



# Shipyards of Finland and Sweden

Report to Congress

*June 3, 2025*



U.S. Coast Guard

# Foreword

June 3, 2025

I am pleased to present the following report, “Shipyards of Finland and Sweden,” prepared by the U.S. Coast Guard.

The Don Young Coast Guard Authorization Act of 2022 directs the submission of a report that analyzes the shipyards of Finland and Sweden to assess future opportunities for technical assistance related to engineering to aid the Coast Guard in fulfilling its future mission needs.

Pursuant to Congressional requirements, this report is provided to the following members of Congress:



The Honorable Ted Cruz  
Chairman, Senate Committee on Commerce, Science, and Transportation

The Honorable Maria Cantwell  
Ranking Member, Senate Committee on Commerce, Science, and Transportation

The Honorable Sam Graves  
Chairman, House Committee on Transportation and Infrastructure

The Honorable Rick Larsen  
Ranking Member, House Committee on Transportation and Infrastructure.

Please direct report inquiries to my Senate Liaison Office at (202) 224-2913 or House Liaison Office at (202) 225-4775.

Sincerely,

A handwritten signature in blue ink, which appears to read "Kevin E. Lunday".

Kevin E. Lunday  
Admiral, U.S. Coast Guard  
Acting Commandant



# Shipyards of Finland and Sweden

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# I. Legislative Language

This report responds to the language set forth in Section 11222 of the Don Young Coast Guard Authorization Act of 2022 (Public Law Number 117-263), which reads:

## **SEC. 11222. REPORT ON SHIPYARDS OF FINLAND AND SWEDEN**

Not later than 2 years after the date of enactment of this Act, the Commandant, in consultation with the Comptroller General of the United States, shall submit to Congress a report that analyzes the shipyards of Finland and Sweden to assess future opportunities for technical assistance related to engineering to aid the Coast Guard in fulfilling its future mission needs.

## II. Background

The initial scope of this report was limited to shipyards of Finland and Sweden to assess future opportunities for technical assistance related to engineering to aid the Coast Guard in fulfilling its future mission needs. Further research and analysis of these countries' maritime sectors suggested additional opportunities for cooperation beyond shipyards. The report scope expanded to include shipyards, equipment manufacturers, and engineering and design companies.

The report covers four major areas:

1. A summary of the current state of Finnish and Swedish maritime industries.
2. Examples of past cooperation between the Coast Guard and the Finnish and Swedish maritime industries.
3. Areas of opportunity for future cooperation between the Coast Guard and the Finnish and Swedish maritime industries.
4. Regulatory and policy restrictions.

The report drew from multiple sources of information including on-site interviews with members of maritime companies, research into Coast Guard programs, and publicly available information.

## III. Report

Finland and Sweden are both Arctic nations steeped in maritime history and capability. The recent accession of Finland and Sweden to the North Atlantic Treaty Organization offers increased opportunity for strategic alliance and information sharing. Finland is a premiere designer and shipbuilder of world class icebreakers and cruise ships. In addition to Finland's successful commercial shipbuilding industry, they are also a major marine equipment manufacturer, equipping ships all over the world. Sweden has a smaller shipbuilding industry with a narrow focus on military ships, including submarines. In both countries, the shipbuilding industry is supported by a robust network of engineering companies and marine equipment manufacturers.

The Coast Guard has a long history of cooperation with Finnish and Swedish maritime companies. In the past, the Coast Guard has leveraged Finnish expertise in the design of its icebreakers and Finnish and Swedish equipment can be found on many cutters currently in service. Given the strategic focus on the Arctic and growing trend toward electrification in ship design – another specialty of these countries – there are opportunities for continued cooperation between the Coast Guard and Finland and Sweden for technical assistance related to engineering. .

### State of Maritime Industry in Sweden and Finland

An April 2024 report on shipbuilding in Finland cites 4,594 employees across 149 businesses in the shipbuilding sector, ranking Finland twelfth across Europe for both number of businesses and employees, and ninth for annual revenue.<sup>1</sup> An additional report on shipbuilding in Sweden, from April 2024, cites 2,018 employees across 173 businesses in the shipbuilding sector, ranking Sweden tenth across Europe for number of businesses, fifteenth for number of employees, and thirteenth for annual revenue.<sup>2</sup> Sweden closed four of its large state-owned shipyards in the 1980s, reducing its shipbuilding capacity significantly to today's smaller footprint. Additionally, several Swedish maritime companies have Chinese economic ties and partnerships for shipbuilding in China, supported by the Sweden China Marine Group.

Finnish shipyards primarily construct large cruise ships and icebreakers while Swedish shipyards primarily build naval vessels for Sweden's and foreign navies. Finnish maritime equipment manufacturers also lead the world in the field of podded and electric propulsion (See Figures 3 and 4). All of this is supported by a robust industry of marine engineering and naval architecture design and consulting firms employed worldwide. The list below highlights some of the major companies.

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<sup>1</sup> "Shipbuilding in Finland," IBISWorld, April 2024, (9, 14, 15), <https://ibisworld.com/fi/en/industry/FI-C3011/about>

<sup>2</sup> "Shipbuilding in Sweden," IBISWorld, April 2024, (9, 14, 15), <https://ibisworld.com/se/en/industry/SE-C3011/about>

## A. SHIPYARDS

*Helsinki Shipyard*, located in the Finnish capital and established in 1865, has undergone numerous ownership changes, including its sale to Russia’s United Shipbuilding Corporation in 2014. Due to diplomatic tensions, a new owner was sought and the sale to Davie Shipbuilding, a Canadian company, was finalized in November 2023. The shipyard has not delivered a ship under its new ownership, though Davie signed an agreement with the Canadian government to construct a heavy icebreaker. This shipyard has primarily constructed icebreakers and ice-strengthened ships, many the first of their kind (Table 1 and Figure 1). The shipyard has also constructed ferries, cruise ships, and offshore supply vessels.

**Table 1: Notable Ship Deliveries of Helsinki Shipyard**

Ship Name	Length/Beam (feet)	Gross Tonnage	Delivery Date	Ship Type
SH DIANA	410 / 65	12,255	2023	Arctic Cruise Ship
SH VEGA	370 / 79	10,600	2022	Arctic Cruise Ship
SH MINERVA	377 / 75	10,600	2021	Arctic Cruise Ship
YURIY KUCHIEV	751 / 104	39,594	2019	Arctic Tanker
YEVGENY PRIMAKOV	341 / 82	8,626	2018	Icebreaker
FEDOR USHAKOV	341 / 68	8,597	2017	Icebreaker
STEPAN MAKAROV	341 / 68	8,365	2017	Icebreaker
GENNADIY NEVELSKOY	341 / 82	8,362	2017	Icebreaker
POLARIS	360 / 78	10,000	2016	Icebreaker
BALTIKA	251 / 67	3,800	2014	Icebreaker

**Figure 1: POLARIS (left) & SH MINERVA (right)**



*Meyer Turku shipyard*, located in Turku, Finland, was founded in 1737 and is currently owned by the Meyer Group, which includes two additional shipyards located in Germany, Meyer Werft and Neptun Werft. The shipyard employs about 2,000 workers.

The shipyard primarily builds large cruise ships, typically delivering one to two per year (Table 2 and Figure 2). It also constructs small ferries and is under contract to build offshore patrol vessels for the Finnish Border Guard.

**Table 2: Notable Ship Deliveries of Meyer Turku**

Ship Name	Length/Beam (feet)	Gross Tonnage	Delivery Date	Ship Type
ICON OF THE SEAS*	1,196 / 159	248,663	2023	Cruise Ship
CARNIVAL CELEBRATIONS	1,130 / 138	183,521	2022	Cruise Ship
COSTA TOSCANA	1,105 / 138	186,364	2021	Cruise Ship
MARDI GRAS	1,130 / 138	181,808	2020	Cruise Ship
COSTA SMERALDA	1,105 / 138	185,010	2019	Cruise Ship

\*Largest cruise ship in the world as of time of writing

**Figure 2: CARNIVAL CELEBRATION (Left) & ICON OF THE SEAS (Right)**



*Rauma shipyard*, located in Rauma, Finland, was founded in 1945 to build war reparation ships for the Soviet Union. It is currently owned by Rauma Marine Constructions. Under its prior owner STX Finland, the shipyard built cruise ships, icebreakers, and ferries (Table 3). However, activity has slowed down with the shipyard’s transfer in 2014, but is currently under contract to build four corvettes for the Finnish Navy.

**Table 3: Notable Ship Deliveries of Rauma Shipyard**

Ship Name	Length/Beam (feet)	Gross Tonnage	Delivery Date	Ship Type
SPIRIT OF TASMANIA IV	695 / 101	48,000	2024	Roll-on/Roll-off Ferry
MYSTAR	699 / 118	50,629	2022	Roll-on/Roll-off Ferry
AURORA BOTNIA	495 / 85	24,036	2021	Roll-on/Roll-off Ferry
HAMMERSHUS	518 / 79	18,009	2018	Roll-on/Roll-off Ferry

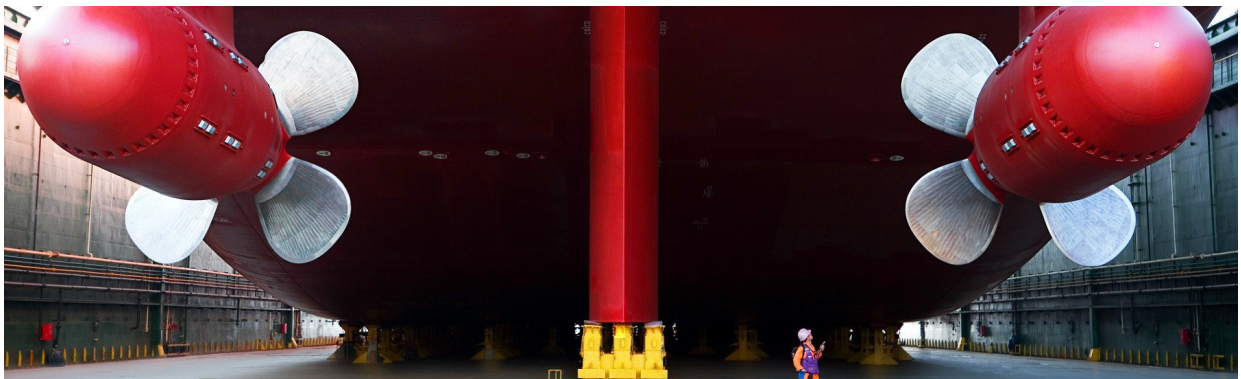
*SAAB Karlskrona Shipyard*, located in Karlskrona, Sweden, was founded in 1840. Its current owner, SAAB, purchased it in 2014. It has primarily completed work for the Swedish Navy, constructing submarines, mine sweepers, and corvettes. In 2013, the shipyard delivered its first new construction ship since SAAB’s takeover, an intelligence-gathering ship for the Swedish Navy, and are currently building the A26 submarine for the Swedish Navy.

## B. EQUIPMENT MANUFACTURERS

Both Sweden and Finland have numerous equipment manufacturers in the marine industry. Some of these companies are multinational so it can be difficult to pinpoint “Finish” or “Swedish” owned companies. For example, Kongsberg, a Norwegian company, purchased Swedish companies that still operate in Sweden. Listed below are the major Finnish and Swedish manufacturers that primarily operate in these countries.

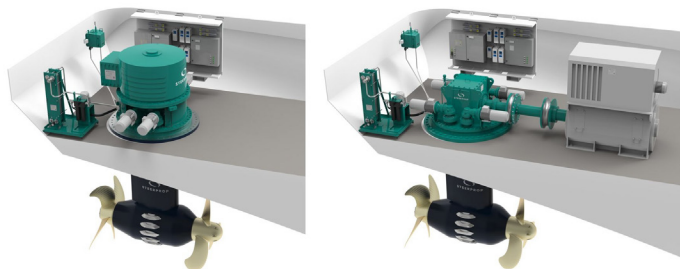
ABB is a multi-national organization headquartered in both Sweden and Switzerland, while the marine sector of the company is based in Finland. It specializes in electric propulsion systems, energy storage, Azipods, and other electrical equipment. Specifically, ABB specializes in large Azipods and ice-rated Azipods that contain an electric motor connected directly to a propeller (Figure 3). The whole pod can rotate to direct thrust in almost any direction, which increases a ship’s maneuverability and station keeping. ABB equipment is in use on cruise ships, ferries, icebreakers, ice-strengthened ships, small military vessels, and offshore support vessels. The Coast Guard uses ABB Azipods on the U.S. Coast Guard Cutter *Mackinaw*, which services the Great Lakes, and is projected to use them on the new Polar Security Cutter.

**Figure 3: ABB Azipods**



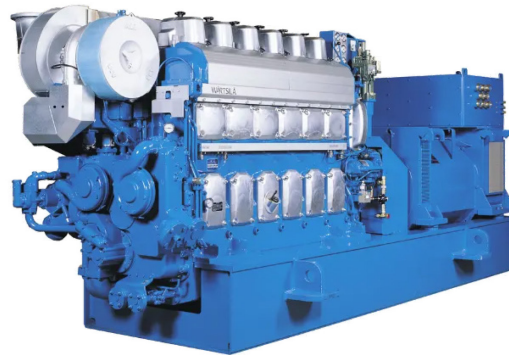
Steerprop has both its headquarters and manufacturing in Finland. It primarily produces azimuthing propulsors (Figure 4) which have a propulsion motor located inside the ship mechanically connected to the propeller through gearing and shafts. The whole unit can also rotate to direct thrust. Steerprop has systems installed on icebreakers, cruise ships, ferries, tugboats, and offshore support vessels.

**Figure 4: Examples of Steerprop Products**



Wärtsilä, headquartered in Finland, is one of the largest equipment manufacturers in the marine industry specializing in engines, generators (Figure 5), propellers, shafting, energy storage, and thrusters. It has equipment on nearly all types of vessels including coast guard, naval, merchant, ferry, cruise, yachts, and fishing vessels.

**Figure 5: Wärtsilä Marine Diesel-Generator Set**



BERG Propulsion is a Swedish propeller and thruster manufacturer of equipment for tugboats, commercial ships, and ferries.

### **C. ENGINEERING SUPPORT**

Aker Arctic is a Finnish engineering firm specializing in icebreakers and ice-strengthened ships. It provides engineering services in model testing, concept design, contract design, full scale testing, and hull monitoring. In its over 100-year existence, Aker Arctic has created innovations and advancements that changed icebreaker technology and operations: double-acting icebreaking hulls, asymmetric icebreaking hulls, and, along with ABB, the use of podded propulsion on icebreakers. Recent ships designed by Aker Arctic include the Le COMMANDANT CHARCOT (2021) (Figure 6), a cruise ship that can reach the North Pole, and the POLARIS (2016), the first dual fuel capable icebreaker.

**Figure 6: Le COMMANDANT CHARCOT**



Aker Arctic's model basin in Helsinki, is one of the best in the world, capable of self-propulsion tests (Figure 7). Aker Arctic also has a partnership with the nearby Alto University and its ice-model basin. This very wide tank allows for large maneuvering tests.

**Figure 7: Ice Model Basin at Aker Arctic**



*Swedish Ship Testing Facility* is a maritime engineering services company that provides a model basin for hull resistance testing and recirculating tanks for propeller testing, including cavitation testing. Its recent projects include icebreakers, harbor icebreakers, offshore supply vessels, and ferries.

*ILS* is a Finnish naval architecture and marine engineering consulting firm specializing in concept design, detail design, repair and modification design, and testing as illustrated by the design of the multipurpose icebreaker BOTNICA (Figure 8).

**Figure 8: MSV BOTNICA, Conceptual Design by ILS**



## Existing and Past Coast Guard Partnerships

The Coast Guard has a long history of partnerships with Finnish and Swedish firms for engineering work and equipment manufacturing. Table 4 highlights Finnish and Swedish manufacturers' equipment currently installed or slated for installation aboard Coast Guard vessels.

**Table 4: Selected Finnish and Swedish Equipment on USCG cutters**

Cutter Class	Company & Equipment
240-WLBB	ABB: Azipods
418-WMSL	Kamewa: Controllable Pitch Propeller System
Polar Security Cutter	Wärtsilä: Centerline Propeller ABB: Azipods, electrical propulsion equipment
Various	Wärtsilä: Shaft seals on multiple cutter classes

Finnish and Swedish engineering companies contributed to several Coast Guard acquisition programs:

- Avondale Shipyard selected a Finnish parent craft and concept design that came from Kvaener Masa-Yards (now Meyer Turku Shipyard) for U.S. Coast Guard Cutter *Healy*.
- Propeller testing for the Offshore Patrol Cutter will take place at the Swedish Ship Testing Facility.
- Several Finnish vessel design agents were part of unsuccessful bids on the Polar Security Cutter Program.
- The Coast Guard evaluated several hull forms for the Great Lakes Icebreaker Recapitalization, performing ice-model testing at Aker Arctic and Alto University in Finland and traditional open water resistance testing at the Swedish Ship Testing Facility model basin.

Numerous Finnish and Swedish companies are part of Cooperative Research Ships, a joint research program run by the Maritime Research Institute Netherlands focusing on hydrodynamic research. There are over 25 members including classification societies, navies, shipyards, equipment manufactures, and engineering companies. The Coast Guard leverages its membership to access world-class hydrodynamic research and software.

## Future Opportunities

The Coast Guard’s continued partnership with Finland and Sweden in icebreaker design, icebreaker testing, electric propulsion systems, and electric generator equipment are the most immediate opportunities the Coast Guard can continue to leverage.

Finland is the world leader in icebreaker design. Finnish companies build and design the majority of the world’s icebreakers and ice-capable ships, including most of the modern Russian icebreaker and ice-capable fleet. The Coast Guard is leveraging the Icebreaker Collaboration Effort Pact to evaluate and learn about Finnish icebreaking design and build strategies so as to apply best practices to Coast Guard icebreaker and future ice-capable vessel programs. Additionally, it is likely that companies like ABB, Wärtsilä, and Steerprop will be involved on the engineering and equipment supply side for any new icebreaker program.

In shipyard work, there is less room for direct cooperation in construction. Existing legislation prevents the Coast Guard from building in a foreign shipyard absent a Presidential determination that such work is in the national security interest of the United States.

Finally, opportunities exist to engage with Finnish and Swedish shipyards and learn more about how they operate that could help the Coast Guard in its acquisition programs. The recently signed tri-lateral Icebreaker Collaboration Effort Pact between the U.S., Canada, and Finland provides an initial mechanism to realize such cooperation.

## **Regulations/Policy**

Finnish and Swedish maritime companies have experience working with the Coast Guard. Sweden and Finland's recent accession to North Atlantic Treaty Organization may heighten the ability for cooperation and collaboration. However, existing contracting regulations, security regulations, and U.S. policy, listed below, show historical deterrents.

Contracting: The Federal Acquisition Regulations do not mention North Atlantic Treaty Organization. Membership in North Atlantic Treaty Organization does not appear to be an advantage in bidding on or winning contracts.

Security: International Traffic in Arms Regulations requirements do not state any preference towards North Atlantic Treaty Organization members. There appears to be no advantage with North Atlantic Treaty Organization membership in meeting International Traffic in Arms Regulations requirements.

Construction: The Buy American Act prohibits procurement of supplies that are not domestic end products except when it is in the public interest, or the supplies are not reasonably available in the United States.

## IV. Conclusion

Restrictions in 14 United States Code §1151 minimize opportunities for the Coast Guard to contract directly with Finnish and Swedish shipyards for the acquisition of new vessels. However, partnership with Finnish and Swedish original equipment manufacturers for equipment installed aboard Coast Guard cutters is critical to ensuring long-term sustainability of this equipment. The Coast Guard would also benefit from continuing to leverage Finnish expertise as the world's premiere icebreaker designer to incorporate the latest technology for state-of-the-art vessel design and capitalize on the cost efficiencies of building or designing technology or vessels at a larger scale. The Coast Guard, as directed by the President and Department of Homeland Security, will support engagements and opportunities that align with national priorities and enhance our ability to fulfill future mission needs.