USCGC Skadi Polar Icebreaker



Main Characteristics

Length overall	153 m
LBP	129 m
Beam	30 m
Depth	15.4 m
Design Draft	9.0 m
Displacement	23500 t
Accommodation	101 Persons
Cost	1.2 Billion USD
Endurance	9 months
Range	37,000 nm at
	10 kts

Vessel Speed

Full Icebreaking	3 kts
Top Speed	18 kts
Economic Speed	10 kts

Shaft Power Requirement

Full Icebreaking	45 MW
Top Speed	18 MW
Economic Speed	2.6 MW

Vessel Mission

The USCGC Skadi will support the U.S. Coast Guard's missions in polar waters. It will have Search and Rescue capability, provide resupply to remote stations, and facilitate safe navigation through waterway maintenance and ship escort. It will also support law enforcement, scientific research, and environmental protection response.

Vessel Route

This vessel will navigate polar waters including the Chukchi and Beaufort Seas in the Arctic and McMurdo Sound in Antarctica at any time of year.

Icebreaking Requirements

Skadi must break 2.5 m of ice topped with 150mm of snow continuously at 3 kts, corresponding with Polar Class 2. She will be able to break ice ridges greater than 8 m.

Shiver Me Timbers

Anika Breza Luke Kiely Rudy Caligure Rebecca Teitelbaum



Inboard Profile

Hull Form

Notable characteristics of the Skadi's hull are the spoon bow, ice knife, and skeg. The spoon bow allows for the Skadi to slide up onto the ice and use her weight for continuous icebreaking. The ice knife on the bow prevents the Skadi from sliding too far onto the ice and beaching as well as housing the bow thrusters. The skeg in the aft ensures that broken ice will not flow into the propeller.

Propulsion Arrangement

ABB VI2300 Azipod	2 x 12.5 MW
Centerline FPP 4 Blade, 6.5 m	20 MW
Wartsilla WTT-21 Bow Thruster	2 x 2.1 MW

Power Generation

Solar Mars 100 Gas Turbine2 x 11.35 MWCaterpillar 7M 43 C4 x 7 MWDiesel Generators4 x 7 MW

Onboard vehicles

- (2) four-wheel off-road vehicles
- (2) 38-ft arctic survey boat
- (2) 33-ft high speed rescue crafts
- (2) H-65 dolphin helicopters

Storage and refueling available for all vehicles.

Cargo

2,500 m³ dry or liquid cargo capacity (2) knuckle-jib cranes for loading/unloading

Research Facilities

55 m² wet lab 55 m² dry lab Teleconference spaces Library Climate-controlled storage Designated deck space A-frame crane Independent electric bus Independent network system

Propulsion Description

The electric propulsion arrangement allows for efficient operation in all operating conditions including full speed open water, full power icebreaking, half power icebreaking, dynamic positioning, and transit at an economical speed.

Caterpillar engines and Solar gas turbines are made in the USA.

The Skadi meets dynamic positioning DP2 requirements using azipods, bow thrusters, and resilient design.

Artillery

- (2) small arms lockers
- (4) 50 caliber guns
- (4) MK38 25mm deck guns

SHIVER ME TIMBERS



ANIKA BREZA

Hailing From: Baltimore, MD Work Experience:

- Austal USA Shipfitter ٠
- Matson Shipping Engine Cadet
- Metal Shark Boats Engineering Intern •

Recreational Experience:

- Extreme Seasickness
- Career Plans: Salvage, Repair, Construction



RUDY CALIGURE

Hailing From: Bay Shore, NY Work Experience:

- Fire Island Ferries Inc. Captain (100 GT Master) •
- Metal Shark Boats Electrician •
- Cape May Ferries Engine Cadet ٠
- Metal Shark Boats Engineering Intern

Recreational Experience:

- **Offshore Sailing**
- Career Plans: Marine Engineering



LUKE KIELY

Hailing From: Tappan, NY Work Experience:

- **Electric Boat Shipfitter**
- Matson Shipping Engine Cadet
- Metal Shark Boats Engineering Intern

Recreational Experience:

Master Woodworker •

Career Plans: Sustainability



REBECCA **TEITELBAUM**

Hailing From: Syracuse, NY Work Experience:

- **Great Lakes Towing Company** •
- **Bristol Harbor Group**

Recreational Experience:

- Sailing on Square Rigged Ships
- Career Plans: Workboat design