

"OPERATION TACONITE"

OVERVIEW

The Coast Guard is responsible for conducting icebreaking operations to assist commercial vessel traffic in the connecting waterways of the United States. These include the connecting waters of the Great Lakes.

Great Lakes icebreaking consists of two task group organizations: Coal Shovel (Sector Detroit) Taconite (Sector Sault Sainte Marie). The groups are named for the principal products supported by the region – coal and taconite respectively.

Operation Taconite is the largest of these operations and is the largest domestic icebreaking operation in the U.S. Shipping offers the only effective means of transporting the vast amounts of iron ore from the mines at the Head of the Lakes needed to meet the demands of steel mills in Lake Erie and Lake Michigan. Operation Taconite is primarily responsible for ensuring the successful transport of this cargo amid the harsh winter conditions of the northern Great Lakes.

The Coast Guard provides icebreaking assistance in U.S. waters where commercial icebreaking resources are either unavailable or incapable of handling the difficult ice conditions. Under CAN/US agreement, Operation Taconite may also provide icebreaking in Canadian waters such as Georgian Bay or the port of Thunder Bay, Ontario. Critical waterways in Operation Taconite's area of responsibility include the Straits of Mackinac, Whitefish Bay, and the St. Marys River. Extreme weather conditions (cold, snow, and fog), narrow channels, relatively shallow waters, the Locks, and the large number of vessels transiting the St. Marys River make it a particularly challenging icebreaking environment.

Sector Sault Sainte Marie usually has two icebreaking resources under their operational control: the 140' icebreaking tugs (WTGB's) CGC KATMAI BAY and CGC BISCAYNE BAY. However, ice conditions frequently require the marshalling of additional assets. As other Coast Guard resources (e.g., CGC MACKINAW, CGCs ALDER, HOLLYHOCK, and CGC MOBILE BAY along with other WTGB's) become necessary, Sector Sault requests them from Coast Guard Sector Detroit or the District Office (dpw-2) in Cleveland. We may also request Canadian icebreaker assistance through the Canadian Coast Guard. Along with the Canadian Coast Guard, key external relationships include the Army Corps of Engineers at the Sault Locks (for matters concerning vessel traffic management and river channel maintenance), and the large international consortium of Great Lakes ship operators (generally represented by the Lake Carriers' Association and the Canadian Ship-owners Association).

Sector Sault (VTS SMR) staff responsibilities:

- Administer overall coordination of the operation, including cutter scheduling, movement between areas, liaison with other Sectors, Ninth District, the Locks, the Canadian Coast Guard, and representatives of the maritime industry.
- Coordinate collection & dissemination of information from shipping companies to provide accurate ETA information to icebreakers.

- Coordinate all logistics needs of participating cutters -- including fuel, berthing arrangements, personnel needs, etc.
- Coordinate ice survey flights by AIRSTA Traverse City helos.

We conduct three general types of icebreaking assistance to facilitate commerce:

- 1) Track Maintenance - Creating and grooming a track via which vessels can transit an area.
- 2) Escort/Convoy - Escorting vessel(s) which lack sufficient power to transit an area of ice unassisted.
- 3) Direct Assistance - Directly assisting a vessel that has become beset in the ice.

Different conditions dictate different approaches. Ice conditions vary from season to season and situation to situation; the key to successful icebreaking operations is FLEXIBILITY. Another type of icebreaking activity, "flood relief," may be conducted to combat ice "dams" in rivers. However, Operation Taconite cutters are rarely employed in flood relief, because ice dams do not typically pose a serious problem in this area.

Operation Taconite consists of three phases:

- 1) "End of the navigation season" – Once ice begins to hinder navigation until the majority of commercial vessels lay up
- 2) "Closed Season" - Winter lay up until 10 March
- 3) "Spring Breakout" - 10 March until ice no longer poses a hindrance to navigation.

OPERATIONS PRIOR TO LOCKS CLOSURE:

The Locks are closed after no further transits are scheduled for the season, but no later than midnight on the 15th of January. Significant ice (enough to impede navigation) can come as early as the beginning of December and as late as the middle of January. Ice normally forms first in Duluth harbor and the St. Marys River, later in the Straits of Mackinac and Whitefish Bay. Initial icebreaking efforts typically consist primarily of track maintenance in the heavier ice areas, paying special attention to turns in the river. We can usually handle the first couple of weeks of significant ice with Sector Sault resources - KATMAI BAY and BISCAYNE BAY with ALDER keeping Duluth Harbor open.

OPERATIONS DURING THE CLOSED SEASON (LOCKS CLOSED):

Primary area of operations: Straits of Mackinac. Traffic consists of tanker vessels carrying fuel oil and tug/barge traffic carrying petroleum products. Ice conditions in the Straits of Mackinac are extremely weather-dependent. The ice tends to go wherever the wind blows. Strong winds pile-up the ice, creating areas of thick ice and "pressure ridges" which can have "sails" and "keels" measuring several feet (4-6 feet is common). Due to these volatile conditions, it is imperative that we keep track of scheduled vessel transits. Prior to all known transits we conduct track maintenance through the Straits of Mackinac out to Lansing Shoal. Additionally, when cutters are not actually breaking ice, they remain in a standby status -- ready for quick response. Two 140' WTGB's or CGC Mackinaw are kept on standby at all times. Due to the environmental threat posed by the cargos of many of the transiting commercial vessels and the potential for extremely hazardous ice/wind conditions in the vicinity of the Straits, this is a potentially very dangerous portion of our icebreaking operations. In the past we have used Captain of the Port authority to restrict vessel transits through this area due to extreme ice/wind conditions. Secondary area of operations: St. Mary's River. Several times during the period when the locks are closed, we provide direct assistance to tanker vessels transiting upriver to Sault Ste. Marie, Ontario. These vessels provide the fuel oil for the town during the winter. Closed areas: Once significant ice has formed and after the locks close, Captain of the Port Sault Ste. Marie closes five areas to navigation due to dangerous conditions and/or to aid in the formation of ice bridges: Grays's Reef Passage, South Channel, the waters between Mackinac Island and St. Ignace, Pipe Island North and East Channels and the West Neebish Channel.

SPRING BREAKOUT:

Based upon the current MOA the Soo Locks open on 25 March. Due to the significant area of icebreaking responsibility (all four critical waterways typically require dedicated icebreaker support), this is our busiest time of the icebreaking season. We typically employ at least five cutters during Spring Breakout: 1-2 WTGB's in the Straits of Mackinac, 1-2 WTGB's in the Lower St. Mary's River (below the locks) CGC Mackinaw in the Upper St. Mary's River and Whitefish Bay. Additionally, Canadian icebreaker assistance is common during this phase. Although they do not work directly "for" Operation Taconite, routine communication with the Canadian Operations Center ensures the effective coordination of operations and logistics. Approximately 10 days prior to the opening, the Coast Guard prepares the tracks in the St. Mary's River. 2-4 days prior to opening, CGC MACKINAW locks through to the upper St. Mary's River and Whitefish Bay/Lake Superior to prepare tracks. Anticipating the first harbor transits of the season, CGC ALDER also begins breaking out Duluth/Superior harbor before the locks open. Soon after the Locks open (prior to the first downbound transit) we break open West Neebish Channel. This breaks the ice bridge between Neebish Island and the mainland thus requiring the islanders to use a ferry. It is necessary to break the ice bridge because the West Neebish Channel is safer for downbound transits of heavily laden vessels and has a greater navigable depth allowing more cargo to be carried. Ice conditions in the St. Mary's River and Whitefish Bay vary widely. In Whitefish Bay it is not uncommon to have ice 5 feet thick while at the same time in several places on the river there is open water due to the current. An important aspect of spring icebreaking operations is "ice management." We try to influence the flow of ice to facilitate navigation. In some areas, it is beneficial to maintain "ice dams" to hold back ice flow. In other areas such as the lower river, we try to "flush" the ice out into Lake Huron. The success of this type of work is highly dependent on wind and current conditions, However as the weather warms up, the ice begins to deteriorate. This presents potentially dangerous situations in Whitefish Bay and the Straits of Mackinac. When the wind picks up, large plates of ice (sometimes miles across) can break off and start moving. These plates are dangerous both to commercial shipping and icebreakers. If a vessel becomes beset in a moving plate, we may have very little time to free the vessel before the plate takes the vessel aground. Weather and winds have an important influence on the success of icebreaking efforts and determine how long the icebreaking season lasts. As the ice diminishes, we begin releasing icebreakers. When the ice no longer poses a threat to navigation, Operation Taconite is secured.