

**Historic Context Study
Decommissioning and Excessing the USCGC MACKINAW**



August 2004

United States Coast Guard
2100 Second Street, SW
Washington, D.C. 20593

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INTRODUCTION

The United States Coast Guard (USCG) is proposing to decommission (take out of service) and excess the USCG Cutter MACKINAW (WAGB-83) to the General Services Administration (GSA). The MACKINAW (WAGB-83) is an ice breaker currently in operation. Due to the age and life of service of the vessel, the USCG began construction of a new vessel. The new vessel is designated as a multi mission Great Lakes Icebreaker (GLIB) named MACKINAW (WLBB-30). It will assume the ice breaking missions of MACKINAW (WAGB-83) and has increased operational capabilities for multiple mission service.

In accordance with the National Historic Preservation Act (NHPA) of 1966, as amended, the USCG considers decommissioning and excessing the MACKINAW an undertaking that may affect a property (MACKINAW) that meets the criteria of eligibility for listing to the National Register of Historic Places (NRHP). The MACKINAW is greater than 50 years in age and is potentially eligible for listing to the NRHP under Criterion A and Criterion C.

The file search for the following sections included a document and photograph review at the Historian's Office of the USCG Headquarters in Washington, DC. Other archival records and historical information, including the Historic American Engineering Record (HAER), was obtained from the Library of Congress website and the USCG Internal Controls and Asset Management Division. Additional information was gathered from the internet. The following sections provide background information on the undertaking, historic context and a statement of significance for the MACKINAW.

USCG DECOMMISSIONING, EXCESSING AND DISPOSAL

The USCG follows specific legally required procedures for the decommissioning, excessing and disposal of all USCG vessels. The Federal Property and Administrative Services Act (FPASA) of 1949, as amended, requires that property excess to the needs of the USCG and Department of Homeland Security (DHS) must be reported to the GSA for disposal. GSA must first check to see if there is a need for the vessel within other federal agencies. Excess property no longer required for federal use is then determined surplus by GSA. If the vessel is determined surplus by GSA, several options exist for disposal in accordance with 41 CFR 101-43. This includes continued use, transfer, sale or donation, or scrap. The options for disposal are broadened if the vessel is clean of certain hazardous materials. The disposition options are thus specific to the vessel (Figure 1).

Due to operational, economic and legal requirements, the USCG must cost-effectively rid itself of obsolete and inefficient vessels no longer capable of effectively carrying out USCG missions. The FPASA of 1949, as amended, requires that property excess to the

needs of the USCG and Department of Homeland Security (DHS) must be reported to the GSA for disposal. The USCG determined that the MACKINAW has reached the end of its useful service life based on the following operational and economic reasons and in compliance with the FPASA;

- Costly maintenance problems,
- Difficulty servicing the vessel due to limited availability of parts,
- Habitability and the general quality aboard ship needs improvement since much of the quarters and facilities are limited and outdated,
- Limited multiple mission capability,
- Construction of WLBB-30,
- Aggregated, the above factors sum costs beyond efficiency. MACKINAW breaks ice approximately 70 days of the year, has limited multi-mission capability and costly maintenance and parts.

For the above reasons, the USCG proposes to decommission the vessel at the end of the 2005/2006 ice-season. GSA will not accept property declared excess by an agency that is contaminated with unacceptable limits of hazardous materials such as PCBs. The vessel was surveyed for Polychlorinated Biphenyls (PCBs), asbestos containing material (ACM) and lead-based paint (McMenamin 2001). The USCG will clean MACKINAW of PCBs in 2004. The USCG has very limited decision-making power regarding the ultimate disposition of a clean operable vessel or clean inoperable vessel through the legally required GSA disposal process.

DECOMMISSIONING, EXCESSING, AND DISPOSAL STEPS FOR

 = GSA Action
 = USCG Action

USCGC MACKINAW*

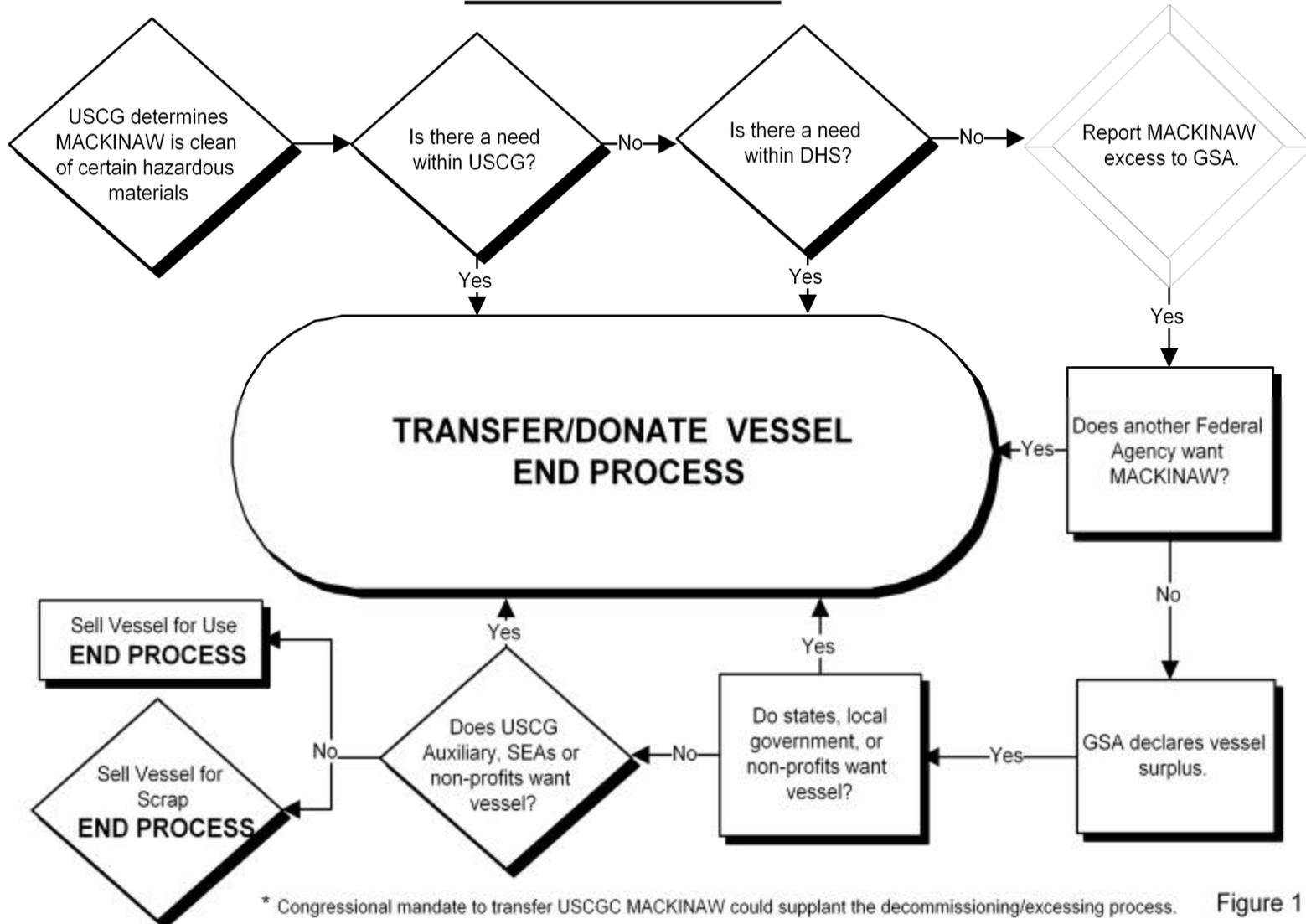


Figure 1

HISTORICAL CONTEXT

The Great Lakes region, particularly around Lake Superior, is rich in iron and copper ore. In the early 20th century, the Great Lakes region was one of the world's major supplies of iron ore. The lower lakes region was a major supplier of steel. Other commerce produced in the region also included limestone, coal, petroleum products and grain. Iron production for the region decreased into the 21st century, as has steel production. Though ore transport along the Great Lakes shipping network declined, it is still accounts for most cargo shipped on the Great Lakes. Currently, it is estimated that more than 70 million tons of iron ore and 41 million tons of coal pass through the Great Lakes each year, compared to an estimated 35 million tons of iron ore in 1906 (Wine 2004).

During World War II, demands on the iron ore, limestone, coal and other raw material industries increased remarkably. The flow of these products from the Great Lakes region and the extension of the shipping season through the winter were imperative to the war effort. Meanwhile, federal vessels from around the US were transferred to the North Atlantic to support the war. As a result, the Great Lakes region was absent of the ice breakers that enabled freighters and other craft to travel the needed shipping lanes during the ice season.

Ice breakers (WAGB) are the largest cutters operated by the Coast Guard. Ice breakers are generally designed such that the bow rises above the ice allowing the weight of the vessel to crush the ice beneath it. Ice breakers are also equipped with reinforced steel hulls to ram the ice and with a heeling system (rapid shift ballast systems) to aid in ice breaking operations (Krietmeyer 1991).

In 1943 Congressman Bradley (MI) proposed that an ice breaker be commissioned for use only within the Great Lakes. Plans for the nation's largest and strongest ice breaker, USCGC MACKINAW, commenced. The vessel's primary initial mission would be ice breaking in order to keep shipping lanes passable and maintained throughout and only within the Great Lakes (USCG 1967). The construction of MACKINAW would continue domestic coal supplies moving westward and iron ore and grain flowing eastward to support the war.

The keel of the MACKINAW was laid March 20, 1943 by Toledo Shipbuilding Company, Toledo Ohio. American Shipbuilding and Drydock Company, Cleveland, Ohio subsequently assumed the construction of the MACKINAW when the Toledo Shipbuilding Company declared bankruptcy. The vessel cost \$10 million to build. The MACKINAW is the only ice breaking cutter in the *MACKINAW* Class of vessels.

The vessel was launched March 4, 1944 and was commissioned in December 1944. USCGC MACKINAW has been homeported in Cheboygan, Michigan for 60 years.

The MACKINAW's original specifications included a standard displacement of 5,252 tons; a length of 290', a 74' 5" beam, and a 19'2" draft. The MACKINAW has a

maximum speed of 20 knots. The vessel's propulsion system is diesel-electric. The system includes six (6) Fairbanks-Morse diesel engines at 2000 hp per engine (USCG 1967). MACKINAW has the capability to tow up to 120,000 lbs. The vessel is painted in typical Coast Guard red with white "racing stripe" bearing the USCG insignia. The vessel typically hosts approximately 75 Coast Guardsmen. Originally, the MACKINAW was equipped only with living accommodation space for men. The vessel was eventually accommodated women.

The MACKINAW was originally equipped with forty (40) M-1 Rifles, seventeen (17) .45 caliber pistols, two (2) Thompson submachine guns, and two (2) .30 caliber rifles. Since 2003, the vessel currently hosts an M-60 emplacement. Though the vessel is not normally aircraft carrying, some aircraft have landed on it since the deck is wide enough to accommodate certain aircraft (www.uscgaviationhistory.aoptero.org).

The MACKINAW was designed by Gibbs and Cox, Naval Architects. Per the original 1940's proposal by Congressman Bradley (MI), the vessel plans were expressly designed for ice breaking missions only within the Great Lakes. Due to the width of the locks in the St. Lawrence River and the width to which the vessel design called for, MACKINAW was restricted to the Great Lakes and could not navigate the St. Lawrence or the Chicago River. Since then, the St. Lawrence River lock system was widened and, though it has not yet been attempted, it is now feasible that the vessel could navigate the St. Lawrence to open seas.

The initial primary design and mission of the vessel was ice-breaking. The MACKINAW's primary mission remains ice-breaking. The vessel breaks ice approximately 70 days of the year. Since WWII, other missions are also executed. Such missions include: domestic operations, marine science, search and rescue, flood relief, and charitable operations. When the ice season is over, the vessel typically returns to homeport in Cheboygan, Michigan for maintenance. During the off-season, visitors are allowed aboard ship for tours of the MACKINAW.

The MACKINAW is well known and easily recognized in the Great Lakes region. There is no USCG vessel on the Great Lakes that compares in size and shape. The vessel hull design is often referred to as the shape of a football cut in half. The fantail is one of the vessel distinguishing characteristics. MACKINAW is also respected and known as the most reliable vessel faring the Great Lakes. Countless freighters and other craft that became ice locked were rescued by the MACKINAW. Of particular note for the MACKINAW is the 1948 ice season. In 1948, in the lower lakes region nearby Buffalo, New York, twelve (12) vessels became ice locked. MACKINAW freed each of the vessels. In 1976, MACKINAW was clearing lanes and slowed down due to some especially thick ice. The freighter, CLARK, following, could not slow down and struck MACKINAW (Walsh 1994).

MACKINAW participates in Tall Ships and racing events around Great Lakes cities such as Chicago. Charitable operations that the MACKINAW participates in include the Christmas tree donations in Chicago, IL. Christmas trees are distributed from the decks of

the Mackinaw where it docks on the wall by Navy pier near the original location of the 1900's Christmas Tree Ship *Rouse Simmons* (http://www.fomc.net/news12_02.htm).

USCGC MACKINAW AND ELIGIBILITY FOR LISTING TO THE NATIONAL REGISTER OF HISTORIC PLACES

All National Register properties, whether listed or eligible, must have integrity and significance and meet certain criteria. Consideration is given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. The National Register defines significance, integrity and qualifying criteria as follows:

“The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and,

- (a) that are associated with events that have made a significant contribution to the broad patterns of history, or
 - (b) that are associated with the lives of persons significant in our past, or
 - (c) embodies distinctive characteristics of a type, period, or method of construction or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components lack individual distinction, or
 - (d) that have yielded or may be likely to yield information important in prehistory or history.”
- (36 CFR 60.4)

Concerning vessels, there are five (5) historic types that may render a vessel eligible for listing to the NRHP. The types include: floating historic vessels that are generally greater than 40' in length and greater than 20 tons in weight; dry-berthed historic vessels; small crafts less than 40' in length; hulks – substantially intact abandoned vessels not afloat; and shipwrecks (Delgado 1985).

Based on the current research and including age, vessel type, significance and integrity, the USCG finds there is sufficient potential to address NRHP criteria for listing of the MACKINAW to the NRHP. The MACKINAW is greater than 50 years in age. The MACKINAW is a floating vessel greater than 40' in length and greater than 20 tons in weight. The MACKINAW qualifies for listing to the NRHP under both Criterion A and Criterion C. The MACKINAW was involved with important maritime heritage, commercial activity and government activities. The MACKINAW is the sole vessel in the *MACKINAW* Class.

Under Criterion A, the MACKINAW is associated with a pattern of events. The MACKINAW facilitated the flow of commerce from the Great Lakes that was imperative to the WWII effort. Since then, the MACKINAW continued to keep open and maintain shipping lanes of the Great Lakes for over 60 years. Thus, the MACKINAW is

associated with the continued trend of keeping passable vital transportation networks for extended winter seasons that it originally commenced during WWII. The service of the MACKINAW may account for 60 years of economic sustainability for certain industries of the Great Lakes region. Without the ice-breaking capabilities of MACKINAW this would not otherwise be possible. MACKINAW itself is important for contributing to the development and growth of Great Lakes industries. The MACKINAW represents significant, extensive and enduring maritime heritage for the US and particularly for the Great Lakes region.

MACKINAW is eligible for listing to the NRHP under Criterion C for physical design or construction that embodies distinctive characteristics of a type, period or method of construction. The vessel is the only cutter in the Mackinaw class of vessels. The vessel was specifically designed for use only within the Great Lakes and is the oldest working ice-breaker in the Great Lakes. At the time it was built, the vessel was designed on a massive scale, larger and far exceeding in power other ice breakers. The vessel specifications were unprecedented. The hull itself was made with 1 5/8" thick steel. The vessel was designed in association with a single purpose of national importance, even securing "Special Presidential Funds" for construction of high priority projects in the 1940's. In order not to slow the war effort, the designers "knew that the MACKINAW would have to accomplish in one pass what smaller ice breakers had to make in 3-4 passes. This design, thus took into account a massive keel, an unparalleled displacement and special features for working in ice.

Ice breaking design functions were foremost and also included a propeller at the bow. The propeller at the bow was innovative. The notion of a front propeller was dual purpose. The propeller can draw water out from underneath the ice, allowing the weight of the ice itself to cause the ice sheets to weaken. The bow propeller can also "mill" crushed ice in to slush, delaying refreezing; this design, in particular, is a distinguishing characteristic of the MACKINAW. The displacement of the vessel is another feature designed expressly for working in ice. The MACKINAW has a "heeling system" that allows the vessel to rapidly shift ballast water. The shifting of the ballast causes the vessel to rock side to side so that it can free itself from being ice-locked. The vessel fantail is distinctive also. It is large and easily recognized due to its size and design. And, the decks are still wood. These features account for the distinctive characteristics contributing under Criterion C. These features aided the vessel to manage and successfully break ice and work in varied weather conditions stressful for both the crew and the machinery for 60 years. The MACKINAW represents the distinctive and successful type of period of vessel design and construction.

The MACKINAW retains integrity of location, design, setting, materials, workmanship, feeling and association. Although MACKINAW underwent some systems upgrades and general modifications, the vessel still evokes the aforementioned characteristics of integrity as defined by the National Register. Notably, MACKINAW for over 60 years has known no other waters than the Great Lakes and outwardly is the original design to which the vessel was specified.

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. The USCG determined that the decommissioning of the MACKINAW would result in an adverse effect to the vessel as defined in 36 CFR 800.5(a)(1) and (2) (Appendix A). The proposed USCG decommissioning and excessing of MACKINAW could result in the transfer of ownership outside the Federal government through Coast Guard direct transfer authority under 14 U.S.C. 641, or legislative or Presidential mandate. Appendix A outlines potential adverse effects to the MACKINAW upon decommissioning that are considered reasonably foreseeable and/or cumulative.

Appendix A

Pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966 the USCG must consider whether their actions may affect properties meeting the criteria of eligibility for listing to the National Register of Historic Places (NRHP). If the USCG undertaking is the type which could affect historic properties if they were present, the USCG must consult with the appropriate State Historic Preservation Officer(s) (SHPO), the Advisory Council on Historic Preservation (ACHP), as appropriate, and local interested parties to identify the potentially effected property, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties (36 CFR 800.1(a)). Examples of defined adverse effects per 36 CFR 800, 36 CFR 60, 36 CFR 65 that could occur if the MACKINAW is decommissioned and declared excess include, but are not limited to:

(i) Physical destruction of or damage to all or part of the property.

Upon reporting the MACKINAW excess to the needs of the Coast Guard, other federal agencies are afforded the opportunity to assume the vessel through GSA. Should no other federal agency stake claim to the vessel, GSA determines if a state agency customer is interested in obtaining the vessel. The vessel must be “PCB-free” prior to donation to a state agency. If the vessel contains PCBs or if no state agency expresses interest in obtaining the vessel it may be transferred, or sold or scrapped. If the decommissioning/excessing process results in sale or scrapping, there would be complete destruction or possible damage to the property. If the decommissioning/excessing process results in donation to a state, it is possible that destruction or damage could occur under programs such as artificial reefing. Should the undertaking result in donation to a state for the use as a museum, a certain amount of repair, accessibility construction or other work could result in damage to the vessel.

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines.

Should no other federal agency stake claim to the vessel, GSA determines if a state agency customer is interested in obtaining the vessel. If the vessel is transferred to a state or agency/group or individual identified by the donee state, federal regulation no longer applies and the USCG assumes no assurance that any alterations would be performed according to the Secretary’s Standards for the Treatment of Historic Properties.

(iii) Removal of the property from its historic location.

The removal of the MACKINAW from the Great Lakes would result in an adverse effect and may impact the vessel’s historic value. The MACKINAW’s entire life of service is within the Great Lakes. The vessel was designed expressly for ice breaking missions in the Great Lakes. The ultimate final location of the vessel upon its eventual disposal may

also adversely affect the physical integrity since the vessel is freshwater faring and has never operated in saltwater. Under the options for decommissioning and excessing, the only reason to remove the vessel from the Great Lakes region is for storage, scrap or transfer. This scenario could result in damage, vandalism, or destruction for scrap.

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance.

The vessel's physical features may be altered as a result of the proposed decommissioning. The vessel may be stored after decommissioning and prior to disposal and could be painted over, retrofitted to suit another agency, scavenged for parts including parts that may play a role in defining the historic character of the vessels, such as the bell, vandalized and/or allowed to deteriorate.

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features.

An adverse effect could occur should the vessel be placed in a location incongruous with its historic elements.

(vi) Neglect of a property, which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization.

Should the MACKINAW be transferred to temporary storage, it is possible that the vessel could be neglected and/ or vandalized, causing damage to its historic integrity. Under the options for decommissioning and excessing the vessel, the USCG cannot be assured that such an adverse effect would not occur.

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

The USCG has very limited decision-making authority regarding the ultimate disposition of a clean (PCB-free) operable vessel or clean (PCB-free) inoperable vessel through GSA's legally required personal property disposal process. The USCG also may not have the authority or ability to propose or implement restrictions for long term preservation of personal property such as MACKINAW. It is not possible for the USCG to stipulate restrictions on a bill of sale for personal property that would be in effect for perpetuity. Therefore, the USCG cannot be sure that the ultimate outcome of that process would not be destruction of the vessel or transfer outside of Federal ownership.