

# Nanaimo Port Authority Marine Security and Safety Roles and Capabilities

The Harbour Master's responsibilities focus on ensuring that navigational safety, port security, and environmental stewardship are maintained. This is achieved through the following activities:

- Monitoring marine movements and operations
- Regular Harbour patrols
- Liaison with users
- Developing the regulations and bylaws for the region's waterways
- Coordination of uses (commercial vs recreational)
- Control and regulation of mooring management areas
- Education of safe and environmentally sound boating practices
- Marine spill response

To facilitate these activities the Nanaimo Port Authority (NPA) has created a Marine Domain Awareness System which utilizes active and passive sensors linked to an Operations Center and a Patrol Division which consists of three vessels.

Marine Domain Awareness System:

The Marine Domain Awareness project is a shared project between the NPA and Xanatos Marine (of North Vancouver). This project represents an investment of \$2.2 million dollars to ensure the ports obligations to provide “waterside security” as required under the Marine Transportation Security Regulations (MTSR) are fulfilled. The project seeks to develop a model for Marine Domain Awareness (MDA), and vessel monitoring over the approaches to and within the NPA’s jurisdiction.

The MDA supports NPA’s mandate to ensure:

- Vessel safety
- Security
- Environmental protection and
- Precise navigation

This is achieved through the integration of land-based sensors such as radar, AIS, CCTV cameras, and water based sensors such as wind, tide, current, visibility, salinity and potentially hydrophones installed on buoys and on the ocean floor.

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The data from each of these sensors is brought to a single location and displayed in a layered format to provide full situational awareness for the NPA staff located in the Operations Center. The real-time weather data is currently being broadcast to surrounding vessels, thereby assisting Bridge Resource Management Teams in real-time decision making.

The MDA system architecture based on and followed principles established by the multi-stakeholder design of the Marine Electronic Highway (MEH) project in the Malacca Straights, Indonesia which was overseen by the International Maritime Organization (IMO), funded by the World Bank and successfully implemented by Xanatos Marine. NPA has worked with Xanatos Marine to adapt the system to the needs of the BC marine community and the regulatory regime. The multi-stakeholder design allows each stakeholder to have access to important data improving situational awareness and allowing for informed decisions to be made based on real-time data.

The MDA project has been in the development phase for over 18 months and is now operational as a “proof of concept” in the Nanaimo Harbour. During 2016 the system will be tested and validated by NPA staff and selected “Port Partners” to augment Canada’s already robust Marine Safety and Security system. This is a new project which the NPA believes will help shape Electronic Navigation and be a component of Canada’s quest for safer seas.

## **NPA Patrol Division the Harbour Masters Launches- Background**

- Nanaimo Port Authority (NPA) has invested \$1.1 million in a fleet of two new, specially commissioned harbour patrol launches designed and built by Eagle Craft, a division of Daigle Welding and Marine
- The NPA patrols the federally defined harbour and river estuary to help marine users with navigational safety and security
- Extensive tests were conducted on the first in class, NPA Eagle, and improvements to the design incorporated into the build of her near-sister vessel, NPA Osprey
- The second vessel, NPA Osprey, has recently been upgraded with additional firefighting capabilities.
- Two near sister ships have been developed off of the NPA Osprey for use by the Port of Metro Vancouver



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## Why have New Boats been commissioned?

The two new launches have produced benefits that include the following:

- Substantially reduced fuel consumption and exhaust emissions
- Reduced wash wave generation
- Easier operation – the Launches have been specifically designed for the roles they perform
- Much easier maintenance – one set of critical spare parts has sufficed for both of the Launches
- Improved reliability and availability, using innovative engineering to design out known sources of equipment failure



## What the Launches Do?

The NPA Patrol Division provides a harbour patrol service which acts as the Harbour Master's eyes and ears on the water.

Their duties include:

- Patrolling – keeping an eye on marine activity; ensuring Transport Canada regulations are followed as identified by the Canada Marine Act, the Marine Transportation Security Regulations, and the NPA Practices and Procedures

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- Supervising deep sea vessels that enter the harbour (from the anchorages) to the marine facilities
- Enforcing harbour control and safety zones for work on berths, sporting events, and fireworks displays
- Providing Marine Ambulance service for vessels and residents located on the islands in and around the harbours limits
- Providing Mutual Aid to the City of Nanaimo Fire Department for fires located near the shore and on the water
- Providing contracted pilot transfers from the designated Pilot Boarding Station, and Anchorages

The NPA Osprey and her sister patrol boat are used throughout the Harbour and its surrounding waters.

## About the Design

The design of the new launches is the product of two years of joint research and development, aimed at meeting the needs of diverse agencies and missions, such as the Patrol Division (harbour patrol), marine ambulance, and pilotage services with the most modern and efficient vessels for the job.

### **NPA Eagle Specifications**

2008 Model 32' Eaglecraft  
Powered with 370HP Volvo D6 370 with DPH Drive  
Top speed: 34 Knots  
Cruise Speed: 28 Knots  
Fuel Capacity 130 Imperial Gallons  
Large storage hold under cockpit sole  
Fire Fighting Equipment:  
Steyr M0114K33 – 110 HP marine diesel  
Aquis 1.5 foam system  
Warous CPD direct water pump  
GHH Rand 80 CFM compressor for the foam system  
Two fire monitor locations – one on bow and one on stern  
225 litres Class A foam concentrate  
Electronics and Electrical  
FLIR night vision camera & display

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Two Lowrance HDS 10 Gen2 colour radar plotter depth finders with side scan and structure scan sonar

Two ICOM VHF radios, One Kenwood Programmable VHF with BCAS, Nanaimo Fire Rescue, Combined Events and NPA Security channels

Magnum 2800 watt inverter

Other Features

Esbar D-4 diesel furnace

Two station controls – helms in cabin and aft deck

Ambulance stretcher area

3” rubber fendering around shear and swim grid

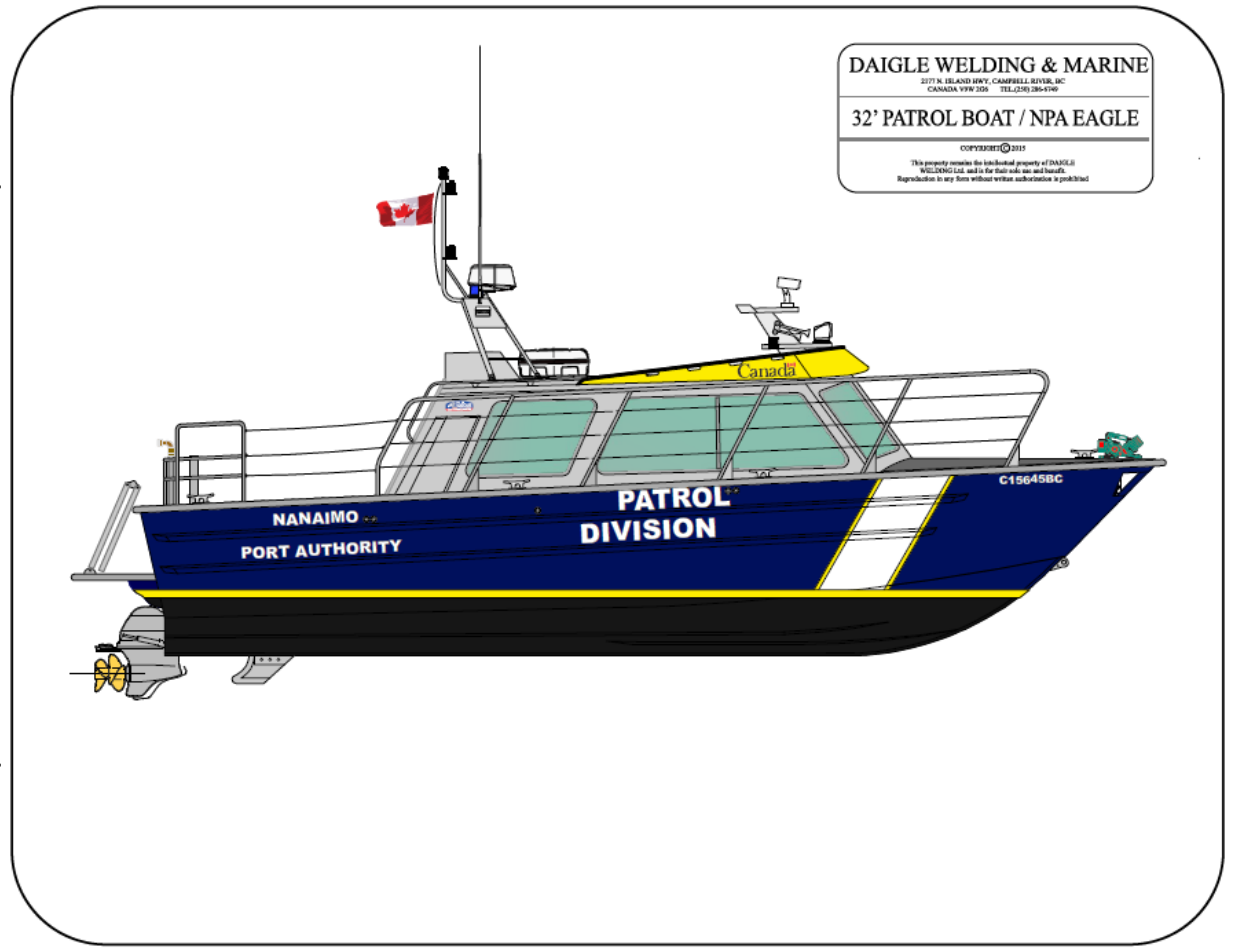
Safety Equipment

Man overboard retrieval system

16 man Zodiac life raft

CO<sub>2</sub> fire extinguisher system

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## NPA Osprey Specifications

Length: 39' Beam: 12.5'  
Overall Length: 40'6" Draft: 44"  
Service condition displacement with fire pump: 24,916 lbs.  
Top speed 26 kts Service Speed: 20 kts  
10.23 Gross Tonnage  
Fuel Capacity: 1040 Liters  
Service speed fuel burn at 20 kts: 120 ltr/hr.  
Twin Volvo D-6 370 Diesel Engines  
Hurth/ZF R.6 HS801 V Drives at 2:49-1  
26"x24" 4 Blade Nibral propellers  
Fire Fighting Equipment:  
Darley PSE 1500 Fire Pump 1.36:1 ratio, Bronze casting

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Powered by a Volvo D-6 330 Diesel Engine

6" Stainless Steel Butterfly intake valve

Electric Valves controlled by Elkhart UBEC1 controllers

Two fire monitors – bow is supplied by 2- 2 ½" deck hoses, stern is mounted directly to a 4" discharge

4" aft deck Stortz fitting for relay pumping

2 ½" Pump Pressure Relief Valve

Electronics and Electrical Equipment:

FLIR night vision camera & display

Three Lowrance HDS 10 Gen2 colour radar plotter depth finders with side scan and structure scan sonar

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Magnum 2800 watt inverter

Other Features:

Esbar D-4 diesel furnace

Three station controls – helms in cabin, aft deck and bridge

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CO<sub>2</sub> fire extinguisher system

Built to meet standards for pilot vessels TP10531 and TP1332  
construction standards for small commercial vessels



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The NPA has had an excellent working relationship with the Daigle team in creating and maintaining a successful product that meets all the varied requirements of the Port's operations. This type remains in production due to its effective design. The NPA Eagle's parent design has been successfully utilized by a variety of users such as Canadian Border Services Agency (who conducted patrolling duties during the 2010 Olympics), whale watching, and the Aqua Farms industry located in BC. The new launches have replaced the NHP II and the port security boat, two well-used boats that were different from each other (hull, engine and electronics) and has brought enhanced operational and financial efficiencies.