of the pressure hull and constructed from a better grade of steel. These build differences allowed the Oberon's to have a deeper diving depth at roughly 1,000 feet (300 m).

The submarines displaced 2,030 tonnes (2,000 long tons) surfaced and 2,410 tonnes (2,370 long tons) submerged. They measured 295 ft 1/4 in long with a beam of 26 ft 1/2 in and a draught of 18 ft.

The boats were powered by a two shaft diesel-electric system. The Oberon's were equipped with two ASR 1 16-cylinder diesel engines creating 3,680 brake horsepower and two English Electric motors creating 6,000 shaft horsepower. This gave the submarines a maximum surface speed of 12 knots and a submerged speed of 17 knots. The boats carried 258 tons of oil giving them a range of 9,000 nautical miles at 12 knots.

The design was armed with eight 21 inch torpedo tubes, six in the bow and two in the stern. They carried 24 reloads for a total of 30 torpedoes. Canadian boats differed from the original design by being equipped for the US Mark 37 torpedo. The longer, wire-guided Mod 2 version was carried in the forward tubes and the non-guided Mod 0 for the rear tubes.

The Oberon's were equipped with Type 187 active-passive sonar, Type 2007 passive sonar and Type 2019 sonar.

#### Submarine Operational Update Program (SOUP):

By the late 1970s, the Oberon's in Canadian service were becoming obsolete and in need of an update. Planning was done in 1978 and the program approved in February 1979. In an effort to take the subs from anti-submarine warfare training to frontline service, Maritime Command developed a refit program that included new sonar's, periscopes, communications and fire-control systems. They also had their armament upgraded with the fitting of torpedo tubes capable of firing Mk 48 torpedoes. This would allow the submarines to be deployed by NATO in the North Atlantic to monitor Soviet submarines.



The SOUP refits comprised a new USN fire control system, a digital Singer Librascope Mark I, and new Sperry passive ranging sonar with the Type 719 short range sonar removed. The new sonar was placed in the upper casing on the pressure hull. New communications and navigational systems were installed. The submarines were fitted with new torpedo tubes for Mark 48 torpedoes, however the torpedoes themselves were considered a separate procurement program, which was only finalized in 1985. Between 1980 and 1986, one of the Canadian Oberon's was out of service undergoing the refit. SOUP came in on time and on its budget of C\$45 million in 1986. SOUP kept the Canadian Oberon's operating until the end of the 1990s when they were replaced by the British Type-2400 submarines.

#### Construction and Career:

Onondaga was constructed at Chatham Dockyard in England. Laid down on 18 June 1964, launched on 25 September 1965, she was commissioned at Chatham on 22 June 1967 and named after the Onondaga First Nations people and assigned pennant number S73. The submarine cost C\$16,000,000.

Onondaga was assigned to Maritime Forces Atlantic (MARLANT) as part of the 1st Canadian Submarine Squadron and served nearly her entire career in the North Atlantic. Onondaga spent time training with the Royal Navy after an exchange program was instituted in the 1960s that would see submarines from both the Royal Navy and Royal Canadian Navy spend time with each other's forces. This allowed Canadian submarines on intelligence-gathering missions. Beginning in the 1970s, Canada began underwater surveillance patrols in the western Atlantic, tracking Soviet sub and surface fleet vessels, especially the ballistic missile submarines, usually in concert with a Canadair CP-107 Argus or Lockheed CP-140 Aurora patrol aircraft.

Onondaga arrived at HMC Dockyard at Halifax, Nova Scotia on 18 January 1982 in preparation for her SOUP refit. The refit began on 25 June 1983 and was completed on 27 April 1984. Following the SOUP refit and the introduction of the Mark 48 torpedoes, the Oberon's were considered fully operational and counted the same as other offensive fleet units in Maritime Command.

Following the end of the Cold War, the Oberon's were re-tasked, performing patrols on behalf of federal institutions such as the Department of Fisheries and Oceans and the Solicitor General of Canada between 1991 and 1994. For six months in 1994, the submarine served on the west coast. The delay of the introduction of the Victoria-class submarines led to the Oberon's working past their life expectancy. During the Turbot War, the Oberon's were tasked with monitoring European fishing fleets off the Grand Banks of Newfoundland. Their presence served as a deterrent in the escalating crisis.

Onondaga was decommissioned by Maritime Command on 28 July 2000. She was the last Oberon-class submarine operational in Canadian service. On decommissioning, Onondaga and her sister boats were left to await disposal in Halifax harbour.

## Preservation:

In 2001, it was planned to cut Onondaga into pieces and reassemble her inside the Canadian War Museum. This plan was cancelled before the end of the year, because of the excessive cost. In May 2005 the Halifax Chronicle-Herald announced that Maritime Command was looking to sell Onondaga for scrap metal, along with three other Canadian Oberon's. MARCOM stated that the submarines were not in suitable condition to be used as museum ships, and predicted that each submarine would sell for between C\$50,000 and C\$60,000.

Instead of being scrapped, the submarine was purchased by the Site historique maritime de la Pointe-au-Père, Rimouski in 2006, for C\$4 plus tax to become a museum ship. The submarine would be towed from Halifax to Rimouski during the summer of 2008, floated onto a temporary marine railway, then hauled up the shore into the final position. Getting the submarine onto the marine railway would require a high tide of 4.6 metres (15 ft), which would only occur during a 2-hour window on 2 August. The removal of torpedoes and batteries following decommissioning had significantly affected Onondaga's displacement, and 180,000 litres of water had to be pumped into the ballast tanks before the submarine could be safely towed. Originally due to leave Halifax on 9 July, the tow was delayed by two days due to foul weather. One of the tow bridles snapped before the tugboat and submarine left the harbour, causing a half-day delay. On 12 July, submarine and tugboat were forced to divert via the Canso Canal to avoid Hurricane Bertha; a second tugboat was called into to help Onondaga traverse the locks.

Onondaga arrived in Rimouski harbour on time for the 2 August high tide, but a heavy storm prevented the operation from occurring. The marine railway was extended further into the water to permit an attempt in September with a 14 ft tide. The second attempt succeeded in half-removing Onondaga from the water, but the submarine was not properly aligned with the support cradles. As the water receded overnight, the submarine rolled to the right and off the railway, puncturing the outer casing on a nearby boulder. A third attempt was made two weeks later, after the submarine was shored up and the cradles were replaced. Two tugboats were used to help position the submarine over the railway, but as the pull from shore started, one of the tugboats applied too much tension and pulled Onondaga back off. A fourth and final attempt was made on 28 November; after this, there were no more opportunities before winter struck and froze Rimouski harbour, further damaging the submarine.

After successful removal from the water plus repairs and refurbishment, Onondaga and her attached museum opened on 29 May 2009 as a publicly accessible submarine with over 100,000 visitors in the first year. < <http://www.shmp.qc.ca/index.html> >