

# Arctic Refueling and Re provisioning

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## Overview

Canada's control of its Arctic depends on an ability to patrol and maintain a presence in the Northwest Passage and surrounding waters. The Nanisivik Naval Facility, commissioned during an era of fiscal restraint, currently provides only the most basic refueling capability. As Canada works to meet NATO funding commitments and expand its Arctic operations, the time has come to transform Nanisivik from a minimal refueling point into a comprehensive support hub capable of sustaining extended naval operations in the High Arctic.

This proposal outlines a two-phase enhancement: first, immediate infrastructure improvements to the (still being built) existing facility, including additional berthing capacity and mooring systems; second, the construction of a dedicated Polar Class Arctic Operational Support (AOR) vessel to ensure reliable fuel supply, provide comprehensive logistical support, and serve as a mobile base for Arctic operations. Together, these improvements will enable RCN and CCG vessels to conduct sustained operations throughout the navigation season.

## Analysis

The Nanisivik Naval Facility was designed and constructed during a period when defense budgets were severely constrained. The result is a minimalist facility that remains incomplete and which, once finished, would barely fulfill its primary mission: refueling government vessels. The facility features a single alongside berth dedicated exclusively to fueling operations. This means that only one vessel can be serviced at a time. There is no capacity for a patrol ship to secure alongside for maintenance, crew rest, or resupply operations. When multiple vessels require service (an increasingly common scenario as Arctic operations expand) ships will have to anchor and wait their turn, burning fuel and losing operational time.

The facility's fuel storage capacity of 7,500 tonnes is adequate only for limited operations and, critically, must be emptied each winter. This requirement creates a critical vulnerability in regional logistics. RCN Auxiliary Oiler Replenishment (AOR) vessels are not ice-capable and cannot operate in Arctic waters. Commercial tankers serving northern communities operate on tight schedules dictated by the brief navigation season and cannot be diverted to fill naval fuel tanks on demand. A single AOPV can also consume a significant portion of the facility's fuel capacity

during extended patrol operations. Multiple vessels operating simultaneously could drain the tanks entirely, leaving subsequent arrivals without fuel and forcing them to abort their missions.

### **Essential Infrastructure Improvements**

While the facility is brought online, the RCN must address its most glaring deficiencies. A second alongside berth capable of accommodating an AOPV should be added, allowing the ship to conduct maintenance and take on stores while another vessel uses the fueling pier. To achieve this, a finger pier extending perpendicular from the shore would provide excellent access and minimal interference with existing operations. However, the bathymetry of Eclipse Sound presents significant challenges. A more practical solution is a quay constructed parallel to the shoreline, positioned east of the existing fueling pier. This design works with the natural contours of the coastline, requires less extreme engineering, and provides sheltered berthing space. The parallel orientation also offers better protection from prevailing winds and wave action. In addition to the second pier, the facility requires at least two offshore moorings. The moorings must be designed for Arctic conditions with substantial buoys visible in poor weather, and hardware capable of withstanding ice formation.

The facility's operational model must balance cost-effectiveness with readiness. A fully-staffed naval base in the High Arctic would be prohibitively expensive and unnecessary given the seasonal nature of Arctic navigation. During the navigation season (roughly July through October) a small team from Arctic Bay would handle routine maintenance, security, and readiness tasks. The use of local personnel provides employment in a region where opportunities are limited, builds community connections to the facility, and ensures staff with genuine Arctic experience and cultural knowledge.

When a vessel requires fueling or support, additional personnel would be called in as needed. This on-call system allows the facility to surge its capability when required while avoiding the expense of maintaining a large permanent staff during quiet periods. The core team ensures that equipment remains operational, fuel systems are monitored, and the facility is ready to respond when ships arrive.

### **A Dedicated Arctic Support Vessel**

Infrastructure improvements at Nanisivik address some deficiencies but do not solve the fundamental problem: reliable fuel supply and comprehensive logistical support across the Arctic. The solution requires a purpose-built vessel designed specifically for Arctic naval support operations. For this, the RCN needs a new AOR vessel with Polar Class 5 (or better) ice-strengthened hull construction. The vessel's primary cargo capacity must include a minimum of 7,500 tonnes of fuel – enough to completely replenish the Nanisivik facility's storage tanks in a single delivery. This ensures that even if the tanks are drawn down by multiple patrol vessels, or if they must be emptied for winter, the facility can be rapidly brought back to full capacity at the start of each navigation season or whenever stocks run low.

The vessel must carry containerized deck cargo including stores, provisions, spare parts, and equipment needed both at Nanisivik and by patrol vessels. Heavy-lift cranes enable the vessel to

load and offload cargo independently, without relying on shore-based infrastructure that may not exist at remote locations. The Arctic AOR would operate on a regular shuttle schedule during the navigation season. At the season's start, it would fill Nanisivik's tanks and deliver containerized cargo. It would also remain in the Arctic to provide fuel capacity elsewhere in the passage.

## **Recommendations**

The improvements proposed here include expanded infrastructure at Nanisivik and a dedicated Arctic support vessel. These represent significant investments, however, they are investments in capability that will serve Canada for decades. The current Nanisivik facility, built to minimum standards during lean budget years, cannot support the level of operations the RCN is now envisioning. The infrastructure improvements outlined here correct immediate deficiencies and provide the foundation for expanded operations. The Arctic AOR transforms that foundation into genuine capability, ensuring the RCN patrol vessels have the fuel, supplies, and support they need to maintain sustained presence throughout the navigation season.