Dredging Basics

By Carol Shobrook

The benefits of dredging can extend beyond getting boats in and out of marinas at low tide or allowing access for larger vessels. In many cases, the removal of debris and the relocation of sediment generates a boost to aquatic life, recreation, and even local commerce. More and more often, non-contaminated dredged material is being viewed as a natural resource or asset that can used to restore wetlands or recycled for use on land, where much of it originates. While dredging projects range from simple to complex, preparing for them usually takes longer than anticipated, so jump in and start planning early.

For a private marina or homeowners association, planning a dredging project for the first time can be a little daunting. Where to begin? What does dredging involve? Dredging is the removal of sediment from the bottom of a waterway, such as a river, coastal area, or lake, and a dredge is the machinery used to accomplish this type of underwater construction activity. Marinas and ports often conduct new or maintenance dredging to deepen or maintain depth for navigation. A major storm event or more gradual silting in of channels and slips may lead to the decision to dredge.

Selection of dredging equipment depends on many factors, such as the site location, type of the sediment, and final disposition of the dredged material. Some examples include portable hydraulic dredges and clamshell or environmental buckets attached to a crane or excavator.

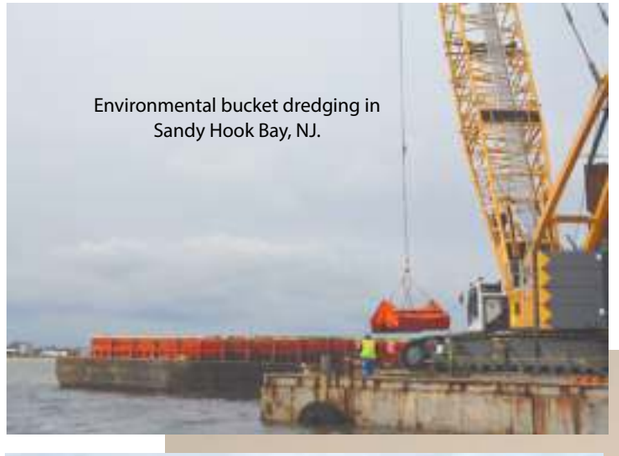
Some basic steps for accomplishing your dredging project include planning, design, permitting, operation, and future maintenance. During planning, an experienced marine consulting engineer or contractor can assist, starting with arranging a hydrographic survey to determine how much sediment, or volume, lies in the dredge area. Since dredging contractors are usually paid based on the quantity in cubic yards of sediment they remove, understanding how much you want to take out is important for establishing a budget. The survey will also guide the design engineer in preparing a drawing for the project that shows details such as the exact dredge area and existing depths.

Dredging activity requires a permit and must follow state and federal regulations. The project owner or their consultant prepares and submits permit applications to the State environmental agency, such as the NY DEC, and the US Army Corps of Engineers. Before submitting a permit application, it helps to know more about the nature of your sediment and where it will go after it is removed from the waterway.

Determining where the dredged material will go typically requires characterizing the sediment through sampling and testing in a lab. Contaminated sediment will have restrictions on handling and placement. Non-contaminated sediment may be suitable for beneficial re-use elsewhere, such as wetland restoration, site reclamation, and topsoil for agriculture. Sand, if present in large enough quantities, often can be applied for beach re-nourishment or mixed back in with dewatered sediment for other uses. Entire islands have been created with dredged material, providing habitat for wildlife and even refuges for endangered birds.

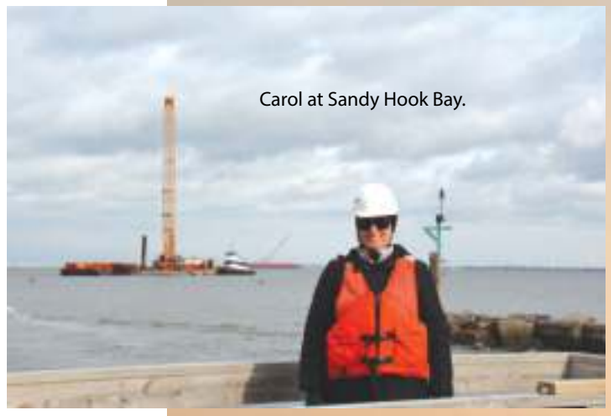
Once the permit is issued, the owner can schedule the dredging operation. Due to protected sturgeon habitat in the Hudson, the permit may restrict the time of year that dredging is allowedor require placement of a turbidity curtain around the dredge area. . Many owners outsource the dredging and request a quote from dredge contractors for the entire scope of work, including mobilization and demobilization of equipment, dredging, dewatering of sediment, and final placement of dredged material. Pre- and post-dredge hydrographic surveys typically are used to confirm if the amount of sediment removed meets the project requirements. The frequency of future maintenance dredging varies from site to site. A small marina, for example, might dredge once every ten years.

These are just some of the basic steps to think about when embarking on a dredging project. The results are well worth the endeavor, bringing clarity, depth, and vitality back to your marina and aquatic environment.



Environmental bucket dredging in Sandy Hook Bay, NJ.

Carol Shobrook is Director of Business Development at JT Cleary, a dredging and marine contractor. *visit:* jtcleary.com



Carol at Sandy Hook Bay.

Clearing channel of debris, Port Morris, NY