



Open Water Disposal of Dredged Materials in the Great Lakes-St. Lawrence River Basin

Introduction

Dredging to maintain safe navigation depths for the Great Lakes commercial and recreational harbors is crucial to a variety of industries within the Great Lakes regional economy including commercial shipping, commercial fishing, charter fishing and recreational boating as well as broader range of coastal and water-based recreation and tourism. The placement of dredged materials has been a contentious issue in the region. Many stakeholders have grappled with selecting a disposal method for dredged materials that is the most cost-effective, yet impacts the environment the least. The U.S. Army Corps of Engineers (USACE), which is responsible for dredging in the Great Lakes, attempts to balance cost with environmental and engineering considerations under a policy known as the “federal standard”. Dredged materials have been disposed in the open lake, placed into confined disposal facilities, or applied beneficially, primarily for beach nourishment.

On average, approximately 4 million cubic yards of sediment is dredged annually from the Great Lakes. About half of the material removed each year is considered polluted or otherwise not suitable for open water disposal and placed in confined disposal facilities (CDFs). An estimated 32 percent of the material removed each year is disposed in the open lake; 12 percent are used in beach nourishment projects; and the balance is used in other beneficial use projects, such as habitat creation, enhancement and mineland reclamation.

Frequency of Management Options in the Great Lakes Region
50% CDF
32% Open Lake
12% Beach Nourishment
6% Other Beneficial Use

The amount of material required to be dredged from the Great Lakes has maintained relatively constant over time while placement options have been under increasing scrutiny by state officials, local citizens and environmental groups. CDF capacity is diminishing and building new CDFs or expanding existing ones is costly and increasingly difficult. Some CDFs have been filled to capacity and are no longer being used, and all but two of the 26 CDFs built under Public Law 92-611 will be full or at design capacity by 2006. The USACE “Federal Standard” requires that the additional costs associated with alternatives, such as sediment processing, or transportation to a beneficial use or alternative disposal site be borne by a non-federal entity (“local sponsor”). Most states, local governments and port authorities - the likely local sponsors - have not been able to come up with funds to cover these additional costs.

Due to environmental concerns, open water disposal is not favored among several of the states in the region. Two states, Minnesota and Wisconsin, restrict or prohibit open water disposal under state law. Minnesota limits the open water disposal of dredged materials to

projects that result in an improvement of natural conditions such as habitat enhancement and creation [Part 6115.02000, Excavation of Protected Waters, Subpart 5, Item B(2)(d)]. Wisconsin law (§ 30.12(1) Wisconsin Statutes) generally prohibits the deposition of dredged materials on the floor of a navigable waterway. Open water disposal projects, including those of beneficial use, must be authorized by an exception to the rule. Ohio state officials maintain that open water disposal into shallow Lake Erie impacts its ecology. Although Ohio does not prohibit open water disposal by law, the Director of Ohio Environmental Protection Agency has sent USACE numerous letters urging that open water disposal be phased out. Both governors of Ohio and Michigan have stated their opposition to open water disposal in public speeches. As the Great Lakes region faces the growing dilemma of where to place dredged materials, finding ways to cover the additional costs and removing regulatory barriers to beneficial use is becoming imperative.

Changing Open Water Disposal Policy for Western Lake Erie

The U.S. Army Corps of Engineers (USACE) routinely removes 720,000 cubic yards of sediment from Toledo Harbor each year. In the early 90s, the USACE Buffalo District determined that sediments dredged lake-ward from Lake Mile 5 near Toledo Harbor were suitable for open water placement based on Federal Standard guidelines. A Long Term Management Strategy was developed, but never implemented. The Ohio EPA maintains that the open water placement negatively impacts lake ecology by its sheer volume, making the water cloudier and redistributing pollutants. In response to these concerns, the agency sent numerous letters to USACE urging open water placement of dredged materials to be phased out. In 2004, the Ohio EPA refused to issue a 401 water quality certification to the Buffalo District on these grounds. The Ohio EPA didn't prohibit open water placement altogether, but instead set up a five year schedule to phase out open water placement and increase upland placement and beneficial use. The alternative placement sites and beneficial use options were not identified nor who would cover the additional costs. Given that Toledo Harbor is the largest dredging project on the Great Lakes and one of the nation's top 25 ports, the decision caused waves of concern and confusion about the future of the harbor and the dredging project. The Buffalo District appealed the decision to the state's Environmental Review Appeals Commission and a negotiated settlement was made in July 2005. The settlement includes the development of habitat restoration units; open lake placement of 600,000 cubic yards of sediment per year for 2005 and 2007; assessment studies on water quality impacts of dredging activities; and environmental window restrictions for dredging.

Minnesota

In Minnesota, open water disposal projects must comply with the rules of the Minnesota Department of Natural Resources (DNR) under the Lake Superior Coastal Program that guide decisions on in-water projects that result in filling or excavation activities that occur below the Ordinary High Water Level(OHWL) for waterways. Minnesota does not use the OHWL as established by USACE. Rather, the state uses its own definition as described in Minnesota Statutes, section 103G.005 subdivision 14 which states the delineation of the OHWL to be the highest water level maintained for sufficient period of time to leave evidence upon the landscape, commonly the point where the vegetation changes from aquatic to terrestrial. Minnesota limits the open water disposal of dredged

materials to projects that result in an improvement of natural conditions such as habitat enhancement and creation.

The state’s involvement with the USACE Dredged Material Management Plan for the Duluth Superior Harbor illustrates its policy on open water disposal. The final 1998 DMMP which identifies dredged materials management options for the harbor for the next 20 years, contains a combination of three management methods: beach nourishment, continued use of the Erie pier confined disposal facility, including removal of clean material from the CDF for beneficial uses, and placing dredged material in the five deep holes within the harbor. Minnesota does not prefer the use of deep holes since the method is inconsistent with its policies and authorities. Rather, the state prefers that the material be used to create or enhance habitat at the 21st Avenue West and Hearing Island sites in the project area. Because the method of habitat enhancement or creation is not the least costly as prescribed under the “federal standard”, USACE requires additional costs to be paid by the project’s non-federal sponsor.

Wisconsin

Wisconsin DNR regulates dredged material management and disposal. While open water disposal of dredged materials in Wisconsin waters is restricted, there are administrative and legislative means (e.g., issuing permits for bulkhead lines or sandblankets, issuing submerged land leases, or passing direct legislation) to circumvent this restriction. These means are outlined in the Wisconsin Department of Natural Resources’ *Waterway and Wetland Handbook*, 1984 (last updated in February 2004). The handbook provides guidance in evaluating dredged material disposal options: on-land placement, confined disposal facilities, industrial port development and marina construction, beach nourishment, island and wetland creation, filling deep holes, and deep water dumping.

A sand blanket, a layer of sand or gravel placed in a lake for recreational use, is permitted through the Wisconsin DNR’s Bureau of Fisheries and Habitat Protection. A bulkhead line is a shoreline demarcation legislatively established by a municipality and approved by Wisconsin DNR. The bulkhead line gives the municipality the authority to govern activities landward of that line .Placing fill behind (i.e., landward) of the bulkhead line requires a submerged land lease from the Board of Commissioners of Public Lands. All review and administrative processes for establishment of a bulkhead line and for obtaining a submerged lands lease are handled by the Wisconsin DNR, Division of Waters, Bureau of Fisheries and Habitat Protection.

Below is a table of the types of in-water disposal options and the related DNR guidelines. The first three options are considered by the state to be beneficial use. The remaining two are solely open water disposal.

Wisconsin Policies for In-Water Disposal	
In-water Disposal Options	DNR Guidelines
Island Creation (beneficial use)	Not an authorized activity by state statute. In limited circumstances, the combination of bulkhead line and submerged land lease would appear to have the flexibility to authorize island creation without requiring additional legislation.

Wisconsin Policies for In-Water Disposal	
In-water Disposal Options	DNR Guidelines
Beach Nourishment (beneficial use)	Beach nourishment may be approvable pursuant to the following strict criteria by using bulkhead line alone or a combination of bulkhead line and submerged land lease.
Wetlands Creation (beneficial use)	The creation of wetland areas along or immediately adjacent to the existing shoreline could possibly be authorized by use of a bulkhead line with or without an accompanying submerged lands lease. The feasibility of creating such a wetland and the need for that type of wetland habitat in the area would be key factors in judging whether authorization should be granted.
Deep Hole Filling (disposal)	Filling of deep holes could only be allowed by direct authorization. The rare exception would be where a hole is close enough to the shoreline that a bulkhead line could conceivably be used to allow the filling to take place. Deep hole filling is preferable to deep water dumping
Deep Water Dumping (disposal)	Direct legislative authorization would be necessary for such a disposal practice to occur. In order for DNR not to oppose the legislation, it would have to demonstrate that it was the only reasonable alternative available. It is to be viewed as a last resort.

It is interesting to note that the two open-water disposal methods require direct legislative authorization to be permitted. The handbook guidelines direct the DNR to allow deep water dumping only as a last resort.

Michigan

On January 21, 2004, Michigan’s governor released Executive Directive No. 2004-1 to prohibit state agencies from issuing permits of the open water disposal of contaminated dredged material. This directive proposes to amend Section 31 of the state’s Natural Resources and Environment Act, which currently requires a permit for open water disposal. A cacophony ensued among those in the dredging community who saw this as another sign of increasing restriction on open water disposal. In fact, like all other Great Lakes states, Michigan has always prohibited the disposal of *contaminated* dredged material in the open waters of the Great Lakes. Indeed, all other states restrict open water disposal that does not meet their state water quality standards.

Michigan is the only Great Lake state to which the authority to issue dredge and fill permits has been delegated under §404 of the Clean Water Act. The Department of Environmental Quality (DEQ), Water Quality Division administers that authority through review and approval (or denial) of open and in-water dredged material disposal proposals. As specified in a dredging permit, suspended solids monitoring may be required during discharge of dredged material. Limits that are allowed depend upon the receiving waters.

The state indicates a preference for beneficial use, including beach nourishment, over disposal. This preference is implemented through the permit review process by encouraging the USACE or local sponsors to use a beneficial option. To date, the state has not passed any regulations or laws requiring beneficial use of dredged material.

State	Permits Open Water Disposal	Conditions

IL	Yes	Must comply with state water quality standards; negative impacts are to be mitigated.
IN	Yes	Must comply with state water quality standards; contaminated sediments are prohibited.
MI	Yes	Must comply with state water quality standards; contaminated sediments are prohibited.
MN	No	Only beneficial use projects that result in an improvement of natural conditions such as habitat enhancement and creation are permitted.
NY	Yes	Must follow state management guidelines for sediments classified under specific material categories.
OH	Yes	Must comply with state water quality standards; state wants to gradually phase-out open water disposal.
PA	Yes	Must comply with state water quality standards.
WI	No	Open water disposal is a last resort; direct legislative authority is needed.

Conclusions

Two of the 8 Great Lakes states prohibit open water disposal of dredged materials; 2 more are moving toward restricting open water disposal further. This situation raises the question of what other management options are available to replace open water disposal.

Future sediment management in the Great Lakes region will require federal, state and local agencies to explore more seriously beneficial uses and remove regulatory barriers to those uses. Opportunities including habitat creation and enhancement, land reclamation and rehabilitation and commercial markets need to be identified and inventoried, which will require an enhanced state and local role. The removal of federal and state regulatory barriers will allow such projects to be more timely and cost-effective. Importantly, more work is needed to secure funding streams for beneficial use options, particularly where costs exceed the federal standard.

Communication and cooperation will be critical to mend the current regulatory framework which sets up an adversarial federal/state relationship when a federal standard determination does not meet state water quality criteria. State and federal agencies need to synchronize their protocols and data used to make determinations about compliance with the same Clean Water Act provisions. A process is needed to make this happen and prevent relevant parties from opting out of dredging if there are conflicts regarding water quality compliance determinations. A process is also needed that requires the parties involved to develop and implement alternative management options when the least costly alternative is not feasible from environmental or engineering standpoints.

Note: This case study was prepared during the summer of 2005.

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