



Halifax Shipyard

CANADA'S FUTURE NAVAL FLEET



BUILT WITH PRIDE IN NOVA SCOTIA





A legacy for our navy and our country



In June 2010, the Government of Canada announced the National Shipbuilding Strategy to replace the current surface fleets of the Royal Canadian Navy and the Canadian Coast Guard.

Through this competitive, open and transparent process, Irving Shipbuilding was selected to construct Arctic and Offshore Patrol Ships (AOPS) followed by Canadian Surface Combatants (CSC) for the Royal Canadian Navy in the combat package. Irving Shipbuilding will revitalize Canada's

combatant fleet over the next 30 years by constructing up to 21 modern vessels.

The long-term certainty of the National Shipbuilding Strategy led to Irving Shipbuilding investing \$350 million at the Halifax Shipyard to create North America's most modern shipbuilding facility. This strategy is revitalizing our shipbuilding and marine industry and creating sustainable jobs here in Nova Scotia, while ensuring Canada's sovereignty and protecting our interests at home and abroad.

Creating a sustainable and vibrant shipbuilding and marine industry



As we mark one year since cutting steel on the first Arctic and Offshore Patrol Ship (AOPS), the future HMCS Harry DeWolf, we celebrate the renewal of a sustainable and vibrant shipbuilding and marine industry in Canada.

For the next 30 years, Irving Shipbuilding will work closely with Canada's Navy on the next class of Canadian Surface Combatants (CSC) and AOPS vessels under the National Shipbuilding Strategy (NSS). Built by the best workers, with the best equipment, in the best facilities, work on the first AOPS vessel is well underway and steel has been cut for the second vessel, the future HMCS Margaret Brooke.

Since 2012, Irving Shipbuilding has invested \$350 million to create the most modern, innovative and cost effective shipbuilding facility in North America. Our work thus far on the National Shipbuilding Strategy has led to commitments of more than \$1.1 billion to over 200 Canadian companies, including more than \$480 million to companies in Nova Scotia.

We have steadily increased employment in our facilities, and total employment is forecasted to rise to over 2,400 at peak production of the CSC vessels. We are also investing in training and education programs to ensure our workforce has the necessary skills and knowledge to build efficient ships seamlessly through the next three decades.

Irving Shipbuilding is dedicated to creating a sustainable and vibrant shipbuilding and marine industry in Canada, and we are proud to continue our long history as a trusted partner in Canadian shipbuilding.

Kevin McCoy
President

September 2016

James D. Irving
Co-Chief Executive Officer



A proud history as Canada's shipbuilder

Irving Shipbuilding has built over 80% of Canada's current fleet. Halifax Shipyard has been at the forefront of Canadian shipbuilding for more than 125 years



1889

Halifax Graving Dock Company begins operation.



1917

The Halifax Explosion occurs just 300m north of the Halifax graving dock on the morning of December 6, resulting in the loss of life and major damage to the facilities.



1918

Halifax Shipyard, successor of Halifax Graving Dock Company, begins operation and starts construction of the first steel-hulled ships in Atlantic Canada.



1940-1941

Saint John Dry Dock Company constructs Flower-class corvettes to serve during WWII with the Royal Canadian Navy (RCN).



1942-1947

Halifax Shipyard constructs Tribal-class destroyers for the RCN.



1943

During WWII, the first women are recruited in trades positions at the Halifax Shipyard due to a shortage of labour. A special 480-hour welding program is set up at the Nova Scotia Technical College to train the women.



1951-1957

Halifax Shipyard constructs St. Laurent-class destroyers as part of the RCN's post-war fleet modernization program.



1959

K.C. Irving purchases Saint John Dry Dock Company which becomes known as Saint John Shipyard and then Irving Shipbuilding.



1966-1970

Saint John Shipyard constructs two Protecteur-class auxiliary vessels for the RCN to resupply ships at sea with food, munitions, fuel and spare parts.



1983-1997

Saint John Shipbuilding successfully delivers nine warships for the RCN's Halifax-class frigate program. Canada's largest shipbuilding project to this date. J.K. Irving at the christening ceremony for one of the Halifax-class warships.



1992-1999

Halifax Shipyard builds 12 Kingston-class Maritime Coastal Defence Vessels (MCDV) for the RCN.



1994

Halifax Shipyard joins Irving Shipbuilding. J.K. Irving marks delivery of Maritime Coastal Defence Vessel to Canada's Navy.



2008-2016

Irving Shipbuilding is awarded a \$549M contract to modernize seven of Canada's fleet of Halifax-class frigates. In 2016, the final frigate, HMCS Toronto, will complete modernization at the Halifax Shipyard.



2009-2014

Irving Shipbuilding is awarded a \$198M contract to construct nine new Mid Shore Patrol Vessels for the Canadian Coast Guard at the Halifax Shipyard. The ships are delivered on time, on budget, and with superb quality.



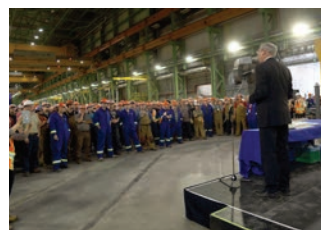
2011

In October 2011, Jim Irving celebrates with Halifax Shipyard employees on being named builder for Canada's next generation of Combat Ships under the National Shipbuilding Strategy (NSS). Combat vessels include the RCN's Arctic and Offshore Patrol Ships (AOPS) and the Canadian Surface Combatants (CSC), to be built at the Halifax Shipyard.



2014

In August, after a \$350M investment, the last steel truss is installed on the newly modernized Halifax Shipyard.



2015

In January, a \$2.3B AOPS build contract is signed by Canada and Irving Shipbuilding. Construction begins at the Halifax Shipyard on the first AOPS vessel, the future HMCS Harry DeWolf, in September.



2016

In May, at the Halifax Shipyard, a coin is laid on the keel of the future HMCS Harry DeWolf, a proud naval tradition said to bring luck to the ship.



2016

In August, steel is cut at Marine Fabricators in Dartmouth on Canada's second AOPS vessel, the future HMCS Margaret Brooke.



Today

Halifax Shipyard is the most modern shipbuilder and in-service ship support provider in North America.

Halifax, home to North America's most modern shipyard

We've invested over \$350 million and nearly 100,000 design hours to bring Canadian shipbuilding into the future

Quick Facts

To view our progress, visit shipsforcanada.ca/our-progress



Facilities are custom designed for the efficient building of Canada's naval ships



At 408 metres in length, the Assembly and Ultra Hall is the equivalent of nearly 7 National Hockey League (NHL) ice surfaces



Irving Shipbuilding employees work with the best and newest technology on projects that will span 30+ years



Nearly 100 engineers are employed by Irving Shipbuilding to design modern ships for Canada's navy



At 46 metres in height, the Assembly and Ultra Hall would just clear under the Halifax Harbour Bridges



As of August 2016, over 10,000 gallons of paint has been used on the first AOPS vessel



Approximately 300 kms of cable will be installed on the first AOPS vessel, equivalent to the driving distance from Halifax to Yarmouth, Nova Scotia

Innovation highlights



100% LED lighting uses 75% less energy than traditional lighting



A state of the art weld fume extraction system allows for 100 simultaneous welding operations, while maintaining safe air quality



The operator of our single sided welding machine can complete the equivalent of 24 hours of manual welding in 20 minutes with a 99% accuracy rate

How we build the Arctic and Offshore Patrol Ships

Best-in-class Naval Surface Combatant construction practices

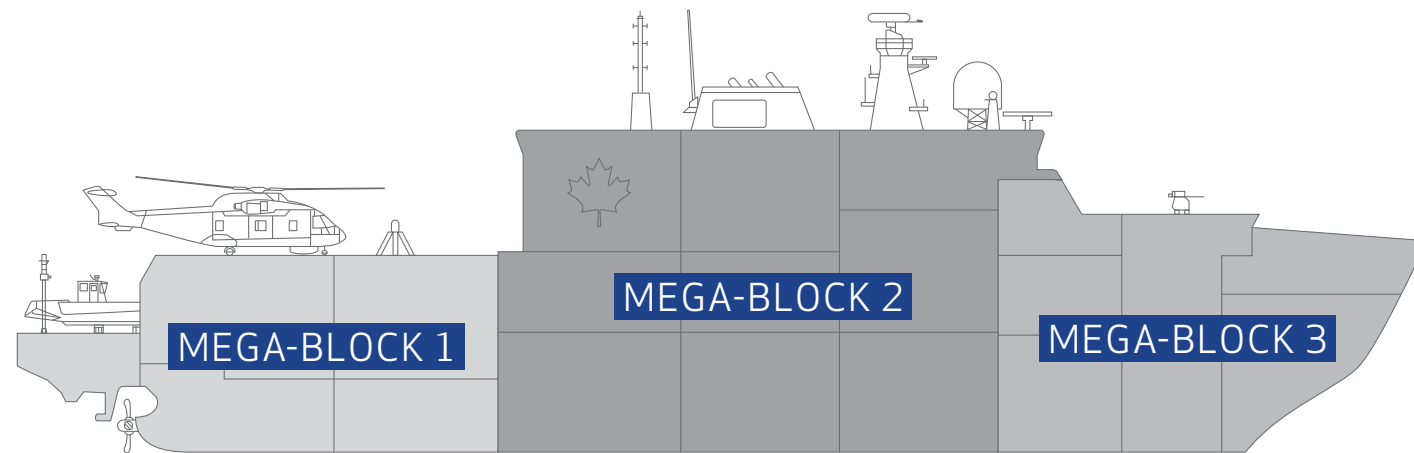


Artist rendering of an Arctic and Offshore Patrol Ship (AOPS)

The Arctic and Offshore Patrol Ships (AOPS) are 109-metre ice-capable vessels. Designated as the Harry DeWolf Class, after Canadian wartime naval hero Vice-Admiral Harry DeWolf, the AOPS will be capable of:

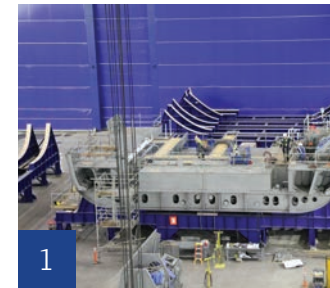
- Armed sea-borne surveillance of Canada's waters, including the Arctic
- Situational awareness of activities and events in these regions
- Humanitarian assistance and disaster relief
- Asserting and enforcing Canadian sovereignty

Mega-block arrangement

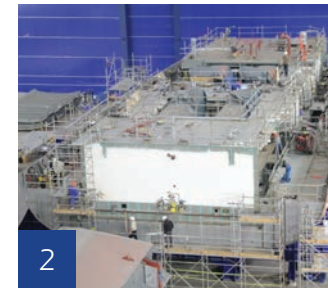


Irving Shipbuilding uses a progressive build approach to construct the AOPS. Over the course of time, 63 smaller units become 21 larger blocks, which become 3 mega-blocks. We will use the same progressive build approach for the Canadian Surface Combatants.

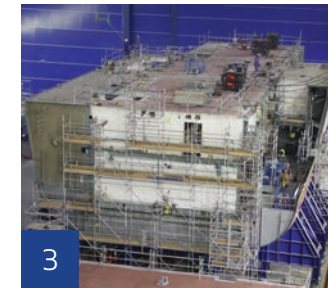
Construction in progress



1 The first keel unit of the future HMCS Harry DeWolf, sits in the cradles at Halifax Shipyard



2 The base of the main keel unit of the future HMCS Harry DeWolf comes together



3 Units are stacked on top of the main keel unit to form a mega-block. This is the first of three mega-blocks of the future HMCS Harry Dewolf



4 Progress continues at Halifax Shipyard with another level added to the mega-block

Engaging global expertise to modernize our workforce

Before joining our team, Job Vazquez worked on major engineering and shipbuilding programs in Mexico, Spain, France and the United Kingdom. As a project planning and scheduling manager, Job now oversees the construction of the Arctic and Offshore Patrol Ships for Canada. His education, including a Doctorate in Marine Engineering from Newcastle University, and experience managing the fabrication and commissioning of shipbuilding and repair projects, has contributed to advancing the capabilities of Irving Shipbuilding's entire workforce.

"Irving Shipbuilding, our team of shipbuilders and the Nova Scotia community have helped my wife, son, and I feel at home here in Halifax. I'm proud to be helping renew the Canadian fleet and grow the marine sector across the country."

— Job Vazquez, Project Planning and Scheduling Manager

Building Canada's next generation of shipbuilders

Irving Shipbuilding has invested in training and education programs to develop 21st century shipbuilders. We're committed to modernizing the face of shipbuilding to ensure it is as diverse as the country itself.

Irving Shipbuilding provides \$250,000 per year to the Nova Scotia Community College (NSCC) to develop and sustain the Irving Shipbuilding Centre of Excellence. The Irving Shipbuilding Centre of Excellence provides bursaries to individuals interested in shipbuilding careers with a focus on growing opportunities for underrepresented groups. Through this initiative, two successful programs, Women Unlimited and Pathways to Shipbuilding, have been designed to provide training and employment opportunities

for 20 female students and 20 Indigenous students, respectively, in areas of welding and metal fabrication.

We have also partnered with NSCC to develop the Marine Manufacturing Initiative, which offers a comprehensive introduction to specific marine-related trades training. Through this partnership, a "Shipbuilding 101" course, the first of its kind in Canada, has also been made available to anyone interested in shipbuilding. As of September 2016, more than 500 Irving Shipbuilding employees have completed this course.

At the Halifax Shipyard, we have invested in the development of our own state of the art in-house training facility. Four on-site simulators

for pipe, electrical, welding, and ironwork trades allow our workforce to train in an environment that replicates the vessels under construction.

To ensure young Canadians are aware of career opportunities available in the marine and shipbuilding sectors and to enhance ocean literacy among youth, Irving Shipbuilding has invested in the Institution for Ocean Research Enterprise (IORE) Marine People Partnership. We are also working with SuperNOVA at Dalhousie University to offer shipbuilding summer camps for Nova Scotia youth, and shipbuilding activity days in grade six classrooms throughout the province.

By taking steps to ensure our existing and future workforce have the necessary skills to build Canada's future fleet, we're confident our diverse and knowledgeable team of shipbuilders will continue to deliver on our commitments to Canada over the next 30 years.



Inspiring the next wave of female shipbuilders



Vicki Berg's dream of becoming a welder was often dismissed by others as a career unfitting for a woman, but her dream is now reality. She is a welder at Irving Shipbuilding's Halifax Shipyard and part of the team building the Arctic and Offshore Patrol Ships. Vicki is helping the next wave of female welders enter the trade by acting as a mentor with Women Unlimited, an organization dedicated to promoting women in trades and technologies roles. She is also actively supporting Pathways to Shipbuilding, an education and

apprenticeship program creating job opportunities for 20 Indigenous students in metal fabrication.

"I work hard to set an example for my daughter and other women. I believe you can do anything you set your mind to, and being a woman should not hold you back from pursuing a career."

— Vicki Berg, Welder

Learn, grow and advance your career



Ryan Mitchell joined Irving Shipbuilding in 2011 as a journeyman electrician. While he enjoyed his work, he wanted to advance his career and help his colleagues succeed. In January 2016, Ryan became an Electrical Instructor, and today leads a team of in-house electrical, welding, ironworker and pipefitting instructors who provide trade-specific shop skills to the shipbuilders at Irving Shipbuilding. A native of P.E.I., Ryan's career advancement has helped him, his wife and young daughter keep their roots firmly in Atlantic Canada.

"I am proud to be part of the knowledgeable, hardworking team training Canada's best shipbuilders to construct Canada's future fleet. The challenges we face in this fast-paced, high-energy environment are leading to improvements that continue to help both our workforce, and myself, grow."

— Ryan Mitchell, Team Leader of Training



Benefiting Canadians from coast to coast to coast

To see our Canada-wide impact, visit shipsforcanada.ca/canadian-impact

Over **\$1.1 billion** in spending commitments to 200+ companies across Canada as a result of the National Shipbuilding Strategy¹

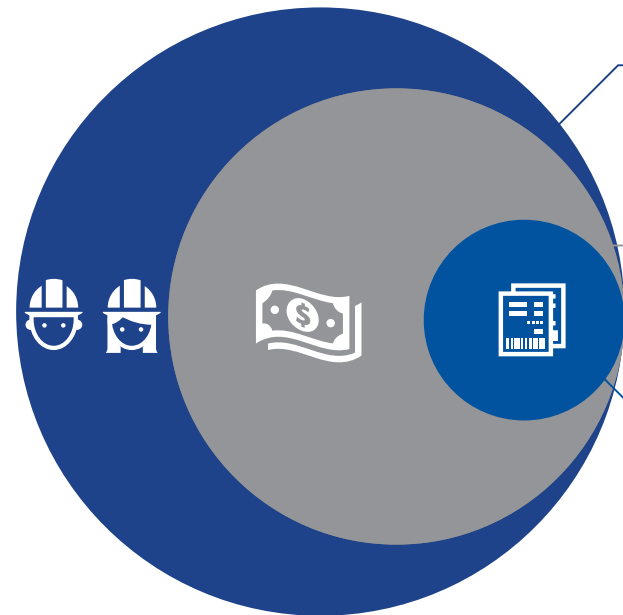


1,300+ Irving Shipbuilding employees and growing



“GE’s collaboration with Irving Shipbuilding on this important large infrastructure project utilizing best-in-class technology, created an opportunity for developing a made-in-Canada solution and also delivered new business opportunities to our supply chain.”

— Elyse Allan, President and CEO, GE Canada (Ontario)



\$616 million in employment income²

\$451 million in consumer spending²

\$199 million in taxes to be generated²

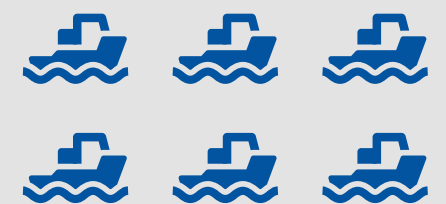


10,240 full time equivalent (FTE) person years of employment supported²

Investing in Canada’s marine industry



Under the National Shipbuilding Strategy Value Proposition obligation, Irving Shipbuilding has committed to investing 0.5% of contract value in research and initiatives to support a vibrant and sustainable marine industry in Canada. As of September 2016, over \$6M has been committed to organizations involved in research, education and growth of Canada’s shipbuilding and marine industries.



Over \$6 million committed to Canada’s marine industry through Value Proposition investments

¹Based on purchase orders issued and Irving Shipbuilding labour spend for AOPS and Facility Modernization as at June 30, 2016.

²Source: Jupia Consultants Inc. economic impact forecasts based on purchase orders issued and Irving Shipbuilding labour spend for AOPS and Facility Modernization as at June 30, 2016.





Shipbuilding benefits in Nova Scotia

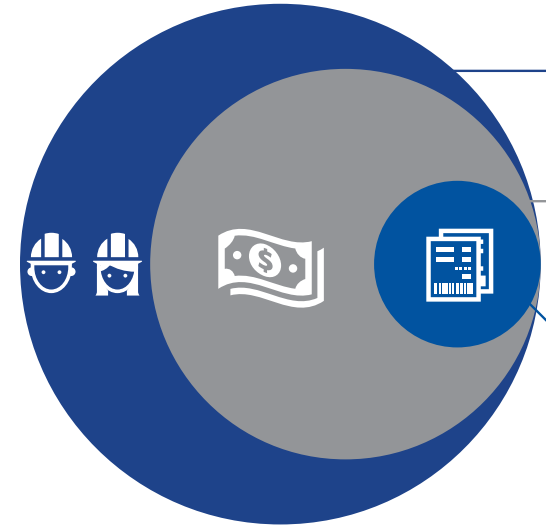


Over \$480 million in spending commitments to companies in Nova Scotia as a result of the National Shipbuilding Strategy¹



4,534 full time equivalent (FTE) person years of employment supported²

¹ Based on purchase orders issued and Irving Shipbuilding labour spend for AOPS and Facility Modernization as at June 30, 2016.



\$243 million in employment income²

\$178 million in consumer spending²

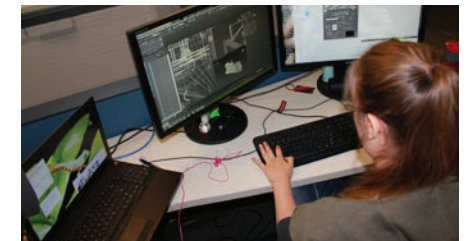
\$79 million in taxes to be generated²

²Source: Jupia Consultants Inc. economic impact forecasts based on purchase orders issued and Irving Shipbuilding labour spend for AOPS and Facility Modernization as at June 30, 2016.



Advancing ocean science

Earlier this year, Irving Shipbuilding contributed \$1 million in support of nine progressive marine research projects across Canada. Thanks to this funding, Dr. Julie Laroche and her research team at Dalhousie University will introduce novel technology onto the Atlantic Condor, a commercial supply vessel, that will gather and analyze detailed data on plankton biodiversity in Nova Scotia's coastal waters. With ocean conditions quickly changing, this innovative research project will establish an important baseline for the current state of plankton, the food source at the base of the ocean food chain.



“Bluedrop is proud to be a part of this important project for Canada. Our state-of-the-art virtual training and simulation centre here in Halifax is the only facility of its kind in Canada and will ensure our Navy is trained to manage their future fleet.”

— Jean-Claude Siew, Vice-President, Technology and Simulation, Bluedrop Training & Simulation (Nova Scotia)



Bringing Nova Scotians back home

Dale Boudreau spent years commuting across Canada to earn a living. He went where work was – Ontario, Saskatchewan, New Brunswick, Alberta – always hoping he would find a stable career opportunity here at home. Today, Dale is a pipe fabricator at Irving Shipbuilding's Marine Fabricators, helping build Canada's future fleet. His stable long-term employment now means he gets to go home to his fiancé and newborn daughter after work, no longer missing important family events and milestones.

“Having a stable career that keeps me in Nova Scotia with my family means the world to me. I am so happy to have the opportunity to watch my little girl grow each and every day.”

— Dale Boudreau, Fabricator



900+ skilled tradespeople employed by Irving Shipbuilding

Thank you to our shipbuilders!



Join the team

Irving Shipbuilding's team is over 1,300 strong and still growing.
If you're interested in joining our team, visit
ShipsForCanada.ca/Careers
to view current opportunities and sign-up for Job Alerts.

To find out more about Irving Shipbuilding visit
ShipsForCanada.ca
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