



# Acquisition Directorate



## Great Lakes Icebreaking (GLIB) Capability Replacement Project

February 2008



Mission execution begins *here.*

### USCGC MACKINAW (WLBB-30) Characteristics

Length, Overall	240'
Beam	58'6"
Draft	16'
Full Load Displacement (LT)	3,500
Maximum Speed	15kts
Crew Complement	9 Officers 5 CPOs 41 Crew
Mixed Gender Accommodations	2 Person Staterooms
Main Propulsion	Integrated Main Propulsion & Electrical Plant
Auxiliary/Emergency Generator	715kw
Propellers	ABB Azipod® - Fixed Pitch, 10' diameter

The Great Lakes Icebreaking Capability (GLIB) Replacement project is an acquisition program in which the primary purpose is to meet the heavy icebreaking requirements of the Great Lakes as spelled out under several federal mandates. Specifically, Executive Order NO. 7521 dated 21 December 1936 states "The Coast Guard ... is hereby directed to assist in keeping open to navigation by means of icebreaking operations ... channels and harbors in accordance with the reasonable demands of commerce."

The Coast Guard, as required by law, will maintain a heavy icebreaking capability on the Great Lakes to assist in keeping channels and harbors open to navigation in response to the reasonable demands of commerce to meet the winter shipping needs of industry. In addition to heavy icebreaking, the USCGC MACKINAW (WLBB-30) has state-of-the-art systems and multi-mission capabilities that include: maintaining of Aids to Navigation (ATON), conducting law enforcement and search and rescue, as well as the ability to deploy an oil skimming system to respond to oil spill situations and environmental response. Deployments will range from one day to six weeks.

USCGC MACKINAW (WLBB-30) is a 240-foot (73- meters) vessel built as a heavy icebreaker for

operations on the North American Great Lakes for the Coast Guard. She should not be confused with a namesake ship, the USCGC MACKINAW (WAGB-83), which was decommissioned on June 10, 2006.

CGC MACKINAW (WLBB-30) was delivered to the Coast Guard on November 18, 2005 and commissioned on June 10, 2006. In addition to her icebreaking duties, the MACKINAW will also serve as an Aids to Navigation ship, able to perform the same duties as the Seagoing Buoy Tenders (WLB) of the Coast Guard fleet.

One of the MACKINAW's unique features in the Coast Guard fleet is the use of Azipods for her main propulsion. These, coupled with a 550 hp (410 kW) bow thruster, make the ship exceptionally maneuverable. Azipods also negate the need for a traditional rudder, as the Azipods can turn 360 degrees on their axis direct thrust in any direction. The MACKINAW also lacks a traditional ship's steering wheel. Much of the ship's technology, including the Azipod thrusters, is from Finnish Maritime Cluster.

Maintaining a reliable Great Lakes heavy icebreaking capability is essential. Great Lakes shipping operates on a 42-week shipping season to deliver 150 million tons of materials. Of those 42 weeks, 12 weeks require icebreaking services.



MARINETTE, Wisc. - The newest USCGC MACKINAW (WLBB-30), a Great Lakes Ice Breaker (GLIB), is launched into the Menomonee River on April 2, 2005.

<b>Characteristics</b>	
Level Ice Capability (ahead) @ 3 Knots	32" (model test estimates ship will do 6.4 kts when at 15.5' draft and 9.1 kts in 24" of ice)
Level Ice Capability (astern) @ 2 Knots draft, and 6.2 kts in	32" (model test data suggests 4.4 kts at 15.5' draft and 4.6 kts at 16.0' 24" of ice)
Refrozen Brash Ice Capability (ramming)	Up to 10'
Ridge Ice Capability (penetrate in < 4 rams)	10' within 30 minutes
Law Enforcement	(6) 50-Caliber Machine Guns Various Small Arms
Aids-to-Navigation	Yes (Same as Seagoing Buoy Tender [WLB])
Oil Spill Control	Coast Guard's Vessel of Opportunity Skimming System (VOSS)
Fuel Oil Capacity (gal)	130,896
Shaft Horsepower (shp)	Rated: 9,119 (3.4MW/pod) Bollard: 211 RPM Power: 4,460 hp (3.33 MW/pod)
Fresh Water Capacity (gal)	>27,500 (10 days for 50 man crew using 50gpd)
Maximum Range	4,000 NM @ 12 kts, 9,000 NM @ 9kts Predicted
Stopping Distance	<1,000'
Circumnavigate Beset 1000' Vessel in Heavy Ice (32" solid level)	Yes, within 12 minutes
Sewage Treatment, Trash & Hazmat Storage	Hold for 10 days (based on 50 man crew): All Grey Water & All Black Water Trash compactor retains all trashes; separate glass, plastics & paper Retains all HAZMATs